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Reframing Financial Regulation

Charles K. Whitehead
Cornell Law School, ckw26@cornell.edu

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REFRAMING FINANCIAL REGULATION

CHARLES K. WHITEHEAD

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Financial regulation today is largely framed by traditional business categories. The financial markets, however, have begun to bypass those categories, principally over the last thirty years. Chief among the changes has been convergence in the products and services offered by traditional intermediaries and new market entrants, as well as a shift in capital-raising and risk-bearing from traditional intermediation to the capital markets. The result has been the reintroduction of old problems addressed by (but now beyond the reach of) current regulation, and the rise of new problems that reflect change in how capital and financial risk can now be managed and transferred.

In this Article, I begin to assess the current U.S. approach to financial regulation, in light of recent changes in the financial system, and offer a tentative way to address gaps in proposals for regulatory reform. Regulators must focus on the principal problems that financial regulation is intended to address – relating to financial stability and risk-taking – without regard to fixed categories, intermediaries, business models, or functions. Doing so, however, requires a prospective assessment of the markets, a different approach from the reactive process that characterizes much of financial regulation today.

INTRODUCTION

Financial regulation is often reactive. New regulation seals up leaks in the financial system – usually following a crisis, a shift in the markets, or other change that threatens financial stability.1 The decision in 1933 to separate commercial and investment banking, for example, followed a transformative period of growth in the stock market and the broad dispersion of stock ownership.2 Congress also began to divide the regulation of financial

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2 See Banking Act of 1933 (Glass-Steagall Act), Pub. L. No. 73-65, §§ 16, 20, 21, 32, 73 Stat. 184-85, 188-89, 194. The barrier between banking and investment banking was
intermediaries into categories – as banks, thrifts, securities firms, insurance companies, and pension and investment advisors – largely based on the functions, products, and services they provided at the time.³ Relying on categories to frame U.S. financial regulation generally worked well over the next seventy-five years, with only minimal disruption until the credit slowdown in 2007.⁴

Intermediation, however, has continued to evolve, particularly beginning in the 1970s with the start of rapid change in the financial markets.⁵ Chief among the changes has been convergence in the products and services offered by traditional intermediaries and new market entrants, spurring new competition, as well as a shift in capital-raising and risk-bearing from traditional intermediation to lower-cost alternatives, in many cases through the capital markets.

³ See infra notes 65-68 and accompanying text. The principal functions of financial intermediation are described infra at notes 21-51 and accompanying text. Types of financial intermediaries are described in Robert Charles Clark, The Federal Income Taxation of Financial Intermediaries, 84 YALE L.J. 1603, 1605-08 & nn.1-21 (1975) (classifying financial intermediaries as “first order financial intermediaries” that rely on capital from individual households and “second order financial intermediaries” that receive funds directly from other financial entities), and Howell E. Jackson, Regulation in a Multisected Financial Services Industry: An Exploration Essay, 77 WASH. U. L.Q. 319, 322-31 (1999) (presenting financial relations along a spectrum between privately negotiated arrangements and contingent-return intermediaries).


⁵ See infra notes 69-76 and accompanying text (illustrating the relaxation of the divide between investment and commercial banking that occurred in the 1970s due to increased competition, changes in regulations, and new products and other innovations); see also Ronald J. Gilson & Charles K. Whitehead, Deconstructing Equity: Public Ownership, Agency Costs, and Complete Capital Markets, 108 COLUM. L. REV. 231, 244-47 (2008); Merton H. Miller, Financial Innovation: The Last Twenty Years and the Next, 21 J. FIN. & QUANTITATIVE ANALYSIS 459, 459-60 (1986) (describing “revolutionary” changes in financial institutions and instruments in the prior twenty years); Peter Tufano, Financial Innovation, in 1A HANDBOOK OF THE ECONOMICS OF FINANCE 307, 311-12 (George M. Constantinides et al. eds., 2003) (discussing the “tremendous innovation” in financial products during the 1980s).
Banks, for example, began to face new competition from money market funds (“MMFs”) and finance companies that began to offer similar products and services, but at competitive prices, drawing away substantial numbers of depositors and borrowers from the banking industry. Growing competition and changes in regulation also prompted bank lenders to begin to transfer loan-related risk to third parties. Initially, banks sold all or portions of entire loans to other banks and investors, but over time, they also began to transfer only the credit risk of those loans, separating the banks’ role as working capital providers from their traditional function as credit risk managers. Increasingly, banks relied on new instruments – like credit default swaps (“CDSs”) – to outsource risk management to less-regulated entities, including hedge funds.

6 MMFs are mutual funds whose portfolios are limited to short-term, highly liquid, and relatively low-risk debt instruments. See infra note 103 and accompanying text.

7 See infra note 73 and accompanying text.

8 See Charles K. Whitehead, The Evolution of Debt: Covenants, the Credit Market, and Corporate Governance, 34 J. CORP. L. 641, 657-59 (2009) (“[U]sing a credit default swap, a bank can buy or sell all or a portion of a borrower’s credit risk without transferring the loan or bond itself, enabling it to more efficiently manage and diversify exposure and expanding the universe of prospective investors beyond those with significant amounts of capital to lend.”).

9 A CDS is a type of derivative that permits a counterparty to a swap contract to buy or sell all or a portion of the credit risk tied to a loan or bond. The CDS customer pays the “writer” of the swap a periodic fee in exchange for a contingent payment in the event of a credit default. If a credit event occurs, typically involving default by the borrower, the CDS writer must pay the counterparty an amount sufficient to make it whole or purchase the referenced loan or bond at par. See William K. Sjostrom, Jr., The AIG Bailout, 66 WASH. & LEE L. Rev. 943, 947-52 (2009). For more information on derivatives and CDSs, see generally MORTON GLANTZ, MANAGING BANK RISK: AN INTRODUCTION TO BROAD-BASE CREDIT ENGINEERING 531-49 (2003), and Blythe Masters & Kelly Bryson, Credit Derivatives and Loan Portfolio Management, in HANDBOOK OF CREDIT DERIVATIVES 43, 43-85 (Jack Clark Francis et al. eds., 1999). CDSs are, in substance, economically similar to term insurance policies written against the credit downgrade of the referenced borrower. See Stephen J. Lubben, Credit Derivatives & the Future of Chapter 11, 81 AM. BANKR. L.J. 405, 423-24 (2007); Frank Partnoy & David A. Skeel, Jr., The Promise and Perils of Credit Derivatives, 75 U. CIN. L. Rev. 1019, 1050 (2007).

10 There is no standard definition of “hedge fund,” although a distinctive feature is an organizational structure that helps align shareholder and manager interests and the payment to managers of significant performance-related fees that aim to maximize the fund’s risk-adjusted returns. Those returns often rely on substantial borrowings, derivatives, and complex investment strategies. See infra note 170 and accompanying text; see also TECHNICAL COMM. OF THE INT’L ORG. SEC. COMM’NS, HEDGE FUNDS OVERSIGHT: CONSULTATION REPORT 6-9 (Mar. 2009), http://www.iosco.org/library/pubdocs/pdf/IOSCOCPD288.pdf [hereinafter IOSCO, HEDGE FUNDS]. Hedge funds and their advisors are subject to minimal regulation – often defined by reference to the federal securities laws from which they are exempt. See Steven M. Davidoff, Black Market Capital, 2008 COLUM. BUS. L. REV. 172, 201-16; Troy A. Paredes, On the Decision to Regulate Hedge Funds: The SEC’s Regulatory Philosophy, Style, and Mission, 2006 U. ILL. L. Rev. 975, 979-83.
which could then invest in and manage the credit risk of a bank’s loan portfolio without extending loans themselves.\footnote{See infra notes 29-32, 125-34 and accompanying text.} Although hedge funds grew by 260% between 1999 and 2004 to become a one trillion dollar business, they were largely exempt from regulation under the federal securities and investment advisory laws.\footnote{See Registration Under the Advisers Act of Certain Hedge Fund Advisers, Investment Advisers Act Release No. IA-2333, 69 Fed. Reg. 72,054, 72,055-56 (Dec. 10, 2004); Paredes, supra note 10, at 999-1001.} In effect, through new capital markets products, banks and other intermediaries could transfer a core function of traditional intermediation from an industry subject to close, prudential supervision to one largely beyond regulatory oversight. Fueled by similar changes, the financial system transformed – from primarily relying on traditional intermediaries to becoming increasingly flexible as new instruments, new participants, and new markets began to manage and transfer capital and financial risk.

In this Article, I begin to assess the U.S. approach to financial regulation in light of recent changes in the financial system and offer a tentative way to address gaps in current proposals for regulatory reform. Today, the principal financial regulations (and associated cost) that apply to a particular entity largely depend upon whether the entity is a bank, insurance company, or securities firm – definitions that, in many cases, were formed according to business models that existed in the 1930s.\footnote{As Jamie Dimon, the Chairman and CEO of J.P. Morgan Chase, has noted, “A lot of the rules and regulations [we have] are closer to the Civil War than they are to today.” Paul Tharp, Ben Sees Treasury as the Bank Cure, N.Y. POST, July 9, 2008, at 31.} The financial markets, however, are well on the way to bypassing those categories. The result has been the reemergence of old problems addressed by (but now beyond the reach of) current regulation, and the introduction of new problems that reflect change in how capital and financial risk can now be managed and transferred.

Capital regulation, for example, helps contain the financial risks borne by banks, securities firms, and insurance companies.\footnote{See infra notes 107-09 and accompanying text.} Bank requirements have historically been more costly, reflecting the relative ability of securities firms and insurance companies to bear risk. Banks, however, were not disadvantaged so long as they only competed with other banks. Problems arose when banks and securities firms began to compete directly by offering similar products and services, such as loan securitization. In order to remain competitive, banks were forced to move risky assets off their balance sheets – in many instances to special purpose vehicles (“SPVs”) that financed the purchase with commercial paper. Funding longer-term assets with short-term
credit created many of the same problems that bank regulation has historically addressed. SPVs, however, fell outside direct regulatory oversight, resulting in an increase in the risks borne by the financial system without a corresponding increase in protections.15

Regulators, I argue, must begin to focus on the principal issues that regulation is intended to address – relating to market stability and risk-taking – without regard to fixed categories, intermediaries, business models, or functions. Stated differently, the financial markets have become more flexible, and so must the regulatory response. Yet, many proposals for reform continue to lag behind the market. For example, a centerpiece of the Obama Administration’s reforms is a proposal to create a “systemic risk” regulator that focuses, among others, on private equity and hedge funds that are “too big” or “too interconnected” to fail.16 That focus may help address some of the specific problems that sparked the current financial crisis. It fails, however, to address new problems prompted by change in the markets. Recall the ability of intermediaries, like banks and insurers, to outsource risk management to less-regulated entities, like hedge funds.17 That change reflects a shift away from traditional categories, as new participants – regardless of size or interconnectedness – take on functions historically managed by, and regulated within, banks and insurers. Financial risk may increasingly be bought and sold among capital markets participants, some of whom are not subject to the same levels of regulation as traditional intermediaries. What this suggests is that regulators must begin to address whether there are now market-based risks – beyond any single intermediary – that raise the same systemic concerns that underlie bank and insurance regulation,18 a prospective look that differs from the reactive process that has characterized much of financial regulation to date.19

15 See infra notes 115-24 and accompanying text.
17 See supra notes 8-11 and accompanying text.
18 One such concern, involving financial risk management, is described infra at notes 177-81 and accompanying text.
19 As Eddie George, the former Governor of the Bank of England, commented, “[T]here are many ways of skinning this particular cat . . . . In any event no structure can be set in
Let me note two caveats. First, it is difficult at this early stage to detail how a new regulatory structure should look. My goal in this Article is to begin to set the stage for a new approach to financial regulation, focusing on trends in the financial markets that have moved beyond existing regulation, and incorporating those trends into a tentative approach that is not limited by fixed categories. Specific proposals for reform will need to be weighed on a case-by-case basis. To be effective, however, they must include consideration of the new trends and problems in the financial system illustrated in this Article.

Second, my focus here is on the effect of changes in the financial markets on U.S. regulation. Not surprisingly, similar changes have occurred outside the United States, suggesting a transnational dimension in reframing financial regulation. Differences in regulation can result in shifts in business and risk-bearing among regulatory regimes. Consequently, similar regulation needs to be considered irrespective of the jurisdiction in which a business is located—a vital step in the process, but requiring an analysis that is beyond the scope of this Article.

In the next Part, I describe the role of financial intermediaries in allocating and transferring capital and in managing risk-bearing. Intermediation itself creates risk, and so, in addition, I describe the role of financial regulation in filling gaps that imperfect markets are unable to effectively police. In Part II, I illustrate how change in the financial markets has affected capital-raising and risk-bearing, blurring the divide between traditional business models. The result has been a growing mismatch between regulation and intermediation. In Part III, I consider the evolving role of financial regulation and the need for new regulation to reflect change and convergence in the marketplace. I propose a supra-functional approach to financial regulation that takes into account the transfer of like functions across the financial markets, but considers them within the institutions (including the markets) where those functions are performed.

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functions now appear, and then apply it to a current proposal to regulate derivatives transactions.

I. FINANCIAL INTERMEDIATION

A. Intermediation Benefits

Financial intermediation helps bridge the gap between suppliers and consumers of capital, many of whom are located at a distance. In a frictionless world, the financial markets would allocate the kinds and amounts of capital that businesses require, without the assistance (or cost) of an intermediary.21 Transaction costs, however, create a role for financial intermediaries, which collect capital from diverse, often small, investors and transfer it to end-users at lower cost than investors could do themselves.22 By accumulating small-denomination deposits, for example, banks can economically extend larger-denomination loans, effectively lowering the costs which a depositor would incur if she tried to make the loans directly. In addition, banks act as “delegated monitors,” leveraging long-term relationships to lend capital based on information that is unavailable to depositors or only available at higher cost. The discipline that comes with monitoring may, in turn, improve a borrower’s financial condition and increase the value of the bank’s investment.23

Intermediaries also transmit information to capital suppliers. Data about a firm’s business and prospects are increasingly reflected in its stock price, permitting a decentralized market to direct capital where it can be used most productively. Firms, as well, rely on changes in stock price to determine which projects to pursue and how to fund them.24 More recently, with increased trading in private credit instruments, the feedback provided by changes in credit pricing – with the cost of a new loan increasingly driven by pricing in the secondary market – has begun to provide the same kind of information as the public equity markets.25

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25 See Whitehead, supra note 8, at 668-70.
In addition, intermediaries help smooth the transfer of capital. Retail suppliers typically prefer to access their money quickly, favoring short-term investments, like bank deposits, that can be turned into cash on demand. By contrast, borrowers require a source of longer-term capital; term loan maturities, for example, average sixty-nine months. What has made banks special is their ability to balance these two competing needs – managing a loan portfolio against the obligation to make depositors whole, using loan proceeds to repay depositors, and smoothing any shortfall with liquid reserves. A key to the juggling act is the bank’s ability to realize on its investments gradually, without being forced – by sudden and widespread withdrawals – to liquidate assets quickly and at fire sale prices.

Risk management is also an important function of intermediation. Insurance policies, for example, provide customers with a means to transfer the financial risk of future loss to insurers. The insurers, in turn, cap some portion of that risk through deductibles, limits, and other policy features, and then manage or disperse the remaining risk across a large pool of policyholders. More recently, intermediaries have begun to take a more active role in managing and transferring financial risk from originators prepared to pay to transfer risk, to others (including intermediaries) prepared to manage that risk. A bank, for example, has traditionally managed the risks of its loan portfolio more effectively than its depositors could. The principal risk, that a borrower will default on its loan, is addressed through portfolio diversification, as well as relationships that help the bank to monitor and enforce loan covenants. As portfolio risk management improved, bank lenders sought to transfer risk to firms that were better able to manage it, starting with loan syndication and then moving to lower-cost alternatives, such as loan trading and derivatives. Today, lenders can separate their role as working capital providers from their traditional job as risk managers, in the process introducing a new category of market participants – increasingly, hedge funds – who are willing to invest in

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30 Whitehead, supra note 8, at 655-58.
the credit of a referenced borrower without extending loans themselves.31 The result has been substantial growth in the private credit market.32

B. Intermediation Costs

Intermediation also creates risk. By their nature, financial intermediaries are more likely than other businesses to expose customers to fraud, self-dealing, and other misconduct.33 Retail consumers, for example, often find the task of evaluating financial assets or services to be formidable. In many cases, such as pension funds, this is because the benefits are unlikely to accrue until far in the future. If performance fails to be as promised, it may be difficult to determine how much of the shortfall was caused by a change in market conditions and how much was due to incompetence or dishonesty.34 Consequently, a principal

31 See infra notes 126-27 and accompanying text; see also Robert C. Merton, Financial Innovation and Economic Performance, J. APPLIED CORP. FIN., Winter 1992, at 12, 12 (observing that working capital, used to finance firm projects, can be separated from risk capital that bears those projects’ risks).

32 See Franklin Allen & Anthony M. Santomero, The Theory of Financial Intermediation, 21 J. BANKING & FIN. 1461, 1466-74, 1482 (1996); Whitehead, supra note 8, at 657 n.115. By 2008, for example, an estimated sixty-two trillion dollars in notional amount of CDSs were traded. See Gretchen Morgenson, First Comes the Swap. Then It’s the Knives, N.Y. TIMES, June 1, 2008, at BU. This was up from $632 billion in 2001. See David Mengle, Credit Derivatives: An Overview, ECON. REV., 4th Q. 2007, at 1, 7, http://www.frbatlanta.org/filelegacydocs/erq407_mengle.pdf.

33 See Robert Charles Clark, The Soundness of Financial Intermediaries, 86 YALE L.J. 1, 12-13 (1976). Financial holdings are particularly susceptible to self-dealing compared to less liquid assets, providing one basis for a higher standard of conduct for the directors and officers of financial intermediaries. See, e.g., Gerdes v. Reynolds, 28 N.Y.S.2d 622, 653 (Sup. Ct. 1941) (finding former directors of an investment firm liable for breach of fiduciary duty for selling control to a purchaser notwithstanding red flags that indicated the purchaser would liquidate and misappropriate the firm’s holdings). Regulators also use licensing to screen directors, managers, and employees. The failure, for example, of an insurer or its agent to satisfy applicable standards of conduct can result in the revocation of its license by the state insurance commissioner. See 7 ERIC MILL HOLMES, APPLEMAN ON INSURANCE §§ 49.7, 49.9 (2d ed. 2009); see also, e.g., N.Y. INS. LAW §§ 1102, 1104, 2601 (McKinney 2006) (vesting power in the Superintendent to suspend or revoke an insurance provider’s license for misconduct). Customer suitability requirements serve a similar function for securities firms. See Lewis D. Lowenfels & Alan R. Bromberg, Suitability in Securities Transactions, 54 BUS. LAW. 1557, 1557 (1999). The Basel (Basle) Committee on Banking Supervision (a global forum of senior bank regulators) also lists the vetting of directors and senior managers to assess personal integrity as a best practice. See BASLE COMM. ON BANKING SUPERVISION, CORE PRINCIPLES FOR EFFECTIVE BANKING SUPERVISION 17-18 (1997), available at http://www.bis.org/publ/bcbs30a.pdf.

34 Products may also be too complex for investors to determine the cause of loss. Notwithstanding substantial public outcry, prosecutors have had difficulty in deciding whether losses from mortgage and other instruments tied to the 2007 credit crisis were the result of criminal misbehavior or simply bad business judgment. See Andrew J. Ceresney et
aim of financial regulation is to protect investors who may not, on their own, be able to protect themselves – including through standards of conduct and increased disclosure to customers. Mutual funds, for example, are subject to special regulations that restrict potential conflicts of interest, partly the reason for the substantial decline in fraud that had permeated the mutual fund industry.

In addition, financial intermediaries must address the standard agency cost rivalry that arises between shareholders and creditors. A shareholder’s liability is capped at the amount she invested, whereas her return, tied to the intermediary’s profits, is potentially unlimited. The intermediary’s principal liabilities are comprised of the products it sells – for example, deposits by banks and policies by insurance companies. Repayment amounts are fixed at a pre-agreed rate or formula so long as the intermediary does not default. The result is a split in incentives, with shareholders preferring a riskier investment strategy in order to maximize the potential for profits, and creditors interested in simply receiving their pre-agreed return.

Intermediaries, of course, manage risk in the ordinary course. Managing credit risk, for example, lies at the heart of a bank’s function as an intermediary between suppliers and consumers of capital. Risk management also helps to reduce the earnings volatility many banks face as they have moved away from traditional lending revenues to less reliable, fee-based...
earnings tied to new products and services. Customers (as creditors), nevertheless, may worry that managers will favor shareholder over customer interests, absent a government guarantee of the customers’ money or limit on management discretion. Managers could invest in riskier assets, for example, in an effort to enhance total returns, but resulting in a greater likelihood of default to depositors or policyholders.

How, then, to minimize the risk of loss to creditors? An intermediary’s customers could, in theory, amend their contracts to reflect the risks of their investment. Insurance premiums, for example, could be reduced to reflect the likelihood that an insurer will be unable to pay its policyholders. Most customers, however, face an informational barrier — not having sufficient information on which to assess the risk of nonpayment and the reduction in premium. In addition, simply reducing a premium is unlikely to make up for the losses a customer would suffer in the event an insurer defaults.

Customers could also rely on covenants and monitoring to control an intermediary’s risks directly. The sheer number of customers, however, makes it prohibitive to negotiate covenants with each of them or coordinate

40 See Robert DeYoung & Karin P. Roland, Product Mix and Earnings Volatility at Commercial Banks: Evidence from a Degree of Leverage Model, J. FIN. INTERMEDIATION, Jan. 2001, at 54, 81-82. Intermediaries also benefit from risk management in the same way as other firms. Firms with convex tax schedules, for example, have been found to hedge more, suggesting that hedging may reduce pre-tax earnings variability and enhance post-tax value. See Deana R. Nance, Clifford W. Smith, Jr. & Charles W. Smithson, On the Determinants of Corporate Hedging, 48 J. FIN. 267, 280 (1993); Clifford W. Smith & René Stulz, The Determinants of Firms’ Hedging Policies, 20 J. FIN. & QUANTITATIVE ANALYSIS 391, 392 (1985). In addition, hedging can reduce the risk premium that firms must pay employees whose wealth is substantially invested in their employer (through stock awards, options, and bonuses). See Lisa K. Meulbroek, The Efficiency of Equity-Linked Compensation: Understanding the Full Cost of Awarding Executive Stock Options, FIN. MGMT., Summer 2001, at 5, 35; Smith & Stulz, supra, at 399-402. An intermediary’s managers can also benefit from hedging to the extent it reduces profit variability and, in their superiors’ eyes, evidences stronger management performance. See Peter M. DeMarzo & Darrell Duffie, Corporate Incentives for Hedging and Hedge Accounting, 8 REV. FIN. STUD. 743, 746 (1995). Finally, an intermediary’s expertise in risk management can provide an additional source of revenue for services it provides to institutional customers. See Allen & Santomero, supra note 32, at 1465.


42 A brief description of government guarantees appears infra at notes 52-54 and accompanying text and in Appendix A.

43 Regulatory restrictions on management discretion are described infra at notes 58-64 and accompanying text, and in Appendix B.

44 See Mark J. Flannery, Debt Maturity and the Deadweight Cost of Leverage: Optimally Financing Banking Firms, 84 AM. ECON. REV. 320, 325-26 (1994).

45 See Merton, supra note 22, at 43.

46 See Whitehead, supra note 8, at 641-42.
their enforcement. Monitoring, as well, is costly or difficult to undertake. Banks, for example, conceal borrower information from the public, rather than risk its release to competitors. Most depositors, therefore, have only limited data on which to assess the assets in which a bank has invested and, in turn, the credit quality of the bank itself. The problem is compounded in the case of insurance companies. Insurance policies typically have long maturities. Consequently, information obtained today is less likely to be meaningful when a policy becomes due. Even if that information is available, banks, insurers, and other intermediaries can quickly change their risk levels, reflecting the relative liquidity, compared to most businesses, of the assets they hold.47

Intermediation risk could also be hedged away by transferring some portion of the risk to others.48 A depositor, for example, could short her bank’s stock – selling stock she does not own but can borrow from a custodian, with a view to later buying back the stock in order to repay what she borrowed. In the interim, she would profit if the stock price declined (by selling high and buying back low), potentially offsetting any losses on her deposit if the bank made poor portfolio choices.49 For the strategy to be effective, however, she would need to be as capable of assessing the bank’s portfolio risk as the bank’s own managers – a complex process based on information she probably would not have.

The combined effect of customer uncertainty and informational gaps contributes substantially to systemic risk – broadly defined, the risk that the default or failure of one intermediary will impact the viability of others, damaging their ability to collect and allocate capital and harming the wider economy.50 With banks, for example, the feature that makes them special – the ability to finance illiquid, longer-term loans with liquid, short-term deposits – may trigger a run if one or more of them is rumored to be unstable. Investors then face a collective action problem. If none of them withdraws, the bank may continue to go about business as usual. Panicked depositors, however, without the ability to gauge a bank’s health, may rush to withdraw money from a stable bank rather than risk being last in line if it fails. The subsequent liquidity shock – as the bank is forced to sell assets, quickly and at depressed prices, in order to repay depositors – may cause the rumor of failure to become a self-fulfilling prophecy. Concerns over the health of one bank may, in turn,

47 See Clark, supra note 33, at 14-18.
50 There is a substantial amount of scholarship on the causes and effects of systemic risk. I will not repeat that literature here, but simply highlight some key aspects that financial regulation is intended to address. For a catalogue of approaches to defining “systemic risk,” see Steven L. Schwarz, Systemic Risk, 97 Geo. L.J. 193, 196-204 (2008), and Paredes, supra note 10, at 983.
be projected on to others, with the customers’ inability to differentiate among banks setting off a cascade of failures across the industry.\(^{51}\)

C. Regulation of Financial Intermediaries

Market remedies – like covenants, monitoring, and hedging – are of only limited effect in minimizing the likelihood of customer runs.\(^{52}\) In response, government-directed insurance helps address customer concerns over cash and assets held by intermediaries. Up to specified levels, customers can be assured of being made whole irrespective of the intermediary’s financial health or the reason for a default. For banks, for example, Federal Deposit Insurance Corporation (“FDIC”) insurance protects depositors against losses up to $250,000.\(^{53}\) Customers of insurance companies, securities firms, thrifts, and pension funds also benefit from government-directed insurance programs.\(^{54}\) Insurance, however, creates a risk of moral hazard. An intermediary may

\(^{51}\) See Douglas W. Diamond & Philip H. Dybvig, Bank Runs, Deposit Insurance, and Liquidity, 91 J. POL. ECON. 401, 401-04 (1983); Herring & Santomero, supra note 23, at 8-9, 14-17, 18-19. Customers could single out individual firms by relying on less costly means, such as reputation, to bridge the information gap. A good reputation, however, takes time to establish and, in any event, may not be reliable if the benefits of default are sufficiently high. See William W. Bratton, Jr., Corporate Debt Relationships: Legal Theory in a Time of Restructuring, 1989 DUKE L.J. 92, 139-42 (remarking on “the limited force of reputation”).

\(^{52}\) There is a substantial amount of scholarship on financial regulation that I do not repeat here. A comprehensive overview of approaches to U.S. financial regulation appears in Jackson, supra note 3, at 339-63.

\(^{53}\) Banks can also access Federal Reserve funds to cover shortfalls in liquidity temporarily in the event of substantial withdrawals. See Mark E. Van Der Weide & Satish M. Kini, Subordinated Debt: A Capital Markets Approach to Bank Regulation, 41 B.C. L. REV. 195, 204-05 (2000). More recently, in light of the credit crisis, the nation’s largest securities firms (including Goldman Sachs and Morgan Stanley) elected to become bank holding companies subject to federal bank regulation. Among other benefits, those firms can now access funding that has historically been made available by the Federal Reserve to banks. See Patrice Hill, Treasury to Try to Keep Owners in Their Homes; Goldman, Morgan Cleared to Acquire Banks, WASH. TIMES, Sept. 22, 2008, at A1.

assume more risk if insurance or other protection minimizes any resulting loss.\footnote{55} Perhaps more significantly, intermediaries are likely to assume greater risk than is socially optimal. For example, the costs of a bank run, resulting from the bank’s decision to assume a risky loan portfolio, can be substantial. In addition to harming the bank, its shareholders, and its customers, other banks may also experience a decline in business, or even a run, as concerns over financial instability spread across the market. Borrowers, as a result, may not be able to obtain funding at the same cost, restricting their ability to invest in new, value-enhancing projects and causing a slowdown in the general economy.\footnote{56} The costs of incurring risk, consequently, extend well beyond those who make the decision to do so – a negative externality that is unlikely to be fully considered (or priced) by a bank’s managers, shareholders, or customers when deciding what risk levels are optimal.\footnote{57}

Financial regulation, therefore, restricts the amounts and types of risk-bearing that an intermediary can assume,\footnote{58} directly through requirements that circumscribe the riskiness of an intermediary’s portfolio assets\footnote{59} and its capital structure,\footnote{60} and indirectly through rules regarding the intermediary’s net worth, capital, or surplus that effectively cap its risk-taking activities.\footnote{61} Those


\footnote{57} See infra notes 151-54 and accompanying text (describing one particular example, the AIG failure).

\footnote{58} See Clark, supra note 33, at 15-18, 23-24; Jackson, supra note 3, at 352-59; Jonathan R. Macey & Geoffrey P. Miller, Bank Failures, Risk Monitoring, and the Market for Bank Control, 88 COLUM. L. REV. 1153, 1155, 1165 (1988). Financial regulation can also further social objectives by channeling funds to preferred projects or limiting concentrations of economic power. See Herring & Santomero, supra note 23, at 10-11. Those motivations, while important to an assessment of financial regulation, are beyond the scope of this Article.

\footnote{59} See infra Appendix B for examples of regulations governing a financial intermediary’s investment portfolio.

\footnote{60} See infra Appendix B for examples of limitations on the types, amounts, and valuation of equity and debt instruments that can be issued by financial intermediaries.

regulations also lower systemic risk by reducing the likelihood of disruption in the intermediation process itself. See Herring & Santomero, supra note 23, at 13-14, 17-18 (discussing justifications for capital requirements and other protections to prevent systemic failure in the banking industry).

Insurance companies, for example, are required to meet minimum capital standards in order to protect policyholders against insolvency, but also to safeguard against the systemic consequences of default by a large insurer. See Robert W. Klein, The Insurance Industry and Its Regulation: An Overview, in The Future of Insurance Regulation in the United States 13, 38-40 (Martin F. Grace & Robert W. Klein eds., 2008); see also Brady Dennis, AIG Warned of ‘Catastrophic’ Failure; Company Told U.S. Its Collapse Would Cause Worldwide ‘Chain Reaction,’ WASH. POST, Mar. 10, 2009, at D1.

Together, these regulations moderate the amount of risk that an intermediary can incur by restricting both the asset and liability sides of its balance sheet. See Clark, supra note 33, at 47.

In the next Part, I illustrate how the financial markets have changed over the last thirty years, in particular with respect to the introduction of new instruments, new participants, and new markets to manage and transfer capital. Those developments have enhanced the efficiency of our financial markets, but have also created new risks. I then turn to the impact of those changes on the role of financial regulation.

II. CHANGING MARKETS AND REGULATION

A. Changing Financial Markets

Our present system of financial regulation was born of the Great Depression -- during the 1930s, for banks, securities firms, and thrifts, and during the 1940s, for investment advisors and mutual funds. Federal regulation divided intermediaries into separate categories, based on the businesses they conducted at the time, largely in order to address perceived abuses leading up to the economic collapse of the late 1920s. The Glass-Steagall Act, for example,
created a clear regulatory divide between commercial and investment banking. Twenty years later, the Bank Holding Company Act extended that separation by walling off banks from the underwriting of insurance products. Those differences began to blur in the 1970s, in part due to increasing competition, new products and other innovation, and changes in financial regulation. For banks, as an example, the introduction of new regulatory capital requirements made it more expensive to continue the lending business as they had before, causing them to expand into new business lines such as the development of structured finance and other, new instruments. New technologies and new competitors, like MMFs and finance companies, also made the banks’ traditional business model less profitable.


Finance companies lend to business and retail borrowers, relying on MMFs for funding through the sale to them of short-term commercial paper. See Jane W. D’Arista & Tom Schlesinger, The Parallel Banking System 3-4, 7-14 (Econ. Pol’y Inst., Briefing Paper No. 37, 1993), available at http://epi.3cdn.net/60831aa1353ed4610d_nhm56fira.pdf. MMFs, in turn, offer investors the convenience of a bank account, including checking services, toll-free telephone numbers, record-keeping, and wire transfers, but with nominally higher returns than bank deposits. See Franklin R. Edwards, The New Finance: Regulation & Financial Stability 73-74 (1996). Unlike bank deposits, MMF accounts are normally not protected by federal government insurance, see id., although the Treasury Department created a temporary program to guarantee MMF account balances following the run on MMFs in fall 2008, see supra note 54. Investors instead rely on regulations that limit portfolio assets to high quality securities and, in the past, the implicit assurance that an MMF’s managers would prevent the fund’s assets from falling below par, one dollar per share. See infra notes 101-02 and accompanying text. Together, MMFs and finance
In addition, the end of Bretton Woods and the start of the OPEC oil embargo in 1973 subjected peacetime businesses to new exchange rate and energy cost volatility. Business managers began to search for cost-effective means to manage their risk. Financial market participants saw an opportunity to profit from the creation and trading of new financial instruments that responded to the new demands. In many cases, they adopted technologies similar to those used by (but no longer limited to) insurers and banks – namely, the pooling and transferring of financial risk from corporate counterparties to those who, through diversification or otherwise, could manage that risk at lower cost. The result was the introduction of new products and services, often replicating those of traditional intermediaries, but offered by new participants or through the capital markets.

Take, for example, the chief operating officer ("COO") of a manufacturer ("Seller") who intends to increase her sales to an existing, large customer ("Buyer"). More sales will result in a substantial boost in profits, but, at the same time, will increase Seller's exposure to the risk that Buyer will fail to make its payments when due. In the 1970s, before the recent changes in the financial markets, the COO could have considered the following in order to offset that risk:

- As a preliminary matter, she might have simply decided to self-insure against the increased risk of default (a bad debt reserve) – setting aside capital against that possibility, which could be less expensive than market insurance, but might not protect Seller against unexpected loss.

- Alternatively, the COO could ask Buyer to arrange with its bank to post a letter of credit in Seller’s favor, in effect substituting the bank’s creditworthiness for Buyer’s as an independent assurance that payment would be made.

- The COO could also sell its accounts receivable to a factor, which typically would purchase them at a discount, taking on the risk of companies began to mirror the traditional balance struck by banks, resulting in a substantial shift in liquid household assets from the banking sector to the capital markets. See Edwards, supra, at 73-74; D’Arista & Schlesinger, supra, at 3-4, 7-14.

74 See Gilson & Whitehead, supra note 5, at 244-45.


76 See Allen & Santomero, supra note 32, at 1479-80; Van Horne, supra note 75, at 621-22.
Buyer’s default, but benefiting from any gain if Buyer paid more than the discounted price.  

- Finally, the COO could buy a commercial credit insurance policy that would be payable upon Buyer’s default. The insurer, as part of the underwriting process, would actively monitor Buyer’s credit quality and adjust the amount of coverage depending on changes in Buyer’s financial position.

Today, faced with the same problem, the COO would have available to her an even greater menu of new products and strategies from which to select:

- In addition to the traditional options, she could decide, in the first instance, to securitize the Buyer receivables—transferring them to a trust or other entity and then selling interests in the pool to the public. As with factoring, interest holders would take on both the risks and benefits of Buyer’s credit quality.

- Alternatively, the COO could decide to short sell Buyer’s stock, with any profit potentially offsetting a portion of the losses Seller incurs if Buyer’s credit declines. Changes in stock price, however, might not completely correlate with Seller’s losses, resulting in a mismatch (referred to as “basis risk”) between the hedge and Seller’s exposure.

- The COO could also enter into a CDS with a hedge fund or other counterparty, with the value of the CDS tied to an outstanding Buyer loan or bond. Seller could economically short Buyer’s credit risk by structuring the swap so that its value increased in the event Buyer defaulted on a referenced obligation. Payments received under the CDS could offset any losses that Seller incurred, subject again to basis

77 See James J. White, Death and Resurrection of Secured Credit, 12 AM. BANKR. INST. L. REV. 139, 153 (2004).
79 For a detailed discussion of new capital markets instruments that permit the transfer of traditional insurance risk to investors, see J. David Cummins & Mary A. Weiss, Convergence of Insurance and Financial Markets: Hybrid and Securitized Risk-Transfer Solutions, 76 J. RISK & INS. 493, 515-27 (2009).
80 See White, supra note 77, at 153-55.
81 The process of short selling is summarized supra at notes 48-49 and accompanying text.
risk in the event of a mismatch between the CDS and the amounts owed by Buyer to Seller.82

- Finally, Seller could issue credit-linked notes (“CLNs”) in the capital markets whose value at maturity is tied to Buyer’s credit. If that credit declines, then an amount less than par would be paid to the CLN investors. In return for that risk, investors would receive a coupon that was somewhat higher than the market standard. Economically, the CLNs would be equivalent to the sale by Seller of ordinary fixed-rate notes against its purchase from the note holders of a CDS whose value is referenced to Buyer.83

These examples illustrate two significant trends in the financial markets. First, they highlight a move from regulated (e.g., banks and insurance companies) to less-regulated intermediaries (e.g., securities firms and hedge funds), as well as from traditional products and services (e.g., letters of credit and insurance), to lower-cost alternatives, in many cases through the capital markets (e.g., securitization and CDSs). Consequently, traditional intermediaries have experienced a decline in market share – with banks, most notably, losing ground to less-regulated businesses, and the securities markets becoming a lower-cost source of capital and risk-bearing.84 Second, they illustrate that market participants – irrespective of category – can achieve similar results today using a variety of products and services, many of which did not exist thirty years ago.85 Thus, Seller could manage his exposure to Buyer through one or more of a bank, insurance company, securities firm, or hedge fund, with economically similar outcomes in each case.

How do these changes affect financial regulation? Today, each intermediary and product – framed by traditional categories – is subject to different regulations and regulators, depending on the category in which it falls. The result has been a patchwork of laws, even as similar problems have sprung up across the financial markets. Many of the new risks also fail to fit neatly into a traditional category, creating a gap between financial regulation and today’s markets. I discuss those concerns below.

82 See supra note 9 and accompanying text.
84 See Allen & Santomero, supra note 32, at 1466-74; Herring & Santomero, supra note 23, at 27-41.
B. Financial Markets – Evolution and Regulation

Beginning in the 1950s, financial regulation began to evolve in response to changes in the financial markets, in particular as concerns arose that traditional intermediaries had become less competitive. Regulators, for example, began to loosen their interpretations of the Glass-Steagall Act and the Banking Holding Company Act, largely in response to the banks’ growing interest in offering new products and services. Additional regulatory changes reflected new market participants and products, in some cases spurred by pressure from banks wishing to stay competitive, and in others, prompted by the desire to accommodate new financial practices.

Traditional categories, nevertheless, continue to frame how intermediaries are regulated, even though the convergence in products and services has resulted in similar problems appearing across the financial markets. The resulting problems are illustrated below. The first example, regarding bank runs by investors in non-banks, illustrates how issues addressed by existing regulation have begun to appear in new settings that fall outside the traditional categories. The second example, on the impact of capital requirements on banking competitiveness, outlines the emergence of new problems affecting traditional intermediaries, in many cases prompted by existing regulation. The third example describes the outsourcing of risk management by traditional intermediaries, evidencing the rise of new, unregulated risks among new market participants. I end with a discussion of AIG Financial Products (“AIGFP”), which provides an extreme example of the divide that has grown between the financial markets and financial regulation.

1. Bank and Non-Bank Runs

Within the standard framing, banks rely on short-term credit (deposits) to invest in a portfolio of longer-term assets (loans), capitalizing on special relationships to invest in private borrowers. Bank runs occur when there has been a loss of customer confidence; depositors, facing a collective action problem, rush to withdraw money because they believe, whether well-founded or not, that the bank has become unstable and wish to avoid being last-in-line to collect their money. Banks, in turn, face a liquidity problem, since

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86 See Allen & Santomero, supra note 32, at 1464-74; Herring & Santomero, supra note 23, at 29-35.
90 See Douglas W. Diamond & Philip H. Dybvig, Banking Theory, Deposit Insurance, and Bank Regulation, 59 J. BUS. 55, 63-64 (1986). Although uncommon today, the United
deposits are typically invested in assets that cannot be sold quickly enough to repay large numbers of depositors.91

Bear Stearns’s meltdown in spring 2008 was also a bank run – but one involving a securities firm, not a bank, borrowing through the capital markets from investors who were sophisticated institutions, rather than retail depositors.92 Like a bank, Bear Stearns relied on short-term credit to fund longer-term investments, including subprime assets, a common practice across Wall Street.93 Creditors relied on collateral (including subprime assets) to protect against a decline in Bear Stearns’s credit quality.94 Beginning in 2007, States has had bank runs in the past, the basis for the scene in Frank Capra’s 1946 film, It’s a Wonderful Life (Liberty Films 1946), when Bedford Falls township flocked to the struggling Bailey Brothers Building and Loan to get its money back.


94 See Gorton, supra note 4, at 10-13. The collateralized loans to Bear Stearns were made through sale and repurchase, also known as “repo,” transactions. In a typical trade, a securities dealer (the “repo seller”) sells securities to an investor (the “repo buyer”) for cash.
the value of those assets began to drop as investors came to believe that underwriting standards and loan quality had eroded. Only a few days earlier, research analysts had commented that Bear Stearns held enough liquid assets and sufficient borrowing capacity to stay in business for almost two years.95 That liquidity suddenly dried up – in a classic bank run – as creditors became troubled over Bear Stearns’s exposure to credit derivatives and subprime loans.96 As asset prices declined further, lenders were unwilling to roll-over or extend credit, or required Bear Stearns to post additional collateral – tantamount, in either case, to depositors withdrawing money from a bank. In order to repay its lenders, Bear Stearns was forced to sell less liquid assets at fire sale prices. The drop in value affected the price of similar assets held by others, transmitting Bear Stearns’s balance sheet problems across the market.97

American International Group (“AIG”), a global financial services firm, faced a similar problem, analogous to a run on an insurance company. In an insurance run, customers redeem their policies over concern the insurer will not be able to meet its payment obligations if they become due. AIG’s crisis, which I describe in more detail below,98 was sparked by trading in CDSs by a largely unregulated subsidiary, AIGFP. Briefly, AIGFP used CDSs to insure its customers against a decline in the value of “super senior” (high investment grade) bonds backed by subprime loans. AIGFP (and AIG, as guarantor) was required to post collateral as those values declined – with the substantial cost of doing so being the economic equivalent, as it was to Bear Stearns, of a customer run.99 When subprime prices declined further, AIG was obligated to

Jeanne L. Schroeder, A Repo Opera: How Crimi Mae Got Repos Backwards, 76 AM. BANKR. L.J. 565, 570-72 (2002). The repo buyer’s object is not to invest in the securities; rather, he expects to receive a return from the repo seller for the use of his cash. Id. Accordingly, as part of the trade, the repo seller also agrees with the repo buyer to repurchase the same or equivalent securities at some future time, frequently overnight, at a repurchase price above the price at which the repo buyer first bought the securities. Id. Economically, the transaction is equivalent to a secured loan – with the repo buyer lending cash to the repo seller against the underlying securities as collateral. See id. Repo transactions take place through purchases and sales of securities in the capital markets. See id. For ease of reference, however, I sometimes refer to the Bear Stearns transactions by their economic equivalents, “loans” and “collateral.”

95 See Cox Letter, supra note 93, at 3.

96 See Bernanke, supra note 92.


98 See infra Part II.B.4.

post additional collateral, eventually requiring the federal government to bail out the firm when it became unable to meet further calls.100

In fall 2008, when the share price of the Reserve Primary Fund, the nation’s oldest MMF, fell below the presumptive minimum of one dollar per share – the first MMF in fourteen years to “break the buck”101 – the news sparked a market-wide run by investors, who withdrew a total of approximately $480 billion in cash.102 MMFs are required under the federal securities laws to invest in short-term, liquid, high-quality debt instruments, such as Treasury bills and commercial paper – minimizing credit risk, while paying modestly better returns than bank accounts.103 Breaking the buck was particularly worrisome, since investors understood that fund advisors would make up any shortfall in the fund, even though there was no express guarantee of share price.104 Thus, the drop below one dollar per share raised the same concerns that spark a bank run – a loss of confidence over financial stability, fueled by uncertainty over the value of the MMFs’ assets, causing widespread redemptions across the industry. MMFs were forced to liquidate their portfolios in order to pay investors, contributing to a run-up in the cost to borrowers of issuing commercial paper (which composed a substantial portion of MMF investments) and precipitating a general freeze on new issuance.105

Each example essentially turns on the same problem – namely, the danger of a run due to uncertainty over financial stability. Yet, even though they raise the same concerns that current regulation is intended to address, new business practices continue to fall outside the scope of existing protections. Bear

100 See Sjostrom, supra note 9, at 952-61.


103 See 17 C.F.R. § 270.2a-7 (2009); INV. CO. INST., supra note 101, at 53-67. New rules regulating MMF portfolio composition were recently adopted by the SEC. See infra note 189.

104 See Leslie Wayne, Investors Lose Money in “Safe” Fund, N.Y. TIMES, Sept. 28, 1994, at D1 (listing fifteen MMFs whose advisors covered for shortfalls, rather than allowing fund share prices to fall below one dollar).

Stearns’s reliance on short-term creditors, for example, created the possibility of a bank-like run; and the risks assumed by AIGFP’s customers were similar to those normally borne by insurance policyholders. Bank regulations, however, do not extend to securities firms (like Bear Stearns) and their creditors; securities regulations that protect accountholders do not extend to other creditors (like Bear Stearns’s lenders); and insurance regulations do not protect the swap counterparties of a non-insurance firm (like AIGFP and its customers). Absent a regulatory safety net, Bear Stearns’s creditors and AIGFP’s counterparties chose to rely on collateral to protect against the possibility of default. Collateral, however, was an imperfect solution. As collateral requirements rose, so did the costs – tantamount to a run on the firm. For Bear Stearns, the collateral costs were particularly problematic because they created a downward spiral: Bear Stearns was forced to sell subprime assets, which caused a drop in the assets’ price (and collateral value) and required Bear Stearns to post additional collateral or sell more assets, beginning another iteration of the cycle.106

2. Regulatory Capital and Shadow Banking

Regulatory capital requirements assist in managing risk-taking by intermediaries that invest or take custody of customer assets. For banks, regulatory capital cushions against the risk of loss from a portfolio of loans, protecting against the impact of a bank failure on depositors, the possibility of a bank run, and in light of banks’ systemic importance, the resulting harm to the larger economy.107 For insurance companies, capital requirements principally protect policyholders.108 Insurers, in the ordinary course, expect to pay claims as they become due, and so they normally set aside funds against future obligations. Capital requirements help cushion against the possibility that actual claims will exceed the insurer’s projections. Lastly, for securities firms, a primary concern has been the protection of account holders who have securities or assets on deposit. A securities firm’s principal assets have traditionally been marketable securities, which can be sold quickly in order to meet creditors’ demands. The net capital rules, consequently, are based on a

106 See Gorton, supra note 4, at 33-35 (describing the escalating dynamics of the panic as it developed); see also Brunnermeier, supra note 93, at 92-94 (explaining spiral effects in more detail).


108 See infra Appendix B for examples of insurance capital requirements. See also The Joint Forum, supra note 107, at 12-13, 29-30, 41-46; Klein, supra note 63, at 23-24.
firm’s adjusted liquidation value, requiring it to maintain an amount of liquid assets sufficient to satisfy its obligations to customers and others.109

Regulators have long known that intermediaries transfer risk based on their relative cost of capital.110 Properly structured, capital requirements provided an incentive for intermediaries to transfer risk to lower-cost participants in order to optimize risk allocation.111 Banks, for example, are subject to high capital costs and so, in order to minimize them, have transferred risky assets to non-bank intermediaries (in many cases, insurance companies) that are less susceptible to financial shocks and, therefore, subject to lower costs.112

Existing capital requirements, however, are an imperfect match to today’s business practices. Problems arose as competition grew across industries. Over the last twenty years, for example, the asset-backed securities market has been fueled by the drive toward lower-cost financing.113 Banks were reported to move subprime assets off their balance sheets due to the greater capital costs to which they were subject compared to securities firms.114 Assets that were traditionally held by banks moved to a “shadow” banking system composed of structured investment vehicles and other financing conduits set up to minimize regulatory capital charges.115 Those vehicles raised funds primarily by selling short-term commercial paper and medium-term notes to MMFs and other investors. The proceeds of those sales were then used to purchase longer-term

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109 See infra Appendix B for a description of the net capital rules applicable to securities firms. See also THE JOINT FORUM, supra note 107, at 11-12, 30-31, 38-41; Allen & Herring, supra note 92, at 22-24.


112 See Allen & Gale, supra note 48, at 346.

113 BRYAN, supra note 69, at 82-83.


mortgage loans (or, in some cases, mortgage-backed securities) – in effect, replicating the short-term/long-term financing relationship traditionally managed by commercial banks.116 Assets owned by the conduits were used to make payments on the outstanding securities, as well as provide collateral in the event of default.117 Unlike banks, however, the conduits lacked a safety net – they had no insurance and no minimum capital requirements – making them more vulnerable to bank-like runs when financing began to tighten. By 2007, the shadow banking system had total assets of roughly $6.5 trillion – compared to $4 trillion for the then five major securities firms and $6 trillion for the top five U.S. bank holding companies.118

The difference in capital requirements had unintended consequences. By moving assets off their balance sheets, banks could underwrite riskier loans without incurring capital charges, potentially resulting in a decline in underwriting standards.119 Banks generally were aware of the greater risks that were being underwritten, but believed they needed to do so in order to stay competitive in the mortgage-backed securities business.120 As concerns arose over loan quality, however, investors grew reluctant to roll-over or continue holding subprime mortgage-backed investments.121 In many instances, the sponsoring bank agreed to move the loans back onto its balance sheet122 or extended a credit line to the conduit and so continued to be exposed to a decline in the value of the subprime assets.123 The result, in either case, was

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117 See Brunnermeier, supra note 93, at 79-80.

118 Professor Gorton also describes the substantial rise in off-balance sheet financing. Gorton, supra note 4, at 25-29.

119 A portion of the decline may have been due to resulting agency problems – bank managers no longer had as significant an incentive to assess or monitor a borrower’s credit quality and potentially had an incentive to transfer their riskiest assets to off-balance-sheet financing conduits. See Whitehead, supra note 8, at 646-47.

120 As former Citigroup Chairman and CEO Charles Prince was famously quoted, “When the music stops, in terms of liquidity, things will be complicated. But as long as the music is playing, you’ve got to get up and dance. We’re still dancing.” Michiyo Nakamoto & David Wighton, Bullish Citigroup Is ‘Still Dancing’ to the Beat of the Buy-Out Boom, Fin. Times, Jul. 10, 2007, at 1.


122 Mortgage assets were transferred back to the banks pursuant to pre-agreed guarantees, see Patricia A. McCoy, Musings on the Seeming Inevitability of Global Convergence in Banking Law, 7 Conn. Ins. L.J. 433, 449-52 (2001); Nelson D. Schwartz & Eric Dash, Where Was the Wise Man?, N.Y. Times, Apr. 27, 2008, at BU1, or due to concerns over reputation, see Harrington & Hester, supra note 121.

123 See Brunnermeier, supra note 93, at 80.

3. Outsourcing Risk Management

Beginning in the 1980s, bank lenders syndicated loans partly in order to help manage their credit risk exposure, spurring growth in the private credit market and secondary trading in loan assets.\footnote{See Whitehead, supra note 8, at 656-57.} Investors, however, were required to purchase interests in the loans themselves – committing working capital, as well as taking on the credit risk of the underlying borrowers, which limits the universe of prospective investors. CDSs provided an attractive alternative. Lenders can transfer all or a portion of a borrower’s credit risk without requiring a working capital commitment,\footnote{See John B. Caouette, Edward I. Altman & Paul Narayanan, Managing Credit Risk: The Next Great Financial Challenge 311-12 (1998); Glantz, supra note 9, at 532; Angus Duncan, Loan-Only Credit Default Swaps: The March to Liquidity, COM. LENDING REV., Sept.-Oct. 2006, at 15, 16-17; Bernadette Minton, René M. Stulz & Rohan Williamson, How Much Do Banks Use Credit Derivatives to Reduce Risk? 7 (Ohio State Univ. Fisher Coll. Bus., Working Paper No. 2006-03-001, June 2006), available at http://ssrn.com/abstract=785364; see also Hamish Risk, Loan Credit-Default Swaps Surge as Hedge Funds Hunger for Yield, BLOOMBERG, Aug. 22, 2006, http://www.bloomberg.com/apps/news?pid=20601087&sid=a4fg_8Gw37Fw&refer=home (“When investors can’t get the loans, they’re increasingly using credit-default swaps.”).} thereby opening up the credit market to new participants – increasingly, hedge funds.\footnote{See U.S. Gov’t Accountability Office, GAO-07-716, Credit Derivatives: Confirmation Backlogs Increased Dealers’ Operational Risks, but Were Successfully Addressed After Joint Regulatory Action 6 n.8 (2007), available at http://www.gao.gov/new.items/d07716.pdf (citing British Bankers’ Association report that “top five end-users of credit derivatives are banks and broker-dealers (44 percent), hedge funds (32 percent), insurers (17 percent), pension funds (4 percent), and mutual funds (3 percent)”; Daniel Fisher, A Dangerous Game, FORBES, Oct. 16, 2006, at 40, 40 (citing Greenwich Associates analysis that fifty-eight percent of CDSs are traded by hedge funds); Risk, supra note 126; Janet Morrissey, Credit Default Swaps: The Next Crisis?, TIME.COM, Mar. 17, 2008, http://www.time.com/time/business/article/0,8599,1723152,00.html (reporting that an original CDS can be traded fifteen to twenty times).} In effect, with
CDSs, banks can continue to hold and fund an asset – and maintain the client relationship\textsuperscript{128} – while outsourcing the management of credit risk to someone else. Having transferred the credit risk, however, the originator has less incentive to monitor the borrower, and the new risk-bearers may not have the same access to borrower information. Risk management, in that case, may rely to a greater extent on pooling and diversification, including the trading of CDSs with other risk-holders. The result is that new market participants, in effect, can now act as extensions of the banking, insurance, and private credit markets – taking on a core function of intermediation, but without the regulation or informational access that has characterized it in the past.

Outsourcing often raises agency concerns.\textsuperscript{129} Chief among them is the risk of opportunism – the possibility that the vendor will shirk on products or services it provides once the outsourcing relationship has been fixed. Firms can protect themselves through contractual devices that align the vendor’s interests with their own or preserve their right of exit, as well as through close monitoring.

CDSs, however, pose their own unique problems. Unlike with most outsourcing, the risk originator may find it difficult to know who is ultimately performing the outsourced function – in this case, managing the transferred risk. In fact, due to the sale and resale of CDSs, the risk is most likely shared among a group of investors who offset each others’ exposure and so make individual monitoring largely unfeasible.\textsuperscript{130} Originators and managers, of course, share an interest in ensuring that the risk is properly managed. However, like banks, outside managers may incur risk levels that are greater than what is socially optimal. External costs – such as the effect on originators if the risk-holder goes bankrupt – may not be fully taken into account.\textsuperscript{131} For banks, prudential regulation helps manage the amount of risk incurred, and the

\textsuperscript{128} The importance to a client relationship of holding a loan, even if the credit risk is transferred, was illustrated in the WorldCom securities litigation. There, J.P. Morgan sought to decrease its exposure to WorldCom by entering into CDSs without WorldCom becoming aware it had transferred the risk. \textit{See In re WorldCom, Inc. Sec. Litig.}, 346 F. Supp. 2d 628, 651-52 (S.D.N.Y. 2004).


\textsuperscript{130} For example, at the time of its bankruptcy, there was approximately $72 billion in notional amount of CDSs tied to Lehman Brothers, with estimates of up to $400 billion in total notional amount linked to it. \textit{See} Gordon Platt, \textit{Credit Default Swaps Market Outstandings Shrink as Dealers Tear Up Offsetting Agreements}, GLOBAL FIN., Dec. 2008, at 68, 70. On a net basis, however, only $5.2 billion ultimately traded hands. \textit{Id.} Part of the difference reflected trading among market participants, with offsetting trades shrinking the amount of actual risk that the outstanding swaps covered. \textit{Id.} at 68-71.

\textsuperscript{131} \textit{See supra} notes 55-57 and accompanying text (discussing agency and externality problems); \textit{infra} notes 151-54 and accompanying text (analyzing these problems with respect to the AIG bailout).
FDIC guarantee eases customer concerns over deposited assets. Many of the new risk-holders, however, are not subject to regulation that limits risk-taking, nor are their investors or counterparties protected by a government safety net. Absent that protection, and during times of financial distress, short-term creditors may refuse to roll-over their loans or require the posting of additional collateral (similar to what occurred to Bear Stearns), increasing the likelihood of a bank-like run. The resulting impact on the financial markets is difficult to gauge, but – like the AIGFP story, below – a run on hedge funds may ripple through to intermediaries, such as banks and insurance companies, that have relied on CDSs to mitigate credit exposure.

4. AIG Financial Products

AIG provides a recent, and perhaps the most extreme, example of the divide that has grown between financial regulation and the financial markets. Before the U.S. government’s bailout, AIG was one of the world’s largest financial holding companies, engaged in the insurance, financial services, and asset management businesses. Most of AIG’s profits were generated by its insurance subsidiaries, although operating income from its non-insurance

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133 Although a broad cross-section of banks hold derivatives, the impact of a fall in the CDS market is likely to be concentrated among the five largest, which hold more than ninety percent of derivatives in the banking industry. See COMPTROLLER OF THE CURRENCY, ADMINISTRATOR OF NATIONAL BANKS, OCC’S QUARTERLY REPORT ON BANK TRADING AND DERIVATIVES ACTIVITIES, THIRD QUARTER 2008, at 1, 5-7 (2008), available at http://www.occ.treas.gov/ftp/release/2008-152a.pdf.

134 Recent change in the financial markets may help limit the impact: initiation of the first central counterparty clearinghouse (“CCP”) for CDSs in March 2009. See Gordon Platt, ICE Begins Clearing Credit Default Swaps as Counterparty Risk Hits Record High, GLOBAL FIN., Apr. 2009, at 64, 64. Each party transfers its CDS position to the CCP after a trade is agreed, potentially minimizing their counterparty credit exposure. See Darrell Duffie & Haoxiang Zhu, Does a Central Clearing Counterparty Reduce Counterparty Risk? 2-3 (Stan. Graduate Sch. Bus., Research Paper No. 2022, 2009), available at http://www.stanford.edu/~duffie/DuffieZhu.pdf. Of course, CDS trades that continue to be handled directly will still be subject to the risk of counterparty default. Id.

135 To date, the U.S. government has invested over $150 billion in AIG. See Liam Pleven et al., U.S. Revamps Bailout of AIG, WALL ST. J., Mar. 2, 2009, at A1.

businesses rose to over twenty-nine percent of AIG’s bottom line in 2005. A substantial portion of that income (roughly 17.5%), as well as approximately ten percent of AIG’s total assets, were tied to AIGFP, a subsidiary that wrote derivatives for governments, corporations, and wealthy individuals.

AIGFP’s original business plan was fairly straightforward – namely, to rely on AIG’s sterling triple-A credit rating to write long-dated swap agreements against changes in the price of stocks, currencies, commodities, and other assets. Like AIG’s insurers, AIGFP believed it was better able to manage risk than its customers were, using a sophisticated computer model to pool and, if necessary, offset the exposures it incurred. What complicated the plan was AIGFP’s decision in the late 1990s to enter the CDS market. Financial firms were searching for instruments to help manage their credit exposure and minimize the cost of complying with regulatory capital requirements. CDSs provided a tool to hedge credit risk, with AIGFP obligated to make its customers whole in the case of a credit event – typically a payment default by an entity whose loans or bonds were referenced in the CDS.

Beginning in 2003, AIGFP wrote close to eighty billion dollars in notional amount of CDSs whose value was tied to the super senior (high investment grade) tranches of collateralized debt obligations (“CDOs”) – structured instruments (typically bonds) backed by assets that included subprime mortgage securities. It exited that market two years later, in 2005, over concerns that CDOs had become too toxic. Underwriting standards had declined, its managers believed, resulting in a growing number of questionable subprime mortgages being included in those instruments. Nevertheless, during those two years, AIGFP’s customers grew to include hundreds of U.S.

137 AIG 2007 Annual Report, supra note 136, at 4 (disclosing that in 2005 financial services operations accounted for $4.424 billion of AIG’s total operating income of $15.213 billion).
138 American International Group, Inc., Amended Annual Report (Form 10-K/A), at 13, 93 (June 19, 2006); Polakoff March 2009 Testimony, supra note 136, at 4-5.
141 See Mengle, supra note 32, at 13; Minton, Stulz & Williamson, supra note 126, at 3-5. A description of CDSs is included supra at notes 9, 126-34 and accompanying text. See also Satyajit Das, Credit Derivatives – Instruments, in CREDIT DERIVATIVES: TRADING & MANAGEMENT OF CREDIT & DEFAULT RISK 7, 32-68 (Satyajit Das ed., 1998) (providing detailed example of CDSs); Robert F. Schwartz, Risk Distribution in the Capital Markets: Credit Default Swaps, Insurance and a Theory of Demarcation, 12 FORDHAM J. CORP. & FIN. L. 167, 175 (2007).
142 Polakoff March 2009 Testimony, supra note 136, at 5; Carol J. Loomis, AIG: The Company that Came to Dinner, FORTUNE, Jan. 19, 2009, at 70, 73.
and foreign financial firms, the majority of which relied on AIGFP to mitigate credit risk and minimize regulatory capital charges\textsuperscript{144} – so much so that AIGFP’s risk-sharing arrangements reportedly tipped the U.S. government’s decision in favor of bailing out AIG in 2008.\textsuperscript{145}

AIGFP’s decision to enter the CDS market was based, in part, on computer simulations that indicated there was a 99.85% chance it would never be obligated to make a CDS payment.\textsuperscript{146} In fact, very few of the CDOs on which its CDSs were written have stopped payment, requiring little (so far) to be paid out to AIGFP’s swap counterparties.\textsuperscript{147} What the model failed to do was assess the impact of a downgrade in AIG’s credit rating, which was particularly important since AIG was a guarantor of AIGFP’s obligations.\textsuperscript{148}

As AIGFP’s swap contracts moved “in the money,” reflecting the drop in value of the underlying CDOs, AIG was forced – due to its credit downgrade – to

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\textsuperscript{144} AIG 2007 Annual Report, \textit{supra} note 136, at 33 (indicating that $379 billion of AIGFP’s $527 billion in notional amount of super senior CDSs was written to financial institutions to facilitate regulatory capital relief); Matthew Karnitschnig et al., \textit{U.S. to Take Over AIG in $85 Billion Bailout; Central Banks Inject Cash as Credit Dries Up}, \textit{WALL ST. J.}, Sept. 17, 2008, at A1, A6 (describing a “domino effect” if AIGFP had defaulted on its swaps).

\textsuperscript{145} See Gretchen Morgenson, \textit{Behind Insurer’s Crisis, Blind Eye to a Web of Risk}, \textit{N.Y. TIMES}, Sept. 28, 2008, at A1, A28; O’Harrow & Dennis, \textit{supra} note 143, at A9; Joe Nocera, \textit{Propping Up a House of Cards}, \textit{N.Y. TIMES}, Feb. 28, 2009, at B1; Press Release, U.S. Dep’t of Treasury, U.S. Treasury and Federal Reserve Board Announce Participation in AIG Restructuring Plan (Mar. 2, 2009), \textit{available at} http://www.ustreas.gov/press/releases/tg44.htm (remarking that AIG “is a significant counterparty to a number of major financial institutions”); \textit{see also} Dennis, \textit{supra} note 63, at D1 (describing an AIG presentation to the U.S. government indicating that an AIG bankruptcy could force European banks to raise ten billion dollars in capital and quoting the AIG officer as saying it “would cause turmoil in the U.S. economy and global markets”). The U.S. government’s decision to bail out AIG, and the terms of the bailout, are also described in Sjostrom, \textit{supra} note 9, at 964-77.

\textsuperscript{146} Dennis & O’Harrow, \textit{supra} note 140, at A1.

\textsuperscript{147} Roger Parloff, \textit{Wall Street: It’s Payback Time}, \textit{FORTUNE}, Jan. 19, 2009, at 57, 62; \textit{see also} Brady Dennis, \textit{A Meek Ending for Mighty Unit That Gutted AIG}, \textit{WASH. POST}, Feb. 21, 2009, at A1, A7 (indicating that many of the CDOs written by AIGFP were written “appropriately”).

\textsuperscript{148} O’Harrow & Dennis, \textit{supra} note 143, at A8-A9; Parloff, \textit{supra} note 147, at 62.
post billions of dollars in collateral against the unrealized paper losses, weighing down its credit rating even further. AIG had, in fact, implemented a series of centralized controls, including an enterprise risk management system that was intended to control the firm’s aggregate risk exposures. Permitting AIG to police risk, however, was an ill-informed choice because it neglected to take into account the limited information on which AIGFP priced its CDSs. As noted earlier, AIGFP had overlooked the impact of a credit downgrade by AIG. It also failed (in the same way banks and other intermediaries did) to consider the full cost – to the insurance industry, the financial markets, and the general economy – of the levels of risk it agreed to assume. In addition, AIG’s risk managers may have underestimated the probability of occurrence of an infrequent economic shock, a phenomenon sometimes referred to as “disaster myopia,” or may have taken comfort in others’ decisions to discount the likelihood of such a shock ever occurring.

Like insurance, if a credit event was triggered, AIGFP was obligated to make the customer whole – although the means by which it did so, such as buying the impaired assets at par, differed from traditional insurance products.

149 AIG 2007 Annual Report, supra note 136, at 33, 81; see also PAUL GORIS, THE LEGAL ASPECT OF SWAPS 130-37 (1994) (discussing the role of collateralization as a means to “reduce or eliminate a [CDS] party’s credit risk”); Gorton, supra note 4, at 11-12 (detailing that the posting of collateral is often required when the value of a CDS falls below an agreed threshold). More recently, during the second quarter of 2009, AIG began to recoup collateral as the value of its CDSs moved in its favor. See Liam Pleven, In Reversal of Fortune, AIG Recoups Collateral, WALL ST. J., Oct. 29, 2009, at C1.

150 Morgenson, supra note 145, at 28 (describing this phenomenon as a “downward spiral”); Parloff, supra note 147, at 62.


153 See PRESIDENT’S WORKING GROUP ON FIN. MKTS., HEDGE FUNDS, LEVERAGE, AND THE LESSONS OF LONG-TERM CAPITAL MANAGEMENT 31 (1999) (asserting that individual firms limit risk taking to protect themselves, not system as a whole); Jackson, supra note 3, at 335-36; Sudeep Reddy & Michael R. Crittenden, Fed’s Kohn Concedes Risk in AIG Rescue, WALL ST. J., Mar. 6, 2009, at A3 (quoting Federal Reserve Vice Chairman Donald Kohn’s concern, regarding AIG, “I’m worried about the knock-on effects in the financial markets. Would other people be willing to do business with other U.S. financial institutions . . . if they thought, in a crisis like this, they might have to take some losses?”).

Consequently, some states regulate CDSs as insurance contracts,\(^{155}\) reflecting the economic similarity in payouts between CDSs and term insurance policies written against the credit downgrade of a referenced borrower.\(^{156}\) In New York, however, most of AIGFP’s swaps were expressly excluded from insurance regulation.\(^{157}\) AIGFP, therefore, was able to escape the strict state-level control to which AIG’s insurance businesses were subject.\(^{158}\) Importantly, by not being answerable to AIG’s insurance regulators, AIGFP ducked the reserve requirements that would have called for it to set aside capital against future liabilities.\(^{159}\) The differences in regulation sparked a curious result: by dispensing with regulatory capital, AIGFP was able to offer CDSs at a lower cost than its competitors, furnishing it with an edge over others who were subject to those (or similar) requirements. AIGFP, in turn, targeted its products at those same regulated institutions, which purchased CDSs in order to reduce their own capital charges.

CDSs were also exempt from regulation under the Securities Act of 1933 and the Securities Exchange Act of 1934,\(^{160}\) and were preempted from state gaming or bucketshop laws under the Commodity Exchange Act.\(^{161}\) By default, AIGFP’s principal regulator became the Office of Thrift Supervision (“OTS”),\(^{162}\) notwithstanding concerns over the OTS’s effectiveness as a regulator and its inability to oversee complex financial institutions like AIG.\(^{163}\)


\(^{156}\) See supra note 9 and accompanying text; see also Phelim Boyle & Feidhlim Boyle, DERIVATIVES: THE TOOLS THAT CHANGED FINANCE 165-67 (2001); David Felsenthal & M. Sharmini Mahendran, Credit Derivatives: Legal and Regulatory Issues, in HANDBOOK OF CREDIT DERIVATIVES, supra note 9, at 277, 282-84. There are, of course, differences in the instruments as well such as the requirement that an insurance policyholder have an insurable interest, not a requirement in a CDS. See Partnoy & Skeel, supra note 9, at 1050.

\(^{157}\) See N.Y. INS. LAW § 6901(j-1) (McKinney 2005).


\(^{159}\) See Oversight Comm. Hearing, supra note 158, at 27-28 (testimony of Eric R. Dinallo) (“For a large, large, large percentage of credit default swaps, you’re required to have absolutely no collateral or capital behind them.”).

\(^{160}\) See Partnoy & Skeel, supra note 9, at 1046-47.


\(^{162}\) AIG selected OTS, as its regulator of choice, by acquiring a thrift bank (AIG Federal Savings Bank) in 1999. See U.S. GOV’T ACCOUNTABILITY OFFICE, FINANCIAL REGULATION: A FRAMEWORK FOR CRAFTING AND ASSESSING PROPOSALS TO MODERNIZE THE OUTDATED U.S. FINANCIAL REGULATORY SYSTEM 10 (2009), available at
How do we explain AIG? One response is that AIG illustrated the distortions that result when an entity is able to select its own regulator. AIG’s insurance subsidiaries were solvent and fully capitalized at the time the New York State Insurance Department authorized them to lend up to twenty billion dollars to their parent holding company. Yet, no one regulator had a complete picture of the risks to which AIG was exposed – with oversight by insurance regulators being limited to traditional insurance providers, notwithstanding substantive similarities between term insurance and CDSs.

AIG’s story, however, may be better understood as one aspect of change in the financial markets, without a corresponding shift in regulation. The basic goals of the markets have remained the same – namely, the efficient allocation, transfer, and deployment of capital resources and risk-bearing. Participants, however, moved from traditional sources of capital to new products and means of raising capital and managing risk. Mortgage loans, traditionally held by banks, could be funded through less costly financing conduits and CDSs


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See supra notes 115-24 and accompanying text.
could offer regulated intermediaries a lower-cost means to manage and transfer credit risk. Thus, AIGFP – like other intermediaries – may have simply capitalized on regulatory differences in order to assume risks from firms that sought to minimize regulatory cost. AIGFP’s business, however, was particularly troubling. The risks it managed included those traditionally borne by banks and insurers – directly affecting the risk-bearing of those intermediaries, but falling outside the scope of regulatory oversight. As such, AIGFP was able to take on the risks that banking and insurance regulations were intended to curb, but without being subject to any of the same (or similar) constraints.

III. ASSESSING FINANCIAL REGULATION

The current financial crisis has highlighted gaps in financial regulation, principally arising from changes in the markets over the last thirty years. As illustrated in the preceding Parts, chief among those changes has been convergence in the products and services offered by intermediaries and new market entrants, as well as a shift in capital-raising and risk-bearing from traditional intermediation to the capital markets. The result has been increasing competition among participants, resulting in the growth of a largely unregulated marketplace.

In this Part, I describe two significant shifts in the financial markets that must be considered when assessing the effectiveness of financial regulation. Those shifts reintroduced problems addressed by (but beyond the scope of) existing regulation, as well as created new problems that reflect the new means by which capital and risk can now be managed and transferred. I also highlight potential shortfalls in regulation – considered in light of current proposals for reform – that may arise if recent changes in the financial markets are not taken into account. Finally, I reject a function-only approach to financial regulation, proposed by some, in favor of a supra-functional approach that deconstructs the functions and problems regulated within traditional intermediaries, and then considers them within the institutions (including the markets) that more recently have taken them on.

The first trend is a shift in financial activity from regulated to less-regulated entities, illustrated in the table below. No doubt, some portion of the shift may simply reflect differences in regulatory cost – a regulatory arbitrage, as intermediaries or new market participants create new products and services in order to avoid the reach of regulation or to reduce their cost. A traditional intermediary, for example, may be able to conduct the same business as AIGFP, but do so at higher cost simply due to more stringent regulatory

167 See supra notes 125-34 and accompanying text.
requirements. Yet, arbitrage alone may not fully explain the shift. Many of the less-regulated firms are new market participants that, independent of regulatory differences, are more efficient in managing risk than traditional intermediaries. Hedge funds, for example, minimize agency costs through organizational structure, including performance-based fees that align manager and shareholder interests, which helps them compete effectively against traditional intermediaries.\footnote{Hedge funds are typically organized as limited partnerships and may include provisions that restrict management discretion or otherwise grant investors specific rights, including the regular distribution of free cash flow to a fund’s investors. Advisors also often invest their own money in the funds they manage. See Larry E. Ribstein, \textit{Partnership Governance of Large Firms}, 76 U. CHI. L. REV. 289, 301-02 (2009). In addition, a hedge fund advisor’s poor performance may result in liquidation of the fund or difficulty in raising capital for successive funds. See Houman B. Shadab, \textit{The Law and Economics of Hedge Funds: Financial Innovation and Investor Protection}, 6 BERKLEY BUS. L.J. (forthcoming 2010) (manuscript at 21), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1066808. Hedge fund advisors also typically charge performance fees for gains in fund performance, but are not required to rebate fees for losses. Public mutual fund advisors, by contrast, may only charge performance fees where gains and losses have a symmetric effect on compensation. See 15 U.S.C. § 80b-5(a)(1) (2006); 17 C.F.R. § 275.205-3 (2009); Davidoff, \textit{supra} note 10, at 206-10; Robert C. Illig, \textit{The Promise of Hedge Fund Governance: How Incentive Compensation Can Enhance Institutional Investor Monitoring}, 60 ALA. L. REV. 41, 70-77 (2008).}

Table. Shift in Financial Markets – Traditional, Recurring, and New Problems

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Illustration of the shift in financial markets, with the recurrence of traditional problems and the rise of new problems reflecting change in market structure.
Like most market participants, new entrants suffer from an inability to completely assess and price socially optimal levels of risk, reflecting the negative effects of instability that extend well beyond the financial industry.\textsuperscript{171} Some amount of risk can be policed by the marketplace. Lenders, for example, can require additional collateral against a greater risk of default. Collateral, however, can be costly, and as was the case with Bear Stearns, may provide imperfect protection if it later declines in value.\textsuperscript{172} In addition, as AIGFP illustrated, a rapid increase in collateral levels can have the same destabilizing effect as a run on a bank or insurance company.\textsuperscript{173} Consequently, existing regulations – such as restrictions on capital structure and portfolio riskiness – help manage risk-taking by traditional intermediaries, like banks and insurance companies. New market participants, however, remain subject to looser restrictions or none at all.

Likewise, the shift to less-regulated entities has introduced new risks to the financial markets.\textsuperscript{174} The growth of CDSs has resulted in the transfer of risk, and the outsourcing of risk management, from traditional intermediaries to new market participants. Current financial regulation helps police the amount of risk that a bank can incur, as well as how the bank manages that risk. When outsourced to an unregulated third party, the bank must rely on its own protections to ensure the third party properly manages that risk. Doing so, however, has become increasingly difficult as the CDS market has become more liquid. An originator may not be aware of which entities have taken on its risk and, consequently, may not be able to monitor their activities. Greater transparency and the use of collateral can help minimize risk-taking, but such measures are likely to be less effective than the direct regulatory oversight to which the originating intermediary is already subject. The result is the growing possibility that traditional intermediaries may become subject to disruption in the derivatives market generally. As illustrated by AIGFP, an industry-wide run (or other disruption) affecting new participants, like hedge funds, is likely to ripple through to those intermediaries that have increasingly relied on them to outsource risk.

We see a similar trend in the shift from traditional intermediation to the capital markets. Like the shift to less-regulated entities, some portion may simply reflect regulatory arbitrage as market participants look to minimize regulatory cost. The capital markets, however, permit efficient risk-sharing among investors, who can transfer risk to those entities that are better able to

\textsuperscript{171} See supra notes 56-57 and accompanying text.
\textsuperscript{172} See supra notes 92-97 and accompanying text.
\textsuperscript{173} See supra notes 99-100, 142-50 and accompanying text.
\textsuperscript{174} For a discussion of how risk transfer to less-regulated entities increases the likelihood of systemic failures, see supra Part II.B.3.
manage it at lower cost, and so may provide a less expensive alternative to traditional intermediaries.\textsuperscript{175}

With this shift, however, new capital markets participants may now become subject to risks that mirror those historically faced by intermediaries. Bank runs involving non-banks, for example, may become more common as these participants continue to fund longer-term assets with short-term borrowings. Like a bank’s depositors, lenders may be concerned about the level of risk a participant incurs, relying on collateral to protect against the possibility of default. If questions arise about its credit quality, as with Bear Stearns, the participant’s lenders may refuse to roll over existing loans or demand additional collateral – the economic equivalent, through the capital markets, of a bank run, but without the same regulatory protections.\textsuperscript{176}

The shift toward the capital markets has also introduced new, market-based risks that fall outside the scope of both current regulations and proposed regulations that focus on firms that are “too big” or “too interconnected” to fail.\textsuperscript{177} Financial risk management, for example, has grown over the last two decades, driven in part by the widespread adoption of “value-at-risk” (“VaR”) measures to assess portfolio riskiness. VaR assesses the probability that the market value of an asset or a portfolio of assets is likely to decrease over a period of time under usual conditions.\textsuperscript{178} When first developed, VaR was a specialized tool known only to a closed universe of risk managers. VaR, however, quickly became a recognized standard – best practices among portfolio managers and banks, and an accepted form of SEC disclosure\textsuperscript{179} – and, in the process, may itself have contributed to an increase in systemic risk. By standardizing how the risk parameters of a trader’s portfolio are measured, different traders may now respond to the same event in a similar way – relying on VaR-based calculations to adjust their risk by selling assets, resulting in a

\textsuperscript{175} See Peter A. Diamond, \textit{The Role of a Stock Market in a General Equilibrium Model with Technological Uncertainty}, 57 AM. ECON. REV. 759, 770 (1967); Gilson & Whitehead, \textit{supra} note 5, at 243-47.

\textsuperscript{176} See \textit{supra} notes 92-97 and accompanying text.

\textsuperscript{177} See \textit{supra} note 16 and accompanying text.

\textsuperscript{178} See Olivier Scaillet, \textit{The Origin and Development of Value-at-Risk}, in \textit{MODERN RISK MANAGEMENT} 151-58 (Sarah Jenkins & Tamsin Kennedy eds., 2003). By way of illustration, suppose that a portfolio’s “one-day VaR at the ninety-nine percent confidence level” is $300,000. That would mean that, under normal conditions, there is a ninety-nine percent probability that the portfolio manager will not lose more than $300,000 by holding the portfolio for a day.

reduction in the price of those assets, causing further sales, and so forth – in effect, acting in concert, even if not in coordination.\textsuperscript{180} Thus, for AIGFP, the drop in CDO prices was likely sparked by similarly situated investors who decided to unwind their positions at the same time, and then looked to sell even further as market prices continued to decline.\textsuperscript{181} As similar risks become dispersed across the marketplace, a focus only on entities that are “too big” or “too interconnected” will fail to address the systemic problems that arise from market-wide decisions that stem from a drop in price. The same collective action problems that historically sparked bank runs may now transfer to the risk markets – prompting the need for systemic regulation that focuses on the capital markets generally rather than on particular entities.

Both of the trends described in this Part argue for financial regulation that is more flexible – addressing “old” risks that arise in new situations, and “new” risks that arise as financial instruments, participants, and markets continue to evolve. Proposals to simply freeze the division among financial intermediaries\textsuperscript{182} are likely to miss new risks, as evidenced by the fundamental changes in the financial markets that took place during the twenty years leading up to repeal of the Glass-Steagall Act. Partly in response, politicians, regulators, and academics – most notably, Nobel laureate Robert Merton – have advocated a functional approach to regulation, in which equivalent functions are regulated in the same way, irrespective of the institutions

\textsuperscript{180} See Avinash Persaud, \textit{Sending the Herd Off the Cliff Edge: The Disturbing Interaction Between Herding and Market-Sensitive Risk Management Practices}, J. RISK FIN., Fall 2000, at 59, 59-65 (“[I]n a world of ‘herding,’ tighter market-sensitive risk management regulations and improved transparency can, perversely, turn events from bad to worse, creating volatility, reducing diversification and triggering contagion.”); Tobias Adrian & Markus K. Brunnermeier, \textit{CoVaR} 1-4, 25 (Fed. Reserve Bank of N.Y., Staff Report No. 348, 2009), \textit{available at} http://www.newyorkfed.org/research/staff_reports/sr348.pdf (proposing a system to avoid the systemic risk created when multiple trading institutions act like “identical clones” because they all used VaR). Note, however, that Philippe Jorion has preliminarily concluded, based on an analysis of the relationship between VaR and trading by banks, that VaR systems have not contributed to volatility. Philippe Jorion, \textit{Bank Trading Risk and Systemic Risk, in The Risks of Financial Institutions}, supra note 48, at 29, 56.

\textsuperscript{181} See Stephen Morris & Hyun Song Shin, \textit{Risk Management with Interdependent Choice}, OXFORD REV. ECON POL’Y, Spring 1999, at 52, 52-53, 59-60. An earlier example was the feedback loop created by portfolio insurance, which involved the programmed computer trading of common stock when prices fell to pre-specified levels. When the stock fell to a trigger price, institutional investors each separately sold their shares, causing further declines in price and further sales, which fueled the Black Monday crash of 1987. See supra note 4; see also Lawrence A. Cunningham, \textit{Behavioral Finance and Investor Governance}, 59 WASH & LEE L. REV. 767, 784-85 (2002).

performing them. Institutions may change over time, they argue, but core functions will stay the same.

There is certainly an appeal to regulating like functions in a similar way. Among other benefits, doing so would ensure that financial supervision is comparable across the financial markets and that customers would receive equivalent protection, irrespective of the industry through which they invest. A function-only approach, however, is incomplete precisely because it fails to take account of differences in the institutions performing them. Different structures, and varying agency and other costs, may make differences in regulation appropriate, even if the functions are similar.

Recall, for example, the recent experience with MMFs. MMFs and finance companies are critical to the U.S. payments system, channeling funds to lenders from a wide variety of investors, primarily through the commercial paper market. In combination, MMFs and finance companies perform essentially the same function as banks, collecting capital and lending it to institutional and retail borrowers. They also face similar problems, but without being subject to similar regulation. Hence, in light of their aggregate size, the recent investor run, and the U.S. guarantee of fund accounts, regulators, commentators, and others have called for MMFs to be regulated like banks. Differences in institutional structure, however, suggest that banks and MMFs should be regulated differently. MMFs, unlike banks, are limited to a single class of investors, and so do not face the depositor-shareholder agency conflict to which banks are subject. Bank regulation that helps balance that conflict – for example, capital requirements that manage a bank’s risk-taking – are largely inapplicable. MMF managers also have different incentive structures, which reward investment returns and an increase in total assets under

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183 See, e.g., Robert C. Merton & Zvi Bodie, Design of Financial Systems: Towards a Synthesis of Function and Structure, J. INVESTMENT MGMT., 1st Q. 2005, at 6, 13; Robert C. Merton, Financial Innovation and the Management and Regulation of Financial Institutions, 19 J. BANKING & FIN. 461, 466-70 (1995) (proposing that traditional institutional categories have “become almost arbitrary,” as the same functions can be performed by various institutions); Merton, supra note 22, at 21-27.

184 See COP, SPECIAL REPORT, supra note 16, at 29 (“Functional regulation can mean applying the same principles and not necessarily producing identical regulatory outcomes.”).


186 See supra notes 101-05 and accompanying text.

187 GROUP OF THIRTY, supra note 16, at 9 (“Money market mutual funds wishing to continue to offer bank-like services . . . should be required to reorganize as special-purpose banks, with appropriate prudential regulation and supervision . . . .”). As Paul Volcker, former Federal Reserve Chairman and head of President Obama’s Economic Recovery Advisory Board, has argued, “If [MMFs] are going to talk like a bank and squawk like a bank, they ought to be regulated like a bank.” Shefali Anand, Money-Fund Bailout Has Been Winner, WALL ST. J., Feb. 17, 2009, at C1.
management, and therefore different agency costs from traditional bank managers, whose salaries are largely fixed. 188 Finally, an MMF’s investors receive returns based on the total performance of the fund, whereas a depositor’s returns are largely fixed, irrespective of portfolio composition. Thus, rather than bank regulation, direct limits on an MMF’s investments are more likely to address the portfolio risks to which an MMF’s investors are subject. 189

What this suggests is that focusing only on function is unlikely to lead to optimal regulation. Likewise, as we have seen, an approach based on categories or intermediaries – the institutions through which capital and risk are transferred – is unlikely to be flexible enough to take account of change in the financial markets. Instead, financial regulation must focus, without being limited by function, categories, or intermediaries, on those similar problems that have arisen across the financial markets, considered in light of the gaps in regulation the current crisis has exposed – a supra-functional approach that takes into account the transfer of like functions across the financial markets, but considers them within the institutions (including the markets) where those functions now appear. To do so effectively requires a prospective look at the problems that are likely to arise in response to change in the financial system – a different method from the reactive approach taken to date.

Let us consider an example based on a current proposal. Suppose the federal government imposes a tax (or other cost) on derivative and other complex transactions – including CDSs – entered into by banks and insurance companies. 190 Such a tax would, in principle, be similar to the premiums that traditional intermediaries must pay for government insurance – in effect, reacting to the current crisis by imposing a fee against future bailouts if substantial losses are incurred. Its purpose would be to increase the cost of derivatives transactions, and so limit their use by banks and other traditional intermediaries.

By focusing only on banks and insurance companies, the proposal fails to consider the potential impact of the risk management function that new market participants now conduct. Most likely, under such a regime, intermediaries that continued to use CDSs to outsource risk would do so only when the cost of


189 As this Article was going to press, the SEC adopted new money market fund regulations – consistent with the approach recommended here – that, among other things, would improve portfolio liquidity, reduce the weighted average maturity of assets, and increase credit quality in order to reduce the likelihood of future runs on MMFs. See Press Release, SEC Approves Money Market Fund Reforms to Better Protect Investors (Jan. 27, 2010), available at http://www.sec.gov/news/press/2010/2010-14.htm.

retaining that risk (for example, the risk-based capital charge) was greater than the cost – now increased by the new tax – of transferring it to a less-regulated entity. The result would likely be a concentration of the most toxic risk – where the cost of retaining it was the greatest – in the least regulated industry. If that risk could be walled off, then moving it from banks, insurance companies, and other intermediaries could be worthwhile. However, as AIGFP’s experience has shown, market participants are unlikely on their own to manage risk at socially optimal levels (particularly where, as here, the government has implicitly agreed to bail out the risk originators), leaving traditional intermediaries exposed to later problems if there is disruption (like a bank run or other shortfall in funding) among the new risk managers.

A function-only approach also has shortfalls. Applying bank regulation to a transferred bank function, like risk management, will not properly take account of the new institutions and markets that now perform that function. Like MMFs, for example, hedge funds and other new market participants have different agency costs than banks and other traditional intermediaries, in many cases, managing those costs more effectively. Regulation that responds to a bank’s agency problems may not be appropriate for the new risk managers. Moreover, bank regulation would fail to address new risks arising from the outsourced function, such as the potential impact on traditional intermediaries of runs in the capital markets as risk management is dispersed across a wide group of new participants.

An alternative, suprafunctional approach would start by breaking down the functions performed by traditional intermediaries and, in light of the problems associated with each, imposing new regulations to address those problems that take into account the institutions and markets now performing them. For example, firms that engage in a credit risk business – through trading in CDSs and other, related instruments – could become subject to a heightened level of regulation, reflecting the same concerns that historically prompted the regulation of banks and insurance companies. Rather than simply transposing existing regulation, however, a suprafunctional approach would take into account the new entities performing the traditional function and adjust accordingly. Portfolio limits, rather than capital charges, might be more applicable to hedge funds.

Likewise, reflecting the dispersion of risk across the market, the new regulation would be applicable to any entity that entered the credit risk business, not simply firms that are “too big” or “too interconnected” to fail. In return, those entities would be the only ones permitted to engage in that business – in effect, giving them a franchise whose value offsets the added cost of further regulation. The end result would be to extend existing concepts applicable to banks and insurance companies to new entities in the capital markets that assume functions traditionally managed within a regulated intermediary.
CONCLUSION

This Article has focused on the effectiveness of current U.S. financial regulation in light of changes in the financial system, principally over the last thirty years, including the creation of new products and services, functional convergence across intermediaries, and the shift in capital-raising and risk-bearing from traditional intermediaries to the capital markets. Those changes suggest the need for a new approach to financial regulation that takes account of similar problems that have arisen across the financial markets irrespective of function, category, or intermediary.

The trick, of course, is to identify those like functions that are increasingly performed outside traditional intermediaries (and existing regulation). Using traditional business models as a starting point, we can begin to see how similar functions – as well as similar issues – have arisen across the financial markets. At the same time, changes in the financial system have forced intermediaries to move into new business lines. Starting again with the traditional models, we can begin to outline those areas that affect intermediaries, but are beyond the scope of current regulation, and respond accordingly. What is critical is that, in formulating new regulation, we recognize that the financial system will continue to evolve, requiring a fresh (and ongoing) look at today’s participants – both old and new. Failing to do so risks the creation of new regulation that suffers from the same deficiencies as the current framework.
APPENDIX A – GOVERNMENT-DIRECTED INSURANCE

Set out below are brief descriptions of the principal government-directed insurance programs and providers.

A. **Banks**

The FDIC supervises troubled depository institutions and has the power to declare an institution in default,191 at which time the FDIC can act as a conservator or receiver of the bank.192

As an insurer, the FDIC must either pay a depositor’s insured claims or make available to her a transferred deposit, in an equal amount, in another insured institution in the same community.193 The FDIC assesses an insurance premium on depository institutions, calculated based on such factors as the amount of insured deposits and the institution’s riskiness.194 The FDIC’s funding is almost exclusively through the premiums it assesses, set at levels to ensure that the Deposit Insurance Fund (which provides coverage for bank deposits) maintains a funding level of at least 1.15% (but no more than 1.50%) of total insured deposits.195

The limit on coverage was temporarily increased from $100,000 to $250,000 per depositor through December 31, 2013.196

B. **Insurance Companies**

Insurance guaranty associations operate on a state-by-state basis, and typically work closely with insurance receivers appointed by state insurance commissioners, subject to court approval. In most states, the relevant statute is based on a model act developed by the National Association of Insurance Commissioners, and often divided between property/casualty and life insurance carriers. For example, in New York, property/casualty claims that remain unpaid due to insolvency of the insurer are covered by the Property/Casualty Insurance Security Fund,197 and policyholders of insolvent

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192 Id. § 1821(c), (e).
193 Id. § 1821(f).
194 Id. § 1817(b).
195 Id.
197 N.Y. INS. LAW § 7603 (McKinney 2009).
life insurers are protected by the Life Insurance Company Guarantee Corporation.\textsuperscript{198}

C. \textit{Securities Firms}

Cash and securities deposited by a customer with a securities firm are segregated from the firm’s own property.\textsuperscript{199}

Congress also created the Securities Investor Protection Corporation ("SIPC"), as part of the Securities Investor Protection Act of 1970,\textsuperscript{200} to liquidate a securities firm in financial difficulty and insure customers against the loss of cash or securities on deposit when a securities firm fails.\textsuperscript{201} The SIPC is authorized to pay up to $500,000 per customer, including a maximum of $100,000 for cash claims.\textsuperscript{202}

D. \textit{Thrifts}

The Federal Savings and Loan Insurance Corporation administered deposit insurance for U.S. savings and loan institutions before being abolished in 1989. The responsibility then passed to the FDIC.\textsuperscript{203}

E. \textit{Pension Funds}

If a defined benefit plan terminates with insufficient assets to satisfy its pension obligations, the Pension Benefit Guaranty Corporation ("PBGC") takes over the plan’s assets and liabilities as trustee, using plan assets to cover what it can, and then paying any remaining nonforfeitable entitlements up to statutory limits.\textsuperscript{204}

\textsuperscript{198} \textit{Id.} § 7706.
\textsuperscript{199} 17 C.F.R. § 240.15c3-3 (2009).
\textsuperscript{204} 29 U.S.C. §§ 1301-68; \textit{see also} Pension Ben. Guar. Corp. v. LTV Corp., 496 U.S. 633, 637 (1990) ("When a plan covered under Title IV terminates with insufficient assets to satisfy its pension obligations to the employees, the PBGC becomes trustee of the plan, taking over the plan’s assets and liabilities.").
APPENDIX B – SELECTED REGULATIONS

In his thoughtful 1976 article, Dean Clark offered examples of how financial intermediaries are regulated. My purpose here is to provide an updated, but abbreviated, list of examples to illustrate the continued regulatory oversight.

A. Portfolio Regulation

1. Commercial Banks

   National Banks. Pursuant to 12 U.S.C. § 24 (Seventh), the standards by which national banks can purchase, sell, deal in, underwrite, and hold securities are prescribed in 12 C.F.R. §§ 1.1-1.8. National banks are also restricted from engaging in merchant banking activities, typically involving the purchase of an equity stake in a portfolio company for investment. Bank holding companies can acquire up to five percent of the voting shares of a portfolio company whose business is not closely related to banking.

   State Member Banks. Restrictions that apply to national member banks under 12 U.S.C. § 24 (Seventh), and 12 C.F.R. §§ 1.1-1.8 also apply to state banks that are members of the Federal Reserve System.

   Other State Banks. Under state law, a bank’s real estate holdings may be limited to the bank’s offices and require the sale of all other acquired real estate. State regulations may also prescribe the valuation of bank assets.

2. Life Insurance Companies

   Insurance companies are largely regulated at the state level. These provisions restrict the investment of liability reserves to specific types of assets, require annual valuation of reserve liabilities, and set minimum paid-in-capital requirements.

205 Clark, supra note 33, at 4-10.

206 See also 12 U.S.C. §§ 29, 371 (2006) (restricting banks’ ability to hold real property and extend real estate loans); id. § 84 (establishing caps on extending credit to a single borrower).

207 Id. § 24 (Seventh).

208 Id. § 1843(c)(6).


210 See, e.g., CAL. FIN. CODE §§ 750, 751 (West 1999); N.Y. BANKING LAW § 98 (McKinney 2009).

211 See, e.g., N.Y. BANKING LAW § 104.

212 For examples of minimum investment requirements, asset restrictions, and valuation rules for investments, stocks, and bonds, see N.Y. INS. LAW §§ 1405, 1414, 4202, 4217 (McKinney 2009).
B. Investment Companies

Mutual fund portfolio regulation consists of two types. In general, the emphasis is on ensuring that a fund’s shareholders know the risks associated with their investment.\textsuperscript{213} MMFs, however, are subject to special requirements regarding the quality of their investment portfolios.\textsuperscript{214}

C. Capital Instruments

1. Commercial Banks

Some of the historical limitations on commercial banks have been modified or repealed, most notably the phase-out of Regulation Q, which placed a ceiling on bank deposits. Sudden increases in interest rates in the late 1970s resulted in small investors moving their funds to intermediaries that were not subject to the same restrictions, prompting Congress to repeal the interest rate cap.\textsuperscript{215}


Other State Banks. The payment of interest on demand deposits in insured banks is prohibited.\textsuperscript{216} Capital adequacy, under state law, may also be tied to a bank’s liabilities (including capital notes or debentures and any contingent liabilities).\textsuperscript{217}

2. Life Insurance Companies

Life insurers typically borrow funds in the ordinary course of business, but repayment may be restricted by statute to the insurer’s surplus funds.\textsuperscript{218} In addition, state regulation may limit the aggregate amount of indebtedness that a life insurer can issue.\textsuperscript{219} Other regulations limit the provisions of a life insurance contract.\textsuperscript{220}

\textsuperscript{213} See, e.g., 15 U.S.C. §§ 80a-8(b)(l), 80a-12(a), 80a-13 (2006) (requiring a recital of the fund’s policies and prohibiting practices outside those recitals, such as borrowing money, underwriting securities, or concentrating investments in an industry); 17 C.F.R. § 210.6-03 (2009) (detailing the rules for the filing of financial statements).
\textsuperscript{214} See supra notes 6, 103.
\textsuperscript{216} 12 U.S.C. § 1828(g); 12 C.F.R. § 329 (2008).
\textsuperscript{217} See, e.g., CAL. FIN. CODE § 660 (West 1999).
\textsuperscript{218} See, e.g., N.Y. INS. LAW § 1307 (McKinney 2009).
\textsuperscript{219} See, e.g., id. § 1323.
\textsuperscript{220} See, e.g., id. §§ 3201-3237.
3. Investment Companies

The Investment Company Act of 1940 includes specific capital structure limitations for registered open-end and closed-end mutual funds. 221

C. Net Worth, Capital, or Surplus

1. Commercial Banks

    National Banks. A minimum capitalization of four million dollars is required to establish a national bank. 222 Furthermore, national banks are prohibited from withdrawing or reducing their “legal” capital. 223 National banks must also be members of the Federal Reserve System. 224 National banks are also subject to risk-based capital requirements that vary the amount of capital that a bank must maintain relative to the risk it bears – in effect, requiring a bank with a riskier portfolio to set aside a larger capital cushion. 225 The Basel Committee on Banking Supervision has announced changes in how banks will determine their minimum capital set-aside requirements. Included in those changes will be a leverage ratio that acts as a “backstop” to the minimum capital requirements, a regulation intended to promote the build-up of capital buffers by banks which can be drawn upon in times of financial stress, and strengthen the quality of capital that banks hold in their reserves. The details of the changes are expected to be worked out by the end of 2010. 226

    State Member Banks. The Board of Governors of the Federal Reserve System sets capital and surplus requirements for state banks that apply for membership in the System. Once admitted, member banks may not reduce capital stock without the Board’s approval. 227 The Board is also permitted, within statutory limits, to set reserve requirements as a percentage of deposits. 228 State member banks are also subject to risk-based capital requirements. 229

    Other State Banks. Individual states establish the minimum capital requirements for banks chartered under their laws. 230 The states also provide

223 Id. §§ 56, 59.
228 12 U.S.C. § 461(b); Regulation D, 12 C.F.R. pt. 204.
229 See 12 C.F.R. pt. 208 app. A.
230 See, e.g., N.Y. BANKING LAW § 4001 (McKinney 2009).
remedies for capital impairment and regulate capital reduction. In addition, state law is responsible for establishing minimum reserve requirements.

2. Life Insurance Companies

Insurers may be subject to minimum capital requirements. Insurers may also be subject to regulations on how to calculate their financial condition, as well as to risk-based and minimum capital requirements.

3. Investment Companies

In general, the required minimum net worth for an investment company is $100,000.

4. Securities Firms

Rule 15c3-1 under the Securities Exchange Act of 1934 requires a securities firm to maintain sufficient liquid assets in order to satisfy its obligations to customers and others. A firm’s requirements are based on a ratio of liabilities to net capital, as well as minimum requirements based on the type of business the firm conducts. Recall, as well, that securities firms are required pursuant to Rule 15c3-3 to maintain customer assets in a “segregated” account.

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231 See, e.g., CAL. FIN. CODE §§ 660, 661 (West 1999); N.Y. BANKING LAW § 114.
232 See, e.g., N.Y. BANKING LAW §§ 14, 107.
233 See, e.g., N.Y. INS. LAW § 4202 (McKinney 2009) (requiring paid-in capital of at least two million dollars and paid-in initial surplus equal to greater of four million dollars or two-hundred percent of its capital).
234 See id. § 1301.
235 See id. § 1322.
237 17 C.F.R. § 240.15c3-1.
238 Id. § 240.15c3-1(a).
239 Id. § 240.15c3-1(a)(2).
240 Id. § 240.15c3-3; see also LOUIS LOSS & JOEL SELIGMAN, FUNDAMENTALS OF SECURITIES REGULATION 853-56 (4th ed. 2004).