

HOW DO BANK REGULATORS DETERMINE CAPITAL ADEQUACY REQUIREMENTS?

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Abstract. Minimum capital regulations play a central role in banking regulation. Regulators require banks to maintain capital above a certain level in order to correct incentives to make excessively risky loans and investments. However, it has never been clear how regulators determine how high or low the minimum capital-asset ratio should be. An examination of U.S. regulators' justifications for five regulations issued over more than 30 years reveals that regulators have never performed (or at least disclosed) a serious economic analysis that would justify the levels that they chose. Instead, regulators appear to have followed a practice of what I call "norming"—incremental change designed to weed out a handful of outlier banks. This approach resulted in a significant regulatory failure because it could not have given, and did not give, banks an adequate incentive to increase capital. The failure of banking regulators to use cost-benefit analysis in order to determine capital requirements may therefore have contributed to the financial crisis of 2007-2008.

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INTRODUCTION

One of the central concepts in banking regulation is capital adequacy. Capital adequacy refers to the extent to which the assets of a bank exceed its liabilities, and is thus a measure of the ability of the bank to withstand a financial loss. Bank regulators care about capital adequacy because their mandate is to prevent bank panics and contagions. A bank with a high ratio of capital to assets will, all else equal, be better able to withstand a sudden loss than a bank with a low capital-asset ratio. As a result, such a bank is less likely to be thrown into insolvency or subject to a run.

Financial regulators have always focused on capital adequacy, but regulations have evolved considerably over the years. From World War II until the early 1980s, regulators treated capital adequacy as just one factor in their evaluations of the overall health of a bank. They did not formulate specific capital adequacy rules—such as minimum ratios—and different regulators used different definitions of capital adequacy. In response to problems in the banking system in the 1970s, regulators began to think about capital adequacy more carefully. This led to four related developments. First, regulators developed specific capital-adequacy rules to replace the vague standards under which capital adequacy was treated as just one factor among many. Second, regulators developed more specific definitions of capital adequacy. Third, over time regulators adopted increasingly strict minimum capital-asset ratios. Fourth, the different bank regulators began to coordinate their approaches to regulating capital.

These developments were related. Rules were used to spur banks to raise capital, but the process of drafting rules required regulators to think carefully about how to treat different types of assets and liabilities for the purpose of determining capital-asset requirements. And as regulators moved from vague standards to bright-line rules, inconsistencies between their approaches became too obvious to ignore. Because banks can, within limits, move from one regulator to another by rechartering, regulators face pressure to act consistently.¹

¹ See Jonathan R. Macey, Regulatory Competition in the US Federal System: Banking and Financial Services, in *Regulatory Competition and Economic Integration: Comparative Perspectives*, at 95 (Daniel C. Esty & Damien Geradin eds., 2001) (describing banks' options among different regulators).

A further consequence of the move to rule-based regulation is that it became necessary for regulators to provide public justifications for the rules that they adopted. As we will see, most of these justifications were terse, opaque, and laden with boilerplate. As a result, the reasoning behind those rules was unclear. The only clear idea that emerges from an examination of the regulatory documents is that the regulators believed that the regulations would affect very few banks, on the order of 5 percent or fewer. Thus, a major theme that emerges is that regulators defended their regulations in part on the grounds that those regulations did not inflict costs on most banks.

While most regulatory agencies in the executive branch are required to issue cost-benefit analyses along with regulations, the bank regulators rarely did so, and the cost-benefit analyses that they did issue were badly executed.² Only in 2011 was a high-quality cost-benefit analysis prepared—by an international organization, not by U.S. regulators—and it showed that capital requirements should have been much higher than they ever were. Most economists appear to share this view, and many commentators have blamed the financial crisis of 2007-2008 on inadequate capitalization of banks. Accordingly, the history of capital adequacy regulation raises an interesting possibility—that if bank regulators had used cost-benefit analysis from the start, the 2007-2008 financial crisis would have not taken place or (more likely) been less severe.

If bank regulators did not engage in cost-benefit analysis, what decision-procedure did they use to formulate capital adequacy requirements? I will argue that the best theory for the regulators' choices is what I will call "norming." Norming, as I use the term, means choosing a regulatory standard that permits the mean or modal behavior of regulated entities, and only rules out outliers at the low end. As a consequence, norming imposes zero costs on most banks and requires a change of behavior only in the weakest banks, which must either raise capital or go out of business.

After describing the process of norming in bank regulation, I discuss why it might have been an attractive approach for bank regulators. Norming is a restrained style of regulation that causes no harm to most regulated entities and thus minimizes political

² See discussion in Part II, *infra*.

opposition to the regulation. Indeed, norming may benefit most regulated entities by eliminating competitors. For just this reason, norming is a highly questionable approach to regulation since regulation is supposed to counter externalities and the average regulated entity imposes externalities.

If this is true, then the case for cost-benefit analysis of financial regulations is stronger than its critics acknowledge.³ This argument also should help put to rest the claim that cost-benefit analysis is inherently deregulatory, a claim that has frequently been made by critics of cost-benefit analysis, who blame it for undermining environmental, health, and safety regulation.⁴

The plan is as follows. In part I, I provide some background on capital adequacy regulations. They are designed to counter a market failure that is associated with financial intermediation, the major economic function of banks. In part II, I describe the history of those regulations, including the justifications that regulators provided and the effects of those regulations on the behavior of banks. I focus on the major changes to those regulations, which took place in 1981, 1985, 1989, 2007, and 2013. An important theme of this discussion is that regulators believed that the capital regulations before 2013 would not affect most banks, and the evidence suggests that their belief was correct. Although capital-asset ratios gradually rose over the decades, the evidence suggests that they rose in response to market forces rather than to the regulations.⁵ In part III, I discuss more broadly the advantages and disadvantages of norming as a

³ See John C. Coates, IV, *Cost-Benefit Analysis of Financial Regulation: Case Studies and Implications*, Yale L.J. (forthcoming) (criticizing cost-benefit analysis of financial regulations); Jeffrey N. Gordon, *The Empty Call for Cost-Benefit Analysis*, *J. Legal Stud.* (forthcoming) (same). For defenses of cost-benefit analysis of financial regulation, see Eric Posner & E. Glen Weyl, *Benefit-Cost Analysis for Financial Regulation*, 103 *Amer. Econ. Rev. Pap. & Proc.* 393 (2013) (defending cost-benefit analysis of financial regulation); Eric A. Posner & E. Glen Weyl, *Benefit-Cost Paradigms in Financial Regulation*, *J. Legal Stud.* (forthcoming, 2014) (same); Eric A. Posner & E. Glen Weyl, *Cost-Benefit Analysis of Financial Regulations: A Response to Criticisms*, Yale L.J. F. (forthcoming, 2014) (responding to Coates and Gordon).

⁴ See, e.g., Frank Ackerman & Lisa Heinzerling, *Priceless: On Knowing the Price of Everything and the Value Of Nothing* (2005); Thomas McGarrity, *Freedom to Harm: The Lasting Legacy of the Laissez Faire Revival* (2013).

⁵ See, e.g., Franklin Allen, Elena Carletti, & Robert Marquez, *Credit Market Competition and Capital Regulation*, 24 *Rev. Fin. Stud.* 873 (2011) (explaining that banks may raise capital in order to reduce the cost of debt when creditors worry that the banks are too risky).

strategy for regulating the financial industry. Norming can in theory be given a policy justification, but a better explanation is that it is an excuse for regulatory failure in the face of entrenched industry opposition.

I. CAPITAL ADEQUACY REGULATIONS: THEIR PURPOSE AND STRUCTURE

The theory of bank regulation is based on the risks that banks pose to the economy. Banks are financial intermediaries characterized by a liquidity mismatch between the asset and liability side of the balance sheet. On the asset side, banks usually hold a large number of long-term, customized loans. If the bank must quickly raise capital, it can sell these loans, but because the loans are illiquid, the bank will have to sell them at a deep discount from their face value.⁶ Consider a \$100,000 five-year loan to an automaker, or a \$200,000 30-year mortgage to a homeowner. These loans are unique products. The market value of the loans—the price that a third party will pay for them—is a function of many variables, including the probability that the loan will be paid in full, and the value of underlying assets in case it is not. The probability that the automaker will pay its loan depends on all kinds of factors—how good management is, for example. The probability that the mortgage will be paid depends on the income, honesty, and competence of the borrower, plus the value of the house at the time of default if default strikes. The bank possesses inside information about these factors that is not accessible to potential buyers. The buyers will need to satisfy themselves by investigating the loans, but that takes time, so if the bank needs to sell the loan quickly, it can do so only at a discount.

On the liability side, banks typically hold a large amount of highly liquid debt—above all, demand deposits (checking accounts). Customers lend money to the bank by depositing cash or checks or other financial instruments with it, and have the right to withdraw any or all of their money at any time without notice. Normally, customers withdraw money at about the same rate that they deposit it, so the pool of liquid liability remains constant. That means the bank can safely lend it out in the form of illiquid loans. But from time to time, customers may withdraw their money en masse. They may do so because of a severe economic downturn, rumors about the

⁶ See Rustom Irani et al., *Loan Sales and Bank Liquidity Risk Management: Evidence from the Shared National Credit Program* 38 (unpub. m.s. 2014).

bank's solvency, or other random factors. This is called a run. If a run starts, the bank has few choices. It can sell off assets at a discount, but risk insolvency. It may be able to borrow from another bank long enough to reassure customers. But there is a good chance that the bank will fail.

A bank failure by itself is not necessarily a problem that calls for government intervention. In principle, depositors and other creditors will be compensated for the risk of bank failure in the form of interest and other consideration.⁷ Bank failure is a problem for the government because of the risk of contagion.⁸ Banks lend money to each other, so if one bank fails, other banks may fail as well. If many banks fail, then businesses that depend on credit (as most do) will have trouble obtaining credit, and many of those businesses will fail, throwing employees out of work. While in principle investors could create new banks to replace the old ones, or surviving banks could expand their lending in order to compensate for bank failures, the collapse of existing banks results in destruction of non-recoverable value because information about borrowers is lost, and relationships are destroyed.⁹ Consumers will also not be able to borrow in order to finance the purchase of houses, cars, and other items, and this will further exacerbate the economic downturn. Moreover, banks play a vital role in the payments system, so that widespread bank collapse would interfere with the transmission of money from one person to another. Financial crises in this way can cause general economic collapse.

Bank failures occur in many ways, and not just through the classic run by depositors. During the financial crisis of 2007-2008, the major type of asset that caused problems was not the customized loan but collateralized debt obligations (CDOs). While CDOs were designed to be tradable and hence liquid, problems arose because of their immense complexity. Their value was tied to thousands of underlying mortgages. When housing prices started to decline, investors discovered that their assumptions about the value of the underlying mortgages, and hence about the value of CDOs, were incorrect, and so they could no longer determine the value of the

⁷ This statement does not apply to depositors who receive insurance, an issue to which I will return shortly.

⁸ See Douglas W. Diamond & Philip H. Dybvig, *Bank Runs, Deposit Insurance, and Liquidity*, 91 *J. Pol. Econ.* 401, 415 (1983).

⁹ See Ben S. Bernanke, *Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression*, 73 *Amer. Econ. Rev.* 257 (1983).

CDOs. Banks could thus not sell their CDOs in order to raise cash except at huge discounts. Meanwhile, many large banks obtained financing through the repo market, where they offered CDOs and other securities as collateral for short-term (one- or two-day) loans from pension funds and other large institutions. The lenders stopped accepting CDOs as collateral (or required increasingly large haircuts), and thus the banks could no longer borrow in short-term markets. If forced to sell off CDOs at prevailing panic-driven prices, they would have been driven into insolvency (as some were).¹⁰

To prevent or mitigate financial panics, the government offers two types of insurance. First, FDIC insurance protects depositors up to \$250,000.¹¹ Second, the Fed stands as lender of last resort, and provides loans to any bank (and other types of financial institution) that suffers a run during a financial crisis.¹² Although only FDIC insurance is given the formal name of “insurance,” lender-of-last resort lending is functionally insurance as well. Insurance should discourage depositors from withdrawing money, or other creditors from failing to roll over short-term loans, based on a false rumor or worry about the economy, but it also suppresses creditors’ incentives to monitor banks and ensure that they are safe before lending to them. Thus, insurance of both types give banks an incentive (known as “moral hazard”) to make risky loans and other investments. They enjoy all the upside, while the downside is absorbed at least partly by the government insurance system.¹³

Even if deposit insurance and emergency lending did not create perverse incentives, banks would still have incentives to take excessive risk by maintaining too little capital given their portfolio of assets relative to the social optimum. The reason is that a bank and its creditors (to the extent they are able to engage in adequate monitoring of bank risk-taking) do not take into account the costs of bank failure to other banks in the financial system. If one bank fails, then creditors of another bank may run because they believe that the second bank has made loans to the first bank and will not be able to

¹⁰ See, e.g., Gary B. Gorton, Slapped by the Invisible Hand __ (). Note that many of the institutions caught in this squeeze were investment banks rather than commercial banks.

¹¹ Federal Deposit Insurance Act, 12 U.S.C. § 1821(a)(1)(E).

¹² Federal Reserve Act, 12 U.S.C. § 347a.

¹³ The vast literature on the lender-of-last-resort function of central banks is too large to cite; see, e.g., *Financial Crises, Contagion, and the Lender of Last Resort: A Reader* (Charles Goodhart & Gerhard Illing eds. 2002).

recover them; or fear that whatever caused the first bank to fail (such as adverse economic conditions) will also cause the second bank to fail.¹⁴ If panic spreads and contagion results, a general financial crisis will occur that will harm not only bank shareholders and creditors but people who would benefit from borrowing but no longer can as a result of the loss of liquidity throughout the system.

Bank regulation tries to counter these incentives. Its overall purpose is to ensure that banks operate in a “safe and sound” way. This means that the banks are not permitted to take excessive risks. Regulation takes many forms. The FDIC charges a higher premium to risky banks.¹⁵ The bank regulators also limit the lines of business that banks may enter, the size of loans, and so on.¹⁶ But the focus of all these efforts is the capital-asset ratio. Generally speaking, banks with higher capital-asset ratios are given more freedom to manage their portfolios than other banks. Banks with low capital-asset ratios may be shut down.

To understand the significance of the capital-asset ratio, consider the hypothetical bank balance sheet in Figure 1.

Figure 1: A Hypothetical Bank Balance Sheet

<u>Assets</u>	<u>Liabilities</u>
\$100 in loans	\$95 in demand deposits
	\$5 in common equity

This bank is solvent because its assets are worth more than its liabilities. The capital-asset ratio is 5% ($\$5 / \100), which tells the regulator that if the value of the assets decline by more than 5%, the bank will become insolvent. Thus, the capital-asset ratio is a measure of how robust a bank is against market shocks. Suppose, for example, that interest rates rise, with the result that the value of the bank’s

¹⁴ See Phillippe Aghion et al., Contagious Bank Failures in a Free Banking System, 44 Eur. Econ. Rev. 718 (1999).

¹⁵ See Assessment Pricing Methods, 12 C.F.R. §§ 327.4, 327.9. Most academics believe that the FDIC does not price risk accurately. See, e.g., Viral V. Acharya et al., Systemic Risk and Deposit Insurance Premiums, unpub. m.s. 2009, at 4-6, available at http://pages.stern.nyu.edu/~sternfin/vacharya/public_html/fdic_epr.pdf (describing ways that FDIC insurance falls short of providing banks with optimal incentives).

¹⁶ See, e.g., 12 C.F.R. § 32.1.

loan portfolio falls to \$98. Now the bank has equity of \$3, and its capital-asset ratio is approximately 3% ($\$3 / \98). The regulator would likely demand that the bank raise capital by issuing new shares to investors. If investors pay \$4 for new shares, the bank now has assets of \$102 (\$98 plus \$4 in cash from the investors), equity of \$7 ($\$102 - \95), and a healthy capital-asset ratio of almost 7%.

The major effect of a high level of capital relative to assets is to reduce the incentive to take risks.¹⁷ If a bank has very low equity, its shareholders have little to lose by taking risks. If the risk turns out well, the shareholders make a profit; if it does not, the bank's creditors (and the government) absorbs the loss. By requiring banks to hold more capital, the government puts more of the risk on the shareholders. If investments go sour, the shareholders lose more money.¹⁸

How high capital ratios should be is a complex question. Some scholars believe that they should be very high, as high as 50 percent.¹⁹ Their reasons are derived from the Modigliani-Miller theorem, which provides that the value of a firm is independent of its mix of debt and equity.²⁰ If this theorem is correct, then there is no economic cost from forcing banks to hold equity. Banks hold much more debt than ordinary firms, and the likely explanation is that the debt is implicitly subsidized by the government. However, the Modigliani-Miller theorem is an abstraction—a useful starting point for thinking about capital structure, not a description of the world. Among other things, it assumes (counterfactually) the absence of taxes, zero costs from bankruptcy, and an efficient capital market. In

¹⁷ Higher capital holdings also increase bank performance during a financial crisis and decrease the possibility of bank failure. See Allen N. Berger & Christa H.S. Bouwman, How Does Capital Affect Bank Performance During Financial Crises?, 109 *J. Fin. Econ.* 146, 149-150 (2013).

¹⁸ See, e.g., Anat R. Admati & Martin Hellwig, *The Bankers' New Clothes: What's Wrong with Banking and What to Do about It* 108 (2013), for a lucid exposition; and Anat R. Admati, et al., *Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity Is Not Socially Expensive*, Rock Center for Corporate Governance, Working Paper Series No. 161 (2013), for a shorter and updated version.

¹⁹ See Interview with Eugene Fama, <http://www.newyorker.com/news/john-cassidy/interview-with-eugene-fama> (last visited Aug. 24, 2014); John H. Cochrane, The More Bank Capital, the Safer the Bank, *WALL ST. J.* (July 15, 2011), <http://online.wsj.com/news/articles/SB1000142405270230491104576444482440753132>, (last visited Aug 24, 2014); Admati & Hellwig, *supra* note ____.

²⁰ Franco Modigliani & Merton H. Miller, The Cost of Capital, Corporation Finance and the Theory of Investment, 48 *Am. Econ. Rev.* 261, 268 (1958).

the real world, there may well be costs from raising equity rather than debt.²¹ In addition, people obviously value demand deposits; if banks were required to hold a huge amount of equity, then checking accounts would become scarcer and more expensive.²² The magnitude of these costs is an empirical question.

Nonetheless, many economists have converged on the view that high capital-asset ratios would be socially beneficial.²³ But this raises an additional set of issues regarding how exactly the ratio should be defined. First, not all assets are the same. Some loans are riskier than others. When market conditions decline, risky loans may default while safe loans do not. Regulators want to distinguish banks with risky loans and banks with safe loans because banks with risky loans are more likely to collapse in response to adverse market conditions even if both types of banks have the same capital-asset ratio. Another way to see this is that banks could undermine the effect of a higher capital requirement by selling low-risk assets and replacing them with high-risk assets.²⁴ To prevent banks from doing this, one must adjust the ratio for the quality of the assets. Regulators use a system of risk-weighting, to be discussed below.²⁵

²¹ A standard view is that debt may have value for corporate governance purposes. See generally Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 *J. Fin. Econ.* 305. Another view is that issuing equity can be a negative signal of a firm's financial health. See Myers & Majluf, *Corporate Finance and Investment Decisions When Firms Have Information That Investors Do Not Have*, 13 *J. Fin. Econ.* 187, 208 (1984).

²² See Harry DeAngelo & René Stulz, *Liquid-Claim Production, Risk Management, and Bank Capital Structure: Why High Leverage is Optimal for Banks*, ECGI – Finance Working Paper No. 356 at 36 (May 14, 2014). For discussion and criticism of DeAngelo & Stulz, see Admati et al., *supra* note ___, at 37-40.

²³ See Admati & Hellwig, *supra* note ___; Mathias Dewatripont, et al., *Rebalancing the Banks: Global Lessons from the Financial Crisis* 96 (2010); Darrell Duffie, *How Big Banks Fail and What to Do about It* 55 (2010); Heidi M. Schooner and Michael W. Taylor, *Global Bank Regulation: Principles and Policies* (2009); Gary B. Gorton, *Misunderstanding Financial Crises: Why We Don't See Them Coming* (2012); Roger B. Myerson, *Rethinking the Principles of Bank Regulation: A Review of Admati and Hellwig's The Bankers' New Clothes*, 52 *J. Econ. Lit.* 197, 209 (2014). But see James R. Barth et al., *Guardians of Finance: Making Regulators Work for Us* 193 (2012) (“a system based on imposing required capital ratios ... not only encourages shadow banking, but raising those capital requirements, as discussed below, increases the incentives for banks to move risky assets into off-balance sheet entities.”).

²⁴ See Daesik Kim & Anthony M. Santomero, *Risk in Banking and Capital Regulation*, 43 *J. Fin.* 1219, 1231 (1988).

²⁵ See *infra* note ___.

Second, not all debt is the same. Demand deposits pose a threat to banks because depositors can withdraw their money quickly and without notice, depleting the vault cash of the bank and possibly forcing it to sell illiquid assets at fire-sale prices or to pay a high rate of interest for an emergency loan from another bank or from the Fed. Long-term debt is less risky for a bank because the bank can gradually sell assets to meet obligations as they become due. Other forms of debt and quasi-debt, like preferred equity, also are less risky because they become due only if there is ample resources to pay short-term debt. Because the simple capital-asset ratio does not distinguish between different types of debt and equity, it can give a misleading impression of the vulnerability of banks with different capital structures. Regulators address this problem by allowing banks to treat the safest forms of debt as equity for purposes of calculating the capital-asset ratio under some circumstances.²⁶

Third, the simple capital-asset ratio disregards off-balance sheet obligations like loan commitments and standby letters of credit. Suppose the bank in Figure 1 enters into a contract with a customer to issue a \$20 loan to it in one year. That loan will not appear on the balance sheet until it is issued. When it does, the bank's capital-asset ratio may fall, depending on how the bank raises capital to make that loan. A bank with many loan commitments is thus riskier than a bank without them, yet this difference will not appear in their capital-asset ratios. Regulators have addressed this problem by requiring banks to translate off-balance sheet commitments into appropriately weighted liabilities for purposes of calculating the capital-asset ratio.²⁷

In sum, financial intermediation causes negative externalities in the form of systemic risk. Government insurance helps mitigate the risk of a financial panic but also creates moral hazard. Capital regulation counters both this moral hazard and the excessive level of risk-taking that is inherent in financial intermediation. But while there is little debate that capital requirements are the appropriate regulatory response as a matter of theory, economists have debated the level and the form of optimal capital requirements.

²⁶ See infra note ____.

²⁷ See infra note ____.

II. THE HISTORY OF CAPITAL ADEQUACY REGULATION BY U.S. REGULATORS

In this part, I provide a brief and necessarily incomplete history of capital-adequacy regulation.²⁸ To keep this paper within manageable bounds, I disregard state regulation of banks, federal regulation of financial institutions other than commercial banks, and regulation of bank-like institutions like thrifts. Thus, I focus on federal regulation of commercial banks, and hence emphasize the activities of the major federal bank regulators—the Federal Reserve (the Fed), Office of the Comptroller of the Currency (OCC), and the Federal Deposit Insurance Corporation (FDIC). While the jurisdictions of these agencies overlap a great deal, generally speaking the OCC regulates nationally chartered banks, the Fed regulates bank holding companies and state banks that belong to the Federal Reserve System, and the FDIC regulates other state banks that are members of the FDIC.

A. From World War II to the 1970s

This period is a prehistory of capital-adequacy regulation. The financial regulators did not require banks to satisfy any specific minimum capital rule. Instead, regulators applied a general “safety and soundness” standard to all banks. Capital adequacy was only one of many indicators that regulators looked at in order to determine whether a bank was healthy.²⁹ Regulators would consider the riskiness of assets, the quality of management, earnings, the size of the bank, among other things, and then make an all-things-considered-judgment as to whether a bank was in regulatory compliance.

Because capital adequacy was just one factor among others used to generate an overall assessment of a bank’s financial healthy, regulators were not always specific about how they defined the relevant components of the capital adequacy ratio—assets, liabilities, and so on—and they did not try very hard to coordinate with each

²⁸ For a brief, useful overview up to 1988, see Malcolm C. Alfriend, *International Risk-Based Capital Standard: History and Explanation*, 74 Fed. Res. Bank of Richmond Econ. Rev. 28 (Nov./Dec. 1988).

²⁹ Alfriend, *supra* note ___, at 29; Daniel K. Tarullo, *Banking on Basel: The Future of International Financial Regulation* 29-35 (2008).

other. Each regulator applied a different standard to the banks under its jurisdiction.³⁰

The period from World War II to the late 1960s one was of unusual stability in the banking system. While regulatory supervision no doubt played a role, the usual explanation is that the United States experienced low inflation and steady economic growth.³¹ Banks were also barred from risky financial activities and protected from competition by heavy restrictions on branching, significant chartering requirements, and rules that barred them from charging a market rate of interest on deposits.³² Thus, managers may have exercised caution because banks earned monopoly rents that they would lose if their bank failed.

B. The Modern Regulatory Era

In the 1970s, the sleepy era of banking came to an end. High inflation and low economic growth squeezed banks. Because of high inflation, depositors demanded interest on deposits, but banks were limited in what they could offer. Because of low economic growth, demand for credit fell. Meanwhile, deregulation in the banking industry reduced the monopoly rents enjoyed by owners of a bank charter. Notably, money market mutual funds were allowed to offer interest in return for short-term deposits with checking privileges, and they attracted billions of dollars of deposits from banks.³³ A number of banks failed during this period, and the capital-asset ratio of most banks declined. Alarmed by this turn of events, the three regulators agreed to try to coordinate on regulation, and to reverse the decline of capital in the banking system. In 1981, they issued a (partially) coordinated rule governing capital adequacy.³⁴

One major feature of this rule was the division of capital into “primary” and “secondary” versions. Primary capital included common stock, certain reserves, and preferred stock with sufficiently

³⁰ Tarullo, *supra* note ___, at 29-35.

³¹ See Charles W. Calomiris & Stephen H. Haber, *Fragile by Design: The Political Origins of Banking Crises and Scarce Credit* __ (2014).

³² See generally Banking Act of 1933 (“Glass-Steagall Act”), Pub. L. 73-66, 48 Stat. 162 (June 16 1933).

³³ Calomiris & Huber, *Fragile by Design* __, *supra* note __.

³⁴ Statement of Policy on Capital Adequacy, 46 Fed. Reg. 62693-02 (FDIC Dec. 28, 1981); Capital Adequacy Guidelines, 68 Fed. Res. Bull. 33 (Fed and OCC Jan. 1, 1982).

long maturity. Secondary capital included other forms of preferred stock and subordinated debt. “Total capital” equals primary capital plus secondary capital. The regulators also agreed to create separate rules for regional banks (assets between \$1 billion and \$15 billion)—which were large and diversified—and community banks (assets below \$1 billion).³⁵ Table 1 provides a summary.³⁶

Table 1: 1981 Minimum Capital Regulations

	Regional Banks	Community Banks
Primary capital ratio	5%	6%
Total capital ratio	6.5%	7%

Because regional banks were more diversified than community banks, they were permitted a lower level of capital. Banks that fell below these floors were not shut down immediately but subjected to increasingly greater obligations to manage risk and raise capital as their capital-asset ratios fell.³⁷

In 1983, Congress passed The International Lending Supervision Act.³⁸ This statute directed the banking regulators to “achieve and maintain adequate capital by establishing minimum levels of capital for” the banks that they regulate.³⁹ The ILSA was enacted in response to the Latin American debt crisis, which revealed that some U.S. banks were dangerously exposed to risky foreign sovereign debt. The law also put on firmer footing the regulators’ authority to issue capital adequacy rules.⁴⁰ The regulators used this opportunity to simplify capital requirements. The distinction

³⁵ Large multinational banks, with assets greater than \$15 billion, were subjected to a 5% floor in 1983. See FRB Minimum Capital Guidelines: Amendments, 69 Fed. Res. Bull. 539 (July 1, 1983).

³⁶ Capital Adequacy Guidelines, 68 Fed. Res. Bull. at 34.

³⁷ The FDIC used a slightly different system. It tried to take account of the riskiness of assets and the different types of equity, but otherwise the approach and numbers were similar. See FDIC Statement of Policy on Capital Adequacy, 46 Fed. Reg. at 62694, *supra* note ___ (“When the adjusted equity capital ratio falls below this level, the Corporation will insist on a specific program for remedying the equity capital deficiency promptly.”).

³⁸ Pub. L. 98-181, 97 Stat. 1278 (codified at 12 U.S.C. § 3901-12).

³⁹ *Id.* at 1280 (codified at 12 U.S.C. § 3907).

⁴⁰ An OCC order requiring a bank to raise capital was vacated by a court in *First National Bank of Bellaire v. Comptroller of the Currency*, 697 F.2d 674 (5th Cir. 1983).

between community and regional banks was discarded. Table 2 summarizes the new system.

Table 2: 1985 Minimum Capital Regulations

Primary capital ratio	5.5%
Total capital ratio	6%

The regulators increased the primary capital ratio for regional banks from 5% to 5.5%, and reduced it from 6% to 5.5% for community banks. The regulators reduced the total capital ratio for regional banks from 6.5% to 6%, and for community banks from 7% to 6%.

The next major round of changes took place starting in 1989. The stimulus this time was the globalization of the financial system, which led to regulatory arbitrage—and a potential race-to-the-bottom—as large banks located offices and assets in countries with the weakest regulatory systems. The central banks of the G-10 countries sent representatives to Basel, Switzerland, to hash out regulatory standards acceptable to all. The result was the 1988 Basel Accord (“Basel I”), which regulators agreed to apply to domestic banking systems.⁴¹

In the United States, banking regulators implemented the new capital rules over several years (although for simplicity I will call them the 1989 regulations).⁴² The 1989 regulations now distinguished Tier 1 (instead of primary) and Tier 2 (instead of secondary) capital. While the definitions differed slightly, the details do not concern us.⁴³ The regulations also created a risk-weighting

⁴¹ Basle Committee on Banking Supervision, International Convergence of Capital Measurement and Capital Standards (July 1988), <http://www.bis.org/publ/bcbs04a.pdf> (last visited Aug 24, 2014). . The focus of this paper is U.S. regulation, and so I will discuss the Basel accords only insofar as they intersect with my topic. There is a large literature on the Basel agreements; see, e.g., Charles Goodhart, *The Basel Committee on Banking Supervision: A History of the Early Years, 1974-1997* (2011); Tarullo, *supra* note ____.

⁴² Capital; Risk-Based Capital Guidelines, 54 Fed. Reg. 4186-01 (Jan. 27 1989); Risk-Based Capital Guidelines, 54 Fed. Reg. 4168-01 (Jan. 27 1989); Capital Maintenance; Final Statement of Policy on Risk-Based Capital, 54 Fed. Reg. 11500-01 (Mar. 21 1989).

⁴³ Among other things, there was a limit to how much Tier 2 could be used in total capital. See Differences in Capital and Accounting Standards Among the Federal

system for assets. Assets received a risk-weight of 0, 0.2, 0.5, and 1, with the safest assets (like U.S. treasuries) receiving the lowest number, and riskiest assets (like ordinary loans) receiving the highest number. When calculating the denominator of the capital-asset ratio, the regulator would add together each asset multiplied by its risk weight. For example, a bank with \$100 in U.S. treasuries and \$100 in regular loans would have risk-weighted assets of \$100. A bank with no treasuries and \$200 in regular loans would have risk-weighted assets of \$200. The higher denominators for the second bank with riskier assets would result in a lower capital ratio. The new minimums are in Table 3.

Table 3: 1989 Capital Adequacy Regulations

Ratio	1990	1992
Tier 1	3.25%	4%
Tier 1 + Tier 2	7.25%	8%
Tier 1 leverage ratio (unweighted)	3%	3%

The 1989 regulations phased in progressively stricter rules over several years, as shown in Table 3. They also introduced a separate minimum leverage ratio. The leverage ratio is the ratio of tier 1 equity to the sum of *unweighted* assets.⁴⁴ It thus served as an additional cushion that ensured that a bank that tried to game the risk-weighting system by accumulating low-weighted assets that were in fact relatively risky would nonetheless have sufficient capital.

Basel I was regarded as excessively crude from the start.⁴⁵ Among other problems, the four-basket risk-weighting system bore little relationship to reality. Consider a bank that has loaned \$100,000 to a family to buy a home and has bought \$100,000 in municipal bonds. The mortgage will typically receive a risk-weighting of 50% while the municipal bond investment will receive a risk-weighting of 20%. But it is highly unlikely that the mortgage is precisely 2.5 times riskier than the bond investment. The mortgage may well be exceptionally safe because the homeowner is wealthy

Banking and Thrift Agencies; Report to Congressional Committees, 55 Fed. Reg. 34339-02 (Aug. 22 1990).

⁴⁴ See *supra* note ____.

⁴⁵ See Goodhart, The Basel Committee on Banking Supervision 576, *supra* note ____.

and the value of the house is much greater than the loan. The bond investment may be risky because the city's finances are in disarray. To address this problem, central bankers met in Basel again, and reached a new agreement—known as Basel II—in 2004.⁴⁶

Basel II contained numerous innovations, most of which were never implemented by national regulators. Its most important legacy was the introduction of exemptions for large sophisticated banks from the Basel I system, which were permitted to use computer models to estimate their exposure to various types of risks. Regulators had actually permitted banks to use these models since the 1990s, but Basel II formalized this approach. Banks had developed computer models that they used for internal risk-management. These models used data from a bank's lending business, plus economic data, to generate predictions about the bank's financial position in response to various shocks—such as interest rate spikes, sovereign debt defaults, housing price declines, and so on. In 2007, U.S. regulators implemented this new regime.⁴⁷

These rules were implemented just in time for the 2007-2008 financial crisis, which revealed that banks were undercapitalized. Central bankers repaired to Basel to negotiate a new agreement (Basel III),⁴⁸ and Congress passed the Dodd-Frank Act.⁴⁹ After the dust settled, the regulators issued the rules in Table 4, which are based on Basel III.⁵⁰

Table 4: 2013 Capital Adequacy Regulations

Tier 1	6%
Tier 1 + Tier 2	8%

⁴⁶ Basel Committee on Banking Supervision, International Convergence of Capital Measurement and Capital Standards: A Revised Framework (June 2004), <http://www.bis.org/publ/bcbs107.pdf> (last visited Aug 24, 2014).

⁴⁷ See 72 FR 69288-01, 69294. The Tier 1 leverage ratio was later increased to 4 percent in 2006.

⁴⁸ Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems – Revised Version (June 2011), <http://www.bis.org/publ/bcbs189.pdf> (last visited Aug. 24, 2014).

⁴⁹ Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. 111-203, 124 Stat. 1376 (2010). For a critical view, see Viral V Archaya & Matthew Richardson, Implications of the Dodd-Frank Act, 4 Ann. Rev. Fin. Econ. 1, 31-33 (2012).

⁵⁰ Regulatory Capital Rules, 78 Fed. Reg. 62018-01 (Oct. 11, 2013) (codified at 12 C.F.R. pts. 3, 5, 6, 165, 167, 208, 217, and 225).

Tier 1 Leverage Ratio	4%
Common equity Tier 1	4.5%

In addition to raising Tier 1, the 2013 regulations introduced the common equity Tier 1 category, which includes only common equity (hence excluding certain types of preferred equity in Tier 1). The 2013 capital rules also introduced a range of additional safeguards, including a capital conservation buffer requirement that prohibits banks from issuing dividends when doing so brings them too close to the capital floors. The buffer requirement effectively raises the capital requirement another 2.5 percentage points.⁵¹

And so we conclude our whirlwind tour of the history of capital adequacy regulation. Some caveats bear emphasis. I have suppressed a large amount of detail and some variation among the regulators. Some of the rules in the tables above do not apply to certain types of banks or bank-related institutions; in particular, globally systemically important financial institutions are governed by additional rules.⁵² Regulators phased in the rules over different periods of time.⁵³ They engaged in greater and lesser forms of regulatory forbearance toward banks that dipped close to the floors or even fell below them. Indeed, enforcement is a source of a great deal of variation, as regulators have the discretion to demand that banks exceed capital requirements, and frequently do.⁵⁴ They amended their rules at various times in ways that I have skipped over. They no doubt used their judgment in different ways in evaluating assets. But the overall picture should by now be roughly clear.

⁵¹ Id. at 62033.

⁵² See Financial Stability Board, Update of Group of Global Systemically Important Banks 3 (2012), available at http://www.financialstabilityboard.org/publications/r_121031ac.pdf.

⁵³ For the phase-in rules for the 2013 regulations, see Office of the Comptroller of the Currency, New Capital Rule Quick Reference Guide for Community Banks (2013).

⁵⁴ For a valuable empirical study of enforcement practices, see Julie Anderson Hill, Bank Capital Regulation by Enforcement: An Empirical Study, 87 Ind. L.J. 645, 708 (2012) (finding great variation in capital-asset ratios demanded by regulators in enforcement actions).

III. HOW DID REGULATORS CHOOSE (AND JUSTIFY) THE CAPITAL ADEQUACY RULES?

A. The Regulators' Explanations

We focus now on the justifications the regulators provided for the capital adequacy rules and their revisions of those rules. At the start, they provided hardly any justification at all. The FDIC and the Fed (acting also on behalf of the OCC) issued terse 3-page statements announcing the 1981 regulations consisting of boilerplate about the importance of objective and consistent standards for ensuring the financial health of banks, and emphasizing that capital adequacy would remain only one of a number of factors that regulators evaluate.⁵⁵ These statements did not explain why capital adequacy rules were an appropriate approach to bank regulation, nor why the regulators chose the minimum capital levels that they did.

The OCC, as a non-independent regulatory agency, was subject to Executive Order 12,291, which required regulatory agencies in the executive branch to conduct a cost-benefit analysis of all proposed “major regulations,” those that are expected to have an economic impact of at least \$100 million annually.⁵⁶ The order did not extend to independent agencies like the Fed and FDIC. The OCC addressed Executive Order 12,291 in a separate document, in which it argued that a cost-benefit analysis was not necessary because the rule would not have an impact of \$100 million per year or more.⁵⁷ The reason was that the effect of the regulation—to increase the book value of aggregate capital of national banks by less than five percent—represented “only a reclassification of already existing categories of funds.”⁵⁸ It is not at all clear what this means.

The OCC also said that because the capital-asset ratios of national banks would increase as a result of the rule, they will be able to “compete more aggressively for funds” and make larger loans to a single borrower.⁵⁹ Again, it is not clear what the OCC meant. It might have meant that banks with larger capital-asset ratios would be able

⁵⁵ 46 Fed. Reg. 62693-02, supra note ____ (FDIC); 68 Fed. Res. Bull. 33, supra note ____ (Fed and OCC).

⁵⁶ Exec. Order No. 12,291, 3 C.F.R. 127 (1981).

⁵⁷ Interpretive Rulings; National Banks; Definition of Capital, 48 Fed. Reg. 56359-01 (Dec. 21 1983).

⁵⁸ Id. at 56363.

⁵⁹ Id.

to borrow at a lower rate of interest and obtain economies of scale in lending, but if this were true, then banks would voluntarily improve their capital-asset ratios. The OCC did not acknowledge that the rule might impose costs on banks.

In a later document the Fed explained that the 1981 rules were driven by “[c]oncern about the decline in the ratio of capital to bank assets before 1981.”⁶⁰ In the 1970s, the banking system experienced stress as a result of high inflation and low economic growth.⁶¹ A number of banks failed and the capital/asset ratio of the industry declined.⁶² Regulators decided that by incorporating capital standards in a rule, they would encourage banks to strengthen their balance sheets. But the later document also did not explain the basis of the minimum capital levels that they chose. The bare fact that capital levels declined is not by itself cause for alarm: perhaps, they were already too high relative to the social optimum. Indeed, bank capital levels were significantly higher in the nineteenth century than today;⁶³ it may well be the case that they can be allowed to decline as banks develop more sophisticated methods for minimizing risk or diversifying their portfolios.

In 1985, the regulators revised the capital rules in response to the International Lending Supervision Act of 1983, which ordered regulators to “cause banking institutions to achieve and maintain adequate capital by establishing minimum levels of capital for such banking institutions and by such other methods as the appropriate Federal banking agency deem appropriate.”⁶⁴ The statute was passed after the Latin American debt crisis, which revealed that some U.S. banks were heavily exposed to risky foreign debt. Congress accordingly endorsed the move toward capital adequacy rules and also encouraged regulators to strengthen them.

⁶⁰ Membership of State Banking Institutions; Bank Holding Companies and Change in Bank Control; Capital Maintenance; Rules of Procedure, 50 Fed. Reg. 16057-01, 16057 (Apr. 24, 1985).

⁶¹ Allan H. Meltzer, *Origins of the Great Inflation*, 87 Fed. Res. Bank of St. Louis Rev. 145 (2005).

⁶² See Susan Burhouse et al., *Basel and the Evolution of Capital Regulation: Moving Forward, Looking Back*, FDIC FYI (Jan. 14, 2003), <http://www.fdic.gov/bank/analytical/fyi/2003/011403fyi.html> (last visited July 30, 2014).

⁶³ See Admati et al., *supra* note ____.

⁶⁴ ILSA, *supra* note ____, 12 U.S.C. § 3907.

Congress did not tell the regulators what the new capital requirements should be, leaving the regulators the discretion to pick specific numbers. The regulators did not explain why they chose 5.5% for primary capital and 6% for total capital. The regulators did note that the new levels would not affect most banks. As the Fed explained,

Based on the most recent available data, only 17 state member banks and 61 bank holding companies with assets over \$150 million have primary capital ratios (without deducting intangible assets) below the 5.5 percent minimum primary capital guideline. Thus, fewer than 2 percent of all state member banks and 8 percent of all holding companies with assets over \$150 million had primary capital ratios below the minimum benchmark. With respect to total capital, 25 state member banks and 80 bank holding companies have total capital ratios (without deducting intangibles) below the 6.0 percent minimum guideline.⁶⁵

Similarly, the FDIC observed that “almost 96% of the banks in the nation [will not be] impacted by this regulation.”⁶⁶ The OCC also emphasized that few of the national banks that it regulated would be affected by the new rules.⁶⁷

This time, the OCC conducted a cost-benefit analysis under Executive Order 12,291.⁶⁸ The OCC stated that 72 national banks had a shortfall of at least \$1.8 billion in primary capital; 66 of those banks, plus another 54, had a shortfall of at least \$1.3 billion in secondary capital; and that 389 banks met the minimums but faced risks that required them to raise their capital ratios. These banks would thus incur underwriting costs of up to \$185 million, and in the meantime might need to reduce dividend payments.

This accounting of the costs is seriously deficient. The underwriting costs are obviously trivial—this is just the cost of paying an investment bank to underwrite a stock offering. The reduction in dividends—that is, the lost profits—would be the major impact of the regulation, but the OCC did not estimate it. Thus, it failed to recognize most of the costs of regulation.

⁶⁵ 50 Fed. Reg. 16057, *supra* note ____ at 16059.

⁶⁶ Capital Maintenance, 50 Fed. Reg. 11128-01, 11130 (Mar. 19 1985).

⁶⁷ Minimum Capital Ratios; Issuance of Directives, 50 Fed. Reg. 10207-01, 10208 (Mar. 14 1985).

⁶⁸ *Id.* at 10215.

The OCC argued that the benefits of the regulation would be greater solvency for the banks; increased stability of the financial system; and increased “capacity to fund economic growth.”⁶⁹ The OCC did not estimate these benefits.⁷⁰ Thus, although the OCC for the first time made an effort to identify in a qualitative sense the costs and benefits of a minimum capital adequacy regulation, it did not estimate (quantitatively) any of the benefits or the relevant costs.

In 1989, the regulators introduced risk-based capital rules in the wake of Basel I. The purpose of these standards was to provide a more accurate assessment of bank health by rewarding banks with low-risk assets. The regulations also attempted to take account of off-balance sheet liabilities.⁷¹ The regulators did not mention any concern about existing capital levels; the goal was to provide a more appropriate measure of financial solvency rather than to strengthen standards. The OCC did not conduct a cost-benefit analysis because it did not believe that the rule was a “major rule,” that is, a rule creating costs of \$100 million per year or more.⁷² It did not explain why, but the most likely reason is that it believed that the rule created net benefits for banks by releasing them from excessively rigid capital adequacy regulations. The Fed and FDIC noted that while the regulation would impose some new reporting requirements, it would not require banks to raise capital.⁷³

Similarly, in 2007 the regulators adjusted the risk-based rules by allowing a subset of banks to use internal valuation methods to determine the appropriate capital-asset ratio in light of the credit risk of their loans, but did not intend to strengthen them.⁷⁴ In a joint statement the regulators discussed the costs and benefits of the new rule. The regulators estimated a total cost of \$489.9 million for implementing the new rules—including expenses by regulators as well as by banks.⁷⁵ This amount of money is pocket change for the banking industry, and does not reflect the major impact of capital

⁶⁹ Id.

⁷⁰ Id.

⁷¹ 54 Fed. Reg. 4186.

⁷² 54 Fed. Reg. at 4177.

⁷³ 54 Fed. Reg. at 11509 (FDIC); 54 Fed. Reg. at 4197 (Fed).

⁷⁴ 72 Fed. Reg. at 69295.

⁷⁵ Id. at 69393.

regulation, which, by putting a limit on lending, reduces profits.⁷⁶ It may have been the case that the regulators did not expect the 2007 regulations to reduce profits but instead would increase profits by liberating banks from the arbitrary rules then in effect.⁷⁷ If so, however, the regulators did not quantify this benefit. The regulators listed other benefits without quantifying them, including better capital allocation, reduction of regulatory arbitrage, better coordination across countries, and so on.⁷⁸

Finally, with the party over in 2013, the regulators raised capital adequacy requirements. As the Fed/OCC joint statement observed, “the recent financial crisis demonstrated that the amount of high-quality capital held by banking organizations was insufficient to absorb the losses generated over that period.”⁷⁹ The regulators do not appear to have released a formal cost-benefit analysis, but their joint statement refers to, and appears to rely on, a pair of cost-benefit analyses that were conducted by the Basel Committee on Banking Supervision (BCBS),⁸⁰ which I will discuss momentarily. But two passages in the joint statement are of interest.

First, as before, the regulators observe that the new regulations will not affect most banks.

The agencies’ analysis also indicates that the overwhelming majority of banking organizations already have sufficient capital to comply with the final rule. In particular, the agencies estimate that over 95 percent of all insured depository institutions would be in compliance with the minimums and buffers established under the final rule if it were fully effective immediately.⁸¹

⁷⁶ See Shekhar Aiyar et al., Does Macro-Pru Leak? Evidence from a UK Policy Experiment 16-20 (NBER Working Paper No. 17822, 2012) (finding regulated banks decrease lending in response to increased capital requirements).

⁷⁷ One important aspect of this argument is that banks face competition from the shadow banking system. See Malcolm Baker & Jeffrey Wurgler, Do Strict Capital Requirements Raise the Cost of Capital? Banking Regulation and the Low Risk Anomaly 31 (NBER Working Paper No. 19018, 2013) (arguing that capital requirements do raise capital costs, which disadvantages regulated banks to the benefit of the shadow banking system).

⁷⁸ 72 Fed. Reg. at 69391.

⁷⁹ Regulatory Capital Rules, 78 Fed. Reg. 62018-01, 62021 (Oct. 11 2013).

⁸⁰ An Assessment of the Long-term Economic Impact of Stronger Capital and Liquidity Requirements, <http://www.bis.org/publ/bcbs173.pdf> (last visited July 30, 2014); Assessing the Macroeconomic Impact of the Transition to Stronger Capital and Liquidity Requirements, <http://www.bis.org/publ/othp12.pdf> (last visited July 30, 2014).

⁸¹ 78 Fed Reg. 62018-01 at 62026.

The FDIC makes a similar statement.⁸² These statements are astonishing in light of the severity of the financial crisis and its effect on the economy. If banks were undercapitalized prior to 2007-2008, and their undercapitalization either caused or exacerbated the financial crisis, as is widely believed,⁸³ then how could it be the case that corrective regulations would affect hardly any banks?⁸⁴

Second, the regulators note that one of the major costs of the regulation is that when banks switch from debt to equity, they will lose tax benefits.⁸⁵ However, the loss of tax benefits is not a social cost that would be included in a cost-benefit analysis—the higher tax bills for the bank are just a transfer to the public. Thus, these tax costs are irrelevant.

The BCBS produced a lengthy and sophisticated cost-benefit analysis that relied heavily on the academic literature.⁸⁶ The major benefit of capital adequacy regulations is that they reduce the probability of a financial crisis. To calculate the probability of a financial crisis, the BCBS looked at historical data. A financial crisis occurs in a country once every 20 to 25 years, or with an average annual probability of 4.5%. When a banking crisis occurs, the economy typically goes into recession; thus, the major effect of a banking crisis is lost economic output. A comparison of studies indicate that the median loss is 63% of GDP. Using these figures, the BCBS calculated the expected social benefit from reducing the probability of a financial crisis by one percent as approximately 0.2% of GDP per year. The BCBS also estimated the effect of a change in capital requirements on the probability of the crisis. The probability

⁸² Regulatory Capital Rules, 78 Fed. Reg. 55340-01, 55467 (Sept. 10 2013)

⁸³ Admati & Hellwig, *supra* note __, at 184-85; FCIC, Financial Crisis Inquiry Report, available at http://fcic-static.law.stanford.edu/cdn_media/fcic-reports/fcic_final_report_full.pdf 230 (July 30, 2014).

⁸⁴ A related puzzle is why banks held excess of the required minimums. See Franklin Allen et al., Credit Market Competition and Capital Regulation, 24 Rev. Fin. Stud. 983, 1006 (2011) (arguing that bank competition leads banks to increase capital above required minimums). It is important to note, as Allen et al. do, that holding capital above the minimum requirements does that necessarily mean that banks are adequately capitalized.

⁸⁵ 78 Fed. Reg. 62018-01 at 62153.

⁸⁶ It is divided in two documents; see An Assessment Of The Long-Term Economic Impact of Stronger Capital and Liquidity Requirements, *supra* note __; and Assessing the Macroeconomic Impact of the Transition To Stronger Capital and Liquidity Requirements, *supra* note __.

and severity of a financial crisis decline at a decreasing rate as bank capitalization increases.

The major cost of capital adequacy regulations is the constraint on banks' flexibility in choosing financing arrangements that maximize profit. If banks must maintain a capital-asset ratio, then they cannot take on too much debt, and must issue equity instead.⁸⁷ The BCBS assumes that the cost is passed on to customers, who must pay higher interest rates for loans or borrow less money.⁸⁸ Thus, the question is the economic impact of an increase in lending costs. With this information, the net benefits of different capital ratios can be estimated. Using varying assumptions, the BCBS estimates optimal capital ratios in the range of 10-15% using a specific definition of capital that is not used by U.S. regulators.⁸⁹ Translated into U.S. legal definitions, a mid-range 12% ratio under BCBS definitions implies a Tier 1/total assets ratio of 7.6%; a Tier 1/risk-weighted assets ratio of 13.2%, and a total capital/risk-weighted assets ratio of 15.6%.⁹⁰

The BCBS report expresses a great deal of caution in its recommendations. Historical data on financial crises are sparse, and because economic conditions are always changing, and different legal and economic systems prevail in different countries, there are limits to what one can extrapolate from that data.⁹¹ Moreover, the BCBS could not quantify numerous costs and benefits, for example, the possibility that higher capital requirements reduce economic volatility. Academics have criticized the BCBS for making more precise estimates of costs than were justified by existing studies,⁹² and for assuming that the historical cost of raising equity under weak capital requirements provides an accurate basis for estimating the future cost if all banks are required to raise additional capital.⁹³ Nonetheless, the BCBS study is significantly more illuminating and

⁸⁷ Similarly, capital requirements reduce a bank's ability to raise liquidity. See Skander J. Van den Heuvel, *The Welfare Cost of Bank Requirements*, 55 *J. Monetary Econ.* 316 (2008).

⁸⁸ The BCBS also includes in the cost-benefit analysis the effect of increased liquidity requirements in Basel III.

⁸⁹ See BCBS *Assessment of the Long-term Economic Impact*, supra note ____, at 29, table 8.

⁹⁰ See *id.*, at 57, Table A5.1.

⁹¹ For a discussion and critique, see Coates, supra note ____.

⁹² Coates, supra note ____ at 69.

⁹³ Admati et al., at ____.

useful than the published explanations that U.S. regulators produced.

The BCBS ratios are considerably higher than the final Basel III rules,⁹⁴ which are being phased in by U.S. regulators. Recall that the Tier 1 ratio was only 6% (rather than the BCBS' 13.2%), and the total ratio was only 8% (rather than the BCBS' 15.6%). Part of the explanation for the difference is that US regulators chose to incorporate part of the capital ratio in the form of capital buffer requirements, which effectively raise all the rules by 2.5 percentage points.⁹⁵ An additional surcharge of up to 2.5 percentage points for globally systemic important institutions further increases the ratios for those institutions.⁹⁶ Other differences may be due to different definitions; however, I have not found a clear explanation.⁹⁷

B. Lessons

Regulators raised capital requirements slowly and reluctantly from 1981 to 2013, while at the same time increasing their complexity. The increase in complexity was clearly a response to the problem of regulatory arbitrage. Crude bright-line rules are easy to administer but invite evasion, resulting in banks that are excessively risky relative to the goals of those rules.⁹⁸ The real puzzle is why the regulators did not increase capital regulations more aggressively.⁹⁹

⁹⁴ It is not clear why the final Basel III rules are less demanding than the ratios recommended by BCBS's cost-benefit analysis. See Ranjit Lall, *From Failure to Failure: The Politics of International Banking Regulation*, 19 *Rev. Int'l Pol. Econ.* 632, 633 (2011).

⁹⁵ 78 Fed. Reg. at 62033, *supra* note ____.

⁹⁶ See Financial Stability Board, *supra* note ____, available at http://www.financialstabilityboard.org/publications/r_121031ac.pdf.

⁹⁷ As discussed by Paul Tucker, the cumulative effect of these requirements, taking into account the various loopholes in Basel I, was to increase capital requirements for systemically important institutions by as much as ten times. See Paul Tucker, *Capital Regulation in the New World: The Political Economy of Regime Change* (unpub. m.s., 2014).

⁹⁸ On complexity, rules, and standards for financial regulation, see Prasad Krishnamurthy, *Rules, Standards, and Complexity in Capital Regulation*, *J. Legal Stud.* (forthcoming). See also Ran Duchin & Denis Sosyura, *Safer Ratios, Riskier Portfolios: Banks' Response to Government Aid*, 113 *J. Fin. Econ.* 12 (2014) (finding that banks receiving government support tended to shift toward riskier assets within the same asset class).

⁹⁹ One response by the regulators might be that while ratios have not increased drastically, the definitions of Tier 1 and equity capital have become more strict. See

To see why this is a puzzle, recall that as a matter of theory, capital regulations should constrain the behavior of banks because, in the absence of regulation, banks maximize profits by making loans and investments that are riskier than what is socially optimal.¹⁰⁰ These incentives are possessed by *all* banks, including the best-managed, not only by poorly managed or marginal banks. Moreover, the magnitude of this effect is significant. The BCBS cost-benefit analysis suggests that optimal capital ratios are significantly higher than those implemented by regulators. Academics have conducted their own cost-benefit analyses, and an emerging consensus indicates that optimal capital rules may be even stricter than those recommended by the BCBS.¹⁰¹

Yet U.S. regulators took pains, even as late as 2013, to argue that their regulations would affect very few banks, only the bottom 5% or so. Historical data bear out this claim. Figure 2, which shows the average ratio of capital to assets of U.S. banks since 1950, provides no evidence that new capital regulations changed banks' portfolios. Empirical studies confirm that U.S. capital adequacy rules have not affected the capital-asset ratios of banks.¹⁰² The ratios in those rules were too low, or the rules were too easy to arbitrage. Many banks did increase their capital-asset ratios at various times, for example in the 1990s, but this was in response to market forces, not to capital adequacy rules.¹⁰³ The capital adequacy rules were like 200 mph speed limits that no one exceeds because their cars cannot drive so fast.

Martin Feldstein, What Powers for the Federal Reserve?, 48 J. Econ. Lit 142 (2010).

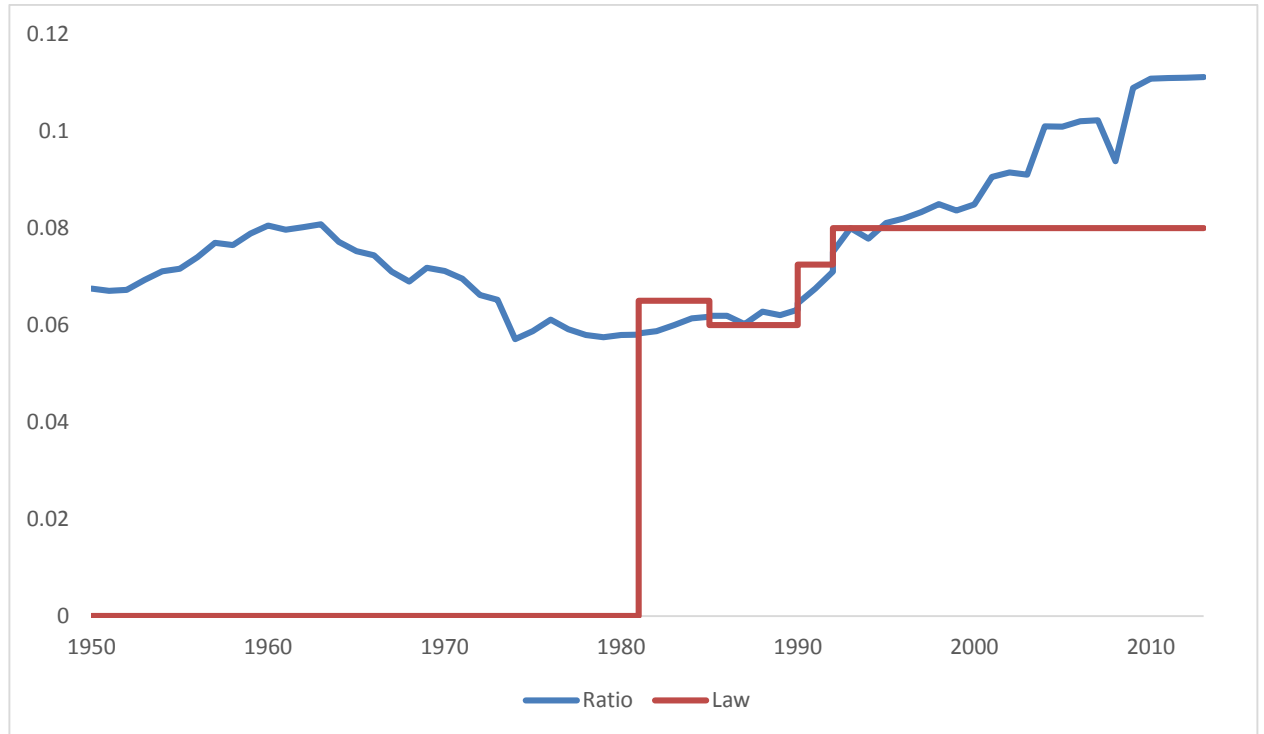
¹⁰⁰ See Part I, *supra*.

¹⁰¹ See sources cited in *supra* note ___; Prasad Krishnamurthy, Regulating Capital, Harv. Bus. Rev. (forthcoming 2014).

¹⁰² See, e.g., Mark J. Flannery & Kasturi P. Rangan, What Caused the Bank Capital Build-up of the 1990s?, 12 Rev. Finance 391, 423 (2008) (finding no statistically significant relationship between capital rules and capital-asset ratios of bank holding companies in the 1980s and 1990s); Reint Gropp & Florian Heider, The Determinants of Bank Capital Structure, 14 Rev. Finance 1 (2010) (capital regulation did not affect capital-asset ratios in the 1990s and early 2000s). These articles cite an extensive literature on this topic. See also Tarullo, *supra* note ___, at 141-42. There is also an extensive literature on why market forces cause banks to hold capital beyond regulatory limits; for an example, see, e.g., Allen, et al., *supra* note ___.

¹⁰³ See Allen, Elena Carletti, et al., *supra* note ___.

Figure 2: Bank Capital-Asset Ratios and Legal Requirements¹⁰⁴



As noted above, the introduction of risk-weighting was apparently motivated by worries that unweighted capital-asset rules were excessively crude and invited arbitrage. But risk-weighting was itself a crude response to this problem. As Prasad Krishnamurthy shows, it would have been possible for regulators to conduct a cost-benefit analysis of risk-weighting.¹⁰⁵ If they had, they might well have decided to forgo it because of the equivocal evidence that it could enhance the financial health of banks. Yet they did not engage in rigorous cost-benefit analysis, and effectively weakened capital requirements by enabling banks to classify high-risk assets as low-risk.¹⁰⁶

¹⁰⁴ Capital and asset data are from <http://www2.fdic.gov/hsob/>. The figure should be taken with many grains of salt. It shows only equity capital over total unweighted assets, aggregates different types of commercial banks. Finally, as noted in text, while minimum capital rules did not exist prior to 1981, regulators did take account of capital-asset ratios when evaluating the financial health of banks. The empirical studies cited in note ___ provide a more rigorous analysis.

¹⁰⁵ Krishnamurthy, *supra* note ___.

¹⁰⁶ Admati & Hellwig, *supra* note ___, at ___.

All of this suggests that if regulators had used cost-benefit analysis, they would have produced stricter capital-adequacy rules, which would have caused banks to raise capital-asset ratios. Because inadequate capitalization contributed to the 2007-2008 financial crisis,¹⁰⁷ the failure to use cost-benefit analysis probably increased the severity of that crisis.¹⁰⁸ Hence, contrary to the usual charge that cost-benefit analysis blocks regulation,¹⁰⁹ in the area of finance cost-benefit analysis would have advanced regulation.¹¹⁰

Why didn't regulators use cost-benefit analysis? What were they doing instead? We turn to these questions in Part IV.

IV. NORMING AS A REGULATORY STRATEGY IN BANKING LAW

A. Cost-Benefit Analysis, Feasibility Analysis, and Norming

What is the explanation for the financial regulators' choices of minimum capital levels?¹¹¹ The regulators obviously believed that a relatively high capital-asset ratio is an important mark of the financial health of banks. This belief is at least plausible; most economists agree.¹¹² But that is only the beginning of the inquiry. The question is how to determine the right levels for capital adequacy requirements.

One hypothesis is that the regulators chose the socially optimal capital-asset requirements in light of the information available at the time, based on formal cost-benefit analyses or at least informal cost-benefit reasoning. As we have seen, the OCC produced

¹⁰⁷ Admati & Hellwig, *supra* note ___, at 184-85; FCIC, *supra* note ___, at 230.

¹⁰⁸ Another contributing factor could be that bank regulation, split among three main agencies in the United States, is too fragmented. See Kenneth R. French et al., *The Squam Lake Report: Fixing the Financial System*, <http://www.stat.unc.edu/faculty/cji/890-11/SquamLake.pdf> (last visited 9/3/2014).

¹⁰⁹ See, e.g., Ackerman & Heinzerling, *supra* note ___, at 1383-4; Thomas McGarrity, *supra* note ___.

¹¹⁰ An alternative hypothesis is simply that regulators believed that other prudential tools at their disposal were sufficient to deter bank runs and they deliberately chose low minimum capital rules because they did not believe they were necessary.

¹¹¹ I will address risk-weighting and related issues in Section D.

¹¹² See Admati & Hellwig, *supra* note ___.

some cost-benefit analyses; the other regulators discussed costs and benefits; and the BCBS produced a cost-benefit analysis for the capital adequacy rules in Basel III. But it is doubtful that these cost-benefit analyses determined the capital-asset rules that were ultimately issued. The cost-benefit analyses produced by the regulators were informal, addressed the wrong costs and did not quantify the benefits, and in any event did not appear to be done in a rigorous fashion and so could not justify a specific ratio. The first high-quality cost-benefit analysis was the BCBS's, which, however, was not explicitly adopted by U.S. regulators. It is possible that behind the scenes U.S. regulators engaged in formal or informal cost-benefit analysis but that seems highly unlikely given the woefully inadequate levels that the regulators chose before (and probably even in) 2013.

To understand the regulators' behavior, we start with an observation that the regulations could be predicted directionally from data about bank weakness. The stricter rules in 1981, 1985, and 2013 followed periods of financial instability. The rules of 1989 and 2007, which either relaxed or maintained standards, followed periods of financial health. The regulators acted like a person in a shower who turns the faucet toward hot if the water is too cold and turns the faucet toward cold if the water is too hot.

Still, we need to ask why the regulator raised or lowered capital levels as much (or as little) as they did. A major clue is the repeated insistence by the regulators that the new rules affected hardly any banks.¹¹³ Changes would be made, but they would be small enough not to cause much harm to the industry. The only banks hurt by the regulations would be a handful of barely solvent banks, which would be forced to raise capital or shut down.¹¹⁴

This approach resembles feasibility analysis, another standard used by regulators to evaluate regulations. Under feasibility analysis, the regulator chooses the strictest level of regulation that is "feasible," in the sense of not imposing excessive costs on the

¹¹³ See Part III.A., *supra*.

¹¹⁴ Another way of framing this criticism is that regulators adopt capital requirements in a microprudential way – in other words, that they aim to individual bank failures rather than systemic costs. See Samuel G. Hanson et al., *A Macroprudential Approach to Financial Regulation*, 25 *J. Econ. Perspectives* 4-5 (2011).

industry in terms of job loss, bankruptcy, and factory shutdowns.¹¹⁵ Feasibility analyses are often used in environmental regulation, where the regulator imposes the strictest possible pollution controls that do not cause excessive harm to industry. In a typical feasibility analysis, the regulator describes these effects of a regulation, and then justifies the regulation by arguing that these harmful effects are small.¹¹⁶

Feasibility analysis is not a rigorous style of evaluation. “Feasibility” is not defined; it is impossible to determine why one or two factory shutdowns are tolerable while four or five are not. Many commentators think that feasibility analysis favors regulatory aggressiveness.¹¹⁷ In environmental regulation, rules justified as feasible are often criticized on cost-benefit grounds.¹¹⁸

In banking regulation, by contrast, the style of regulation is significantly less aggressive than what cost-benefit analysis implies. For this reason, feasibility analysis seems not to be an apt description of the regulatory decision-procedure. Instead, regulators seem driven by a desire to inflict as little cost on the industry as possible—to mop up outliers, the riskiest banks, while leaving most banks unaffected.¹¹⁹ Moreover, regulations based on feasibility analysis typically impose costs on all firms in the industry even if it bankrupts only a few. By contrast, banking regulation imposes no costs (aside from reporting requirements) on all but the weakest firms in the industry. The banks at the middle or higher on the normal distribution are unaffected; for that reason, I call this form of regulation “norming.”

B. Is Norming a Justifiable Style of Financial Regulation?

Is it possible that norming is the proper way to regulate the banking industry? There are strong reasons for doubt. As explained

¹¹⁵ See David Driesen, Two Cheers for Feasible Regulation: A Modest Response to Masur and Posner, 35 Harv. Envtl. L. Rev. 313 (2011) (describing feasibility analysis).

¹¹⁶ See Jonathan S. Masur & Eric A. Posner, Against Feasibility Analysis, 77 U. Chi. L. Rev. 657 (2010).

¹¹⁷ See Driesen, *supra* note __ (providing a qualified defense of feasibility analysis).

¹¹⁸ Masur & Posner, *supra* note ____.

¹¹⁹ For an explanation and critique of bank regulators’ behavior, see Jeremy Bulow & Paul Klemperer, Market-Based Bank Capital Regulation 11-12 (unpub. m.s. 2013), <http://www.nuff.ox.ac.uk/users/klemperer/MBBCR.pdf> (last visited 9/3/2014).

earlier, the government's role in providing emergency liquidity gives all banks an incentive to maintain an excessively risky portfolio.¹²⁰ The proper regulatory response should be to reduce this perverse incentive.

One could nonetheless imagine a justification for norming as a cautious, pragmatic form of regulation that may seem reasonable in the face of great uncertainty.¹²¹ Suppose that financial regulators know that banks have an excessive incentive to take risk, but they do not know the magnitude of that incentive or the risk. One possibility is that the risk is very small: perhaps the risk of a financial crisis is small and, should a financial crisis occur, the economy can recover quickly. Another possibility is that the risk is very large. If the regulator does not know the magnitude of the risk, it has no basis for choosing a specific degree of regulatory strictness. In addition, the regulator may fear unintended consequences. For example, if it raises capital requirements by a large amount, banks will pay less for deposits, and this will cause depositors to take their funds to money market mutual funds or elsewhere, precipitating a crisis or creating general economic dislocations that are hard to predict.¹²²

The regulators may therefore adopt a cautious ratcheting strategy. They raise capital regulations a small amount, and then see what happens. If capital flees from banks, they learn that the unintended consequences are more severe than they anticipated, and can retreat. If it does not, they learn that perhaps those consequences may be safely ignored, and can then make plans to further increase the strictness of the regulation. Meanwhile, the regulation will also have some direct beneficial effect as it will force the weakest banks to shut down or raise capital. This approach has an experimental feel. In a climate of extreme uncertainty, it may be justified to engage in small steps and see what the market reaction is. This will create

¹²⁰ This has been framed as a time-inconsistency problem: because the government faces enormous political costs resulting from bank failures, even the toughest capital requirements may be relaxed when a bank is at risk of failure. See Oliver Hart & Luigi Zingales, *A New Capital Regulation for Large Financial Institutions*, 13 *Amer. L. Econ. Rev.* 482 (2011).

¹²¹ On this topic, see Adrian Vermeule, *Rationally Arbitrary Decisions* (in *Administrative Law*) (unpub. m.s. 2013); Cass R. Sunstein, *The Limits of Quantification*, *Calif. L. Rev.* (forthcoming).

¹²² There is cause for regulators to worry about high capital requirements funneling investment to the shadow banking system. See Milton Harris et al., *Higher Capital Requirements, Safer Banks? Macroprudential Regulation in a Competitive Financial System* 32-33 (unpub. m.s. 2014).

additional information that will reduce some of the uncertainty, and provide the basis for additional regulation if necessary.¹²³ The small-step approach also helps address the often exaggerated but politically effective claims of regulated parties that even a little bit of regulation will destroy thousands of jobs or the economy itself.¹²⁴

A further consideration is that banking regulators are responsible for the health of the banking system, while environmental regulators are not responsible for the financial health of the industries that they regulate. When a banking regulator raises capital requirements, it takes a risk that it will force banks to shut down, and then it will be responsible for ensuring that those bank shut-downs do not cause panic and contagion. When an environmental regulation drives a firm into bankruptcy, the EPA has no specific obligations toward that firm, its shareholders, and its creditors. Thus, banking regulators may have stronger incentives to issue regulations that leave most firms unaffected.

Norming may well be justified in a range of regulatory areas, but it seems inappropriate for banking regulation. Because of the rarity and severity of financial crises, little will be learned from raising standards incrementally and then waiting to see what happens. If no financial crisis takes place, nothing will be learned. If a financial crisis does take place, then significant harm will have occurred. Moreover, data on financial institutions is plentiful, and thus makes possible reasonable predictions about the effect of regulations on the financial system.¹²⁵

C. A Political Theory of Norming

The political economy of banking regulation has received a great deal of attention. In a recent book, Charles Calomiris and Stephen Haber argue that the U.S. banking system is, and has been, fragile because of the role of interest groups in constructing the state and federal legal system.¹²⁶ In the nineteenth century and much of the twentieth century, small state banks formed a political alliance with populist interests that feared that large financial institutions

¹²³ See Matthew Spitzer & Eric Talley, On Experimentation and Real Options in Financial Regulation, 42 J. Legal Stud. (forthcoming).

¹²⁴ See, e.g., Editorial, They Keep Fighting Back, NY Times, Feb. 2, 2012, at A24 (discussing banks' resistance to capital regulations).

¹²⁵ See Posner & Weyl, Response, supra note ____.

¹²⁶ Calomiris & Haber, Fragile by Design, supra note ____.

would use their economic power to harm southern and western farmers. This alliance resisted sporadic efforts to permit banks to merge and grow, enabling small banks to maintain monopoly power in their markets.¹²⁷ After urbanization and technological development weakened the ability of small banks to earn monopoly rents in the 1980s and 1990s, consolidation took place, resulting in the much-feared political domination of large banks and financial conglomerates, which formed alliances with urban activists who sought cheaper credit for low-income people. The result was deregulation, the erosion of underwriting standards, and ultimately the financial crisis of 2007-2008.¹²⁸

Many other scholars agree that the banking industry played a significant role in pushing for deregulation, which took place both at the legislative level and at the level of regulation.¹²⁹ Congress passed numerous statutes that weakened the rules. These statutes included the Depository Institutions Deregulation and Monetary Control Act of 1980,¹³⁰ which phased out interest rate ceilings on deposits; the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994,¹³¹ which abolished many restrictions on interstate banking; and the Gramm-Leach-Bliley Act of 1999,¹³² which eliminated the Glass-Steagall wall between commercial and investment banking. During this entire period, going as far back as the 1960s, the individual

¹²⁷ *Id.* at 158-83.

¹²⁸ *Id.* at 203-13.

¹²⁹ For discussions of the political economy of banking regulation, see, e.g., Calomiris & Haber, *Fragile by Design*, *supra* note __; Randall S. Kroszner & Philip E. Strahan, *Regulation and Deregulation of the US Banking Industry: Causes, Consequences, and Implications for the Future*, in *Economic Regulation and Its Reform: What Have We Learned?* 485 (Nancy L. Rose ed. 2014) (emphasizing interest-group competition between pro-regulation small banks and anti-regulation big banks); James Livingston, *Origins of the Federal Reserve System: Money, Class, and Corporate Capitalism, 1890-1913* (1986) (emphasizing populist distrust of banking); James R. Barth, Gerard Caprio Jr., and Ross Levine, *Guardians of Finance: Making Regulators Work for Us* (2012) (arguing that regulatory breakdown that led to the financial crisis was caused by ideology, the influence of the financial industry, the psychological biases of regulators, and the opacity of regulation); Simon Johnson, *13 Bankers: The Wall Street Takeover and the Next Financial Meltdown* 200 (2011) (similar).

¹³⁰ Pub. L. No. 96-221, 94 Stat. 132 (Mar. 31, 1980) (codified at 12 U.S.C. § 226).

¹³¹ Pub. L. No. 103-328, 108 Stat. 2338 (Sept. 29, 1994) (codified at 12 U.S.C. § 1811).

¹³² Pub. L. No. 106-102, 113 Stat. 1338 (Nov. 12, 1999) (codified in scattered sections of 12 U.S.C. and 15 U.S.C.)

banking regulators also increasingly allowed banks to enter new markets, based on broad interpretations of the law.¹³³

There is little doubt that banks also pressured regulators to reduce—or not to increase too much—capital requirements.¹³⁴ Yet banking regulators were also under political pressure to increase capital requirements. As we saw, the decline in capital levels of banks in the 1970s, accompanied by bank failure, led regulators to increase capital adequacy requirements in 1981, and Congress to urge them forward in 1983.¹³⁵ The S&L crisis in the 1980s further illustrated the dangers of undercapitalized banks.¹³⁶

Norming as a decision-procedure can be seen as a way of responding to these contradictory pressures. Imagine that a regulator wants to avoid criticism for failing to regulate, and criticism for regulating too strictly. The criticism for regulating too strictly comes from industry, which directly bears the cost of regulation. The criticism for failing to regulate may come from public interest groups and from industries that compete with the regulated industry. Congress may also criticize a regulator for failing to regulate strictly when the law calls for strict regulation, but Congress has diverse constituencies, and the regulated industry as well as the beneficiaries from regulation will be able to influence it.

These competing pressures could in some cases result in significant levels of regulation, as is illustrated by environmental regulation. Industries that pollute fight against environmental regulations because those regulations increase their costs of business. But public interest groups like the Sierra Club urge regulators to regulate strictly. A regulator may try to optimize

¹³³ See, e.g., *NationsBank of North Carolina v. Variable Annuity Life Insurance Co.*, 513 U.S. 251 (1995) (approving OCC's decision to permit banks to act as agents for the sale of annuities); *Securities Industry Association v. Board of Governors of the Federal Reserve System*, 807 F.2d 1052 (D.C. Cir. 2986) (approving the Fed's decision to permit banks to engage in private placements of commercial paper).

¹³⁴ Johnson, *supra* note ___, at 200 (discussing the influence of banks on regulators); Calomiris & Haber, *supra* note ___, at 263-66 (same). For a discussion of banks' impact on the Basel process, see Ranjit Lall, *From Failure to Failure: The Politics of International Banking Regulation*, 19 *Rev. Inter. Pol. Econ.* 609, 610 (2012) (arguing that large banks had a significant influence on negotiations, which led to a weakening of standards).

¹³⁵ See *supra* note ___.

¹³⁶ See generally Joe Peek & Eric S. Rosengren, *How Well Capitalized Are Well-Capitalized Banks?*, 1997 *New Eng. Econ. Rev.* 41.

between these competing pressures. Many environmental regulations are fairly strict, reflecting perhaps that public interest groups can mobilize public pressure by bringing to the attention of the public the harmful effects of pollution on people's health and well-being.

In the area of financial regulation, public interest groups seem considerably weaker. It is plausible (though hard to demonstrate) that the public feels less strongly about financial regulation than about environmental regulation.¹³⁷ The beneficial effects of capital adequacy regulation are far more obscure than the beneficial effects of regulations that reduce the amount of arsenic in water supplies.¹³⁸ Thus, if financial regulation is inadequate, it will be difficult for public interest groups to mobilize public pressure.¹³⁹ Indeed, while we are all familiar with the major environmental groups like Sierra Club and Greenpeace, it is hard to think of the names of the groups that seek greater financial regulation.¹⁴⁰ They have a blurrier public profile because the public is less interested in financial regulation than in environmental regulation, and has a weaker understanding of financial regulation than of environmental regulation.

Consider, for example, the difference between the public reaction to climate change and the public reaction to the financial crisis. While not everyone believes that climate change is taking place, it has remained in the news continuously—whenever the weather is bad, or a natural disaster occurs, or a new study is released. By contrast, the financial crisis generated Occupy Wall Street, which grabbed public attention about a year, and then petered out, long before banking regulators had completed the hundreds of new regulations authorized by the Dodd-Frank Act.¹⁴¹ Economic recovery seems to quell outrage about financial crises, while concerns about the quality of the environment persist over booms and busts.

¹³⁷ See Jonathan R. Macey, *The Political Science of Regulating Bank Risk*, 49 *Ohio St. L.J.* 1277, 1287-88 (1989) (describing and citing literature).

¹³⁸ See Cass R. Sunstein, *The Arithmetic of Arsenic*, 90 *Geo. L.J.* 2255, 2256 (2002) (describing EPA's use of cost-benefit analysis to evaluate arsenic regulations).

¹³⁹ See Atif Mian et al., *Resolving Debt Overhang: Political Constraints in the Aftermath of Financial Crises*, 6 *Amer. Econ. J.: Macroeconomics* 25, 26 (2014).

¹⁴⁰ *Id.* at 1288-90.

¹⁴¹ Based on a search in Google Trends; see `<script type="text/javascript" src="//www.google.com/trends/embed.js?hl=en-US&q=occupy+wall+street&cmp=q&content=1&cid=TIMESERIES_GRAPH_o&export=5&w=500&h=330"></script>`.

There are many other differences between environmental regulation and financial regulation. One is that pollution is often a continuous problem. If smog envelops a town, everyone sees (and smells) it. Financial crises, by contrast, are sporadic. Twenty years separated the S&L crisis of the 1980s and the financial crisis of 2007-2008. The financial industry can resist regulation by using a strategy of delay in the immediate aftermath of the crisis until public attention has wandered. Polluting industries have no such strategy.

Another is that financial regulation is global while environmental regulation is usually a national matter.¹⁴² It is much easier to move money overseas than to move plants and equipment overseas; accordingly, excessive financial regulation can lead to capital flight while excessive environmental regulation will have a more limited effect on the regulated industry. In such circumstances, a certain amount of regulatory conservatism, as reflected in the norming approach, is easy to understand, even if it is not necessarily optimal.

Note also that major financial institutions gain from regulation to the extent that it reduces competition from marginal institutions. Thus, the financial industry may well be willing to support stricter capital-adequacy regulations that eliminate competition from marginal enterprises that can undercut them on prices. Indeed, to the extent that weak banks can spark panic and contagion, major banks benefit from rules that regulate the weak banks out of existence. It may well be the case that “norming” will be attractive to an agency that is captured by an industry. The industry uses the agency to eliminate outliers; the agency’s regulatory efforts are then seen by an uninformed public, to the extent that it is paying attention, as evidence that the agency is not excessively passive. A similar argument has been made about licensing requirements, which are sometimes seen as device used by an industry that has captured legislators or regulators to raise the costs of entry beyond what is justified by legitimate health and safety considerations.¹⁴³

¹⁴² There are a few exceptions to this generalization, including the regulation of chlorofluorocarbon and carbon emissions. See Cass R. Sunstein, *Of Montreal and Kyoto: A Tale of Two Protocols*, 31 *Harv. Envtl. L. Rev.* 1, 2 (2007) (describing treaty negotiations to address two major international environmental problems—the ozone hole and climate change).

¹⁴³ See Harold Demsetz, *Barriers to Entry*, 72 *Amer. Econ. Rev.* 47, 48 (1982) (arguing that incumbent firms may support regulations that raise the cost of entry to potential competitors).

The interest-group pressures that cause banking regulation to deviate from the social optimum are complicated, and a large literature already identifies ways that those pressures may influence specific policies, like chartering requirements, capital levels, and so on.¹⁴⁴ The argument being advanced here is that those pressures may also affect a regulator's choice of decision-procedure or methodology for evaluating regulations. Norming will appeal to any regulator that faces strong headwinds from interest groups because it encourages limited regulation that benefits most firms while harming only outliers—and that also wants to be seen as doing something so as to avoid offending Congress and the public.

One of the virtues of cost-benefit analysis is that it provides intellectual resources for resisting political pressure. If bank regulators had used cost-benefit analysis to evaluate capital regulations, they might have been able to resist some of the pressure brought against them.¹⁴⁵ One might argue that if regulators had been captured by industry, they would simply have manipulated cost-benefit analysis. But a manipulated cost-benefit analysis is a bad cost-benefit analysis, and evidence of such manipulation could have been used by forces hostile to deregulation to counter the pressure of the banks. It is also not clear that bank regulators were really captured. They may well have been influenced by ideological currents of the time that favored deregulation. But even deregulators can be influenced by cost-benefit analysis when the results are compelling.¹⁴⁶

¹⁴⁴ See Macey, *supra* note ___, at 1278.

¹⁴⁵ They might also not have. It is important to recognize that there was a great deal of controversy over what the optimal capital regulations would be. Many economists believed that, for example, Basel II rules were too strict or too rigid. See, e.g., Anil K. Kashyap & Jeremy C. Stein, *Cyclical Implications of the Basel-II Capital Standards* 27-67 (unpub. m.s. 2003) (arguing that Basel II should have provided for lower standards during recessions so as to avoid exacerbating cyclical downturns); Joe Peek & Eric Rosengren, *Bank Regulation and the Credit Crunch*, 19 *J. Banking & Fin.* 679, 690-91 (1995) (arguing that enforcement of capital requirements caused credit shrinkage in New England). However, I have not found contemporary papers that did formal cost-benefit analyses of capital-asset rules as opposed to pointing out various isolated empirical effects of them.

¹⁴⁶ A frequently cited example is the Reagan administration's decision to support an ozone treaty after being shown a cost-benefit analysis that showed that the ozone hole produced huge costs, while regulations that would ameliorate the problem would impose relatively low costs on industry. See Sunstein, *Of Montreal and Kyoto*, *supra* note ___, at 15.

CONCLUSION

It is by now well-known that the government underregulated the financial industry from the 1980s to the financial crisis, and that the underregulation contributed to that financial crisis. The deregulation of the financial industry had complex roots. Banks were overregulated in the post-World War II period, which made it difficult for them to survive the economic stresses of the 1970s. Many of the rules—such as restrictions on branching—made very little sense from the standpoint of the public interest, and it was reasonable to abolish them. Yet no one believed that banks should be completely deregulated. Regulators retained their legal authority to regulate banks for safety and soundness, and several statutes enacted in the 1980s encouraged them to do so.

Basic economic principles indicated that banks will take excessive risks unless regulated. Indeed, the S&L crisis of the 1980s was a textbook illustration of the economic consequences of insufficient financial regulation,¹⁴⁷ and Congress responded in 1989 by ordering regulators to tighten the rules.¹⁴⁸ Thus, economic principles and statutory mandates should have equipped regulators with justifications for relatively strict capital rules.¹⁴⁹ Yet regulators did not issue strict capital regulations. Instead, they adopted a strategy of norming, which ensured that the rules did no more than weed out a handful of outliers.

The explanation for this behavior may be that regulatory zeal simply crumbled in the face of industry opposition. But another hypothesis is that regulators lacked an adequate decision procedure that would have enabled them to see that industry's demands were unreasonable. We cannot re-run history and see what would have happened if regulators had been required to use cost-benefit analysis. It is possible that regulators would have conducted phony cost-benefit analyses (as OCC did) and the same outcome would have occurred. Critics of cost-benefit analysis worry that this decision-

¹⁴⁷ See Edward J. Kane, *The S&L Insurance Mess: How Did It Happen?* (1989) (describing the regulatory failures that led to the S&L crisis).

¹⁴⁸ Financial Institutions Reform, Recovery, and Enforcement Act of 1989, Pub. L. No. 101-73, 103 Stat. 183 (codified at 12 U.S.C. § 1811).

¹⁴⁹ As did the academic literature, which overwhelmingly criticized bank regulations for encouraging banks to engage in excessive risk-taking. See, e.g., Macey, *supra* note ___, at 1278 & n.8 (1989) (describing and citing literature).

procedure encourages regulators to ignore intangible, hard-to-value benefits of a regulation.¹⁵⁰ In the area of financial regulation, the statistical value of an avoided financial crisis may have been regarded as too hard to value.

But even if this criticism is valid for environmental regulation, it is hard to imagine that something similar could happen in financial regulation. In the case of environmental regulation, the Environmental Protection Agency typically does value the major hard-to-measure-benefits of regulation—namely, avoided statistical deaths. It ignores certain other, even harder-to-measure benefits like the abstract value of the continuing existence of wilderness or mild harms like headaches.¹⁵¹ The cost-benefit analyses may therefore understate benefits but likely not by much. By contrast, if financial regulators ignore the benefit of reducing the probability of a financial crisis, there would be virtually no benefit to financial regulation—and capital requirements would be reduced to zero. No one believes that this is the right outcome. A cost-benefit analysis requirement would thus compel regulators to undertake this difficult but not impossible valuation exercise rather than ignore it.¹⁵²

The history of capital regulation also contains larger lessons for the regulatory state. Norming, and its close cousin, feasibility analysis, lend themselves to underregulation when the regulator faces determined opposition from industry. Neither approach contains the intellectual resources for justifying regulations that impose large costs on society. Critics of cost-benefit analysis¹⁵³ and defenders of feasibility analysis¹⁵⁴ should be careful what they wish for.

¹⁵⁰ Ackerman & Heinzerling, *supra* note ___, at 200.

¹⁵¹ For a discussion, see Matthew D. Adler & Eric A. Posner, *New Foundations of Cost-Benefit Analysis* 126-27 (2006) (discussing the problem of measurement).

¹⁵² Which is not to say that judicial enforcement of cost-benefit would have been justified. On the question of institutional enforcement, see Robert P. Bartlett, III, *The Institutional Framework for Cost-Benefit Analysis in Financial Regulation: A Tale of Four Paradigms?*, *J. Legal Stud.* (forthcoming).

¹⁵³ See, e.g., Ackerman & Heinzerling, *supra* note ___; McGarrity, *supra* note ___; Amy Sinden, *Cass Sunstein's Cost-Benefit Lite: Economics for Liberals*, 29 *Colum. J. Envtl. L.* 191, 240-41 (2004) (arguing that cost-benefit analysis indeterminate).

¹⁵⁴ Driesen, *supra* note ___.