I. INTRODUCTION

The economic crisis has launched a wave of new proposals to change how we regulate the financial markets and financial intermediaries. Broadly speaking, they fall into one (or more) of five categories –

1. Create a new “systemic risk” regulator with broad powers to oversee the financial markets, focused in particular on firms that are “too big” or “too interconnected” to fail, but whose authority (so far) is largely undefined;


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(2) Reorganize the existing regulatory architecture by expanding the powers of the Federal Reserve or another regulator and/or by merging regulators;3

(3) Increase regulatory oversight over particular financial instruments or institutions, such as mandating greater transparency for structured products and a clearinghouse for credit default swaps (“CDSs”),4 requiring private equity and hedge funds to register with the Securities and Exchange Commission (the “SEC”),5 and/or increasing regulation of money market funds (“MMFs”);6

(4) Enhance enforcement by increasing regulatory staff and the frequency of investigation;7 and/or

(5) Empower a newly created federal regulator or existing state authorities, or both, to enforce consumer protection laws.8

Each of these proposals merits careful consideration. What is missing, however, is an analytical foundation on which to assess new regulation and competing initiatives. For example, what is encompassed by “systemic risk,” and how should we define the authority of a new systemic risk regulator?9 Should we regulate new entrants into the


4 See Group of Thirty, Financial Reform, supra note 2, at 15-17; Craig Perrong, The Clearinghouse Cure, REG., Winter 2008-09, at 44; see also infra notes 258-259 and accompanying text.


8 See, e.g., Treasury Blueprint, supra note 3, at 20, 179-80 (federal authorities); COP, Special Report, supra note 2, at 34-37 (state authorities).

9 See infra notes 230-242 and accompanying text.
financial markets, like hedge funds, and if so, what should be the guiding principles?10 In light of their systemic importance,11 what regulation is appropriate for MMFs?12 Without a clear framework in which to assess current regulation, and its apparent breakdown, we risk creating a hodgepodge of new laws and regulations that fail to address, in a consistent manner, the problems that prompted the financial crisis. Those laws and regulations, in turn, can increase the cost of financial intermediation, to the detriment of both suppliers and consumers of capital, without a corresponding increase in benefits – resulting in less investment in the financial markets at a time when the U.S. government is looking to private equity and other investors to help bail out the banks.13

My goal in this paper is to begin to assess the role of financial regulation – in particular, the regulation of risk-bearing by financial intermediaries – within today’s financial markets. It is a first step, and part of a broader agenda that, like reform itself, is likely to span a number of years. What I am not doing, at this stage, is addressing the architecture of regulation. There have been a number of proposals to restructure or consolidate regulators.14 However, although the current crisis suggests the need for change, reorganizing institutions does not guarantee that regulation will be effective, and most likely, architecture will be influenced by changes in regulation itself.15 As Eddie George, the former Governor of the Bank of England, noted (when considering a similar question in the 1990s), “[T]here are many ways of skinning this particular cat . . . . In any event no structure can be set in stone – the markets continue to evolve and so too must the regulatory structure.”16

As a starting point, I focus on the transformation of intermediaries since our system of financial regulation was introduced over seventy-five years ago. Following the Great Depression, regulation divided intermediaries into distinct, separate categories – as banks, securities firms, insurance companies, investment advisors, and others – based on the businesses they conducted at the time. Those distinctions largely mapped the financial landscape through the 1970s, when intermediation began to evolve in line with change in the financial markets, causing traditional categories to begin to blur. Today, at the product level, innovative means to manage and transfer risk can begin to substitute for the traditional function of public shareholders;17 and through derivatives, lenders can separate their role as working capital providers from their traditional job as managers of

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10 See infra notes 247-252 and accompanying text.
11 See infra notes 70-76, 159-160 and accompanying text.
12 See infra notes 162-166, 253-257 and accompanying text.
14 See supra note 3 and accompanying text.
credit risk. Likewise, at the intermediary level, capital markets participants, such as MMFs and finance companies, may increasingly substitute for banks in the accumulation and investment of capital; and new market entrants, such as hedge funds, can take on the credit risk traditionally borne by bank lenders without extending loans themselves. We have, as a result, moved from a financial system bounded by rigid business models to one that is increasingly flexible – relying on new instruments and new intermediaries that, in many cases, fall outside the scope of direct regulatory oversight.

Regulation, however, has not kept pace. Although it has evolved, much of that change was in reaction to concerns that traditional financial intermediaries had become less competitive. Those changes also reflected the introduction of new products and market participants, as well as the need to accommodate new financial practices. Nevertheless, intermediaries have continued to be regulated largely within the business categories that were first introduced in the 1930s – notwithstanding a convergence in function that has placed an increasing strain on those time-worn distinctions. New means to allocate and transfer capital have enhanced the efficiency of our financial markets, but like intermediation generally, they have also given rise to new risks. The result has been a divide between regulation and the evolving role of intermediation – suggesting a need to reconsider financial regulation in line with today’s markets.

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 III, 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, most recently illustrated by the experience of American International Group (“AIG”). In Part IV, I consider the evolving role of financial regulation, drawing on examples to illustrate the need for regulation to reflect market change and financial convergence. Part V concludes.

II. FINANCIAL INTERMEDIATION

A. Benefits of Intermediation

How can capital be transferred, at low cost, from a broad pool of potential investors to businesses, many of them located at a distance, in order to finance valuable projects? Financial markets offer one solution, mobilizing and allocating savings in order to bridge the gap between capital suppliers and consumers. Those markets, alone, would be sufficient in a frictionless world of transparent information and complete markets.

19 See infra notes 33-36 and accompanying text.
20 See infra notes 80-82, 178-187 and accompanying text.
Investors could efficiently allocate the kinds and amounts of capital that businesses require, without the assistance (or cost) of an intermediary.\textsuperscript{22}

Informational barriers, however, create a role for financial intermediaries, who assist by collecting capital from diverse, often small, investors and transferring it to end-users at lower cost than if investors did so themselves.\textsuperscript{23} Banks, for example, act as “delegated monitors,” leveraging long-term relationships with prospective borrowers to make investments based on quasi-public information that may not be available to depositors or may only be available at higher cost.\textsuperscript{24} Borrowers for whom there is less publicly available information, but whose managers are prepared to accept greater oversight by banks than public investors,\textsuperscript{25} are more likely to rely on banks for funding rather than directly raising capital in the public markets.\textsuperscript{26} Enhanced monitoring may, in turn, improve a borrower’s financial condition and increase the value of the bank’s investment.\textsuperscript{27}

Intermediaries also assist in the broad dissemination of market-related information. Data about a company’s business and prospects is increasingly reflected in its stock price, permitting a decentralized market to direct capital where it can be used most productively. Firms can rely on changes in stock price to determine which projects to pursue and how to fund them.\textsuperscript{28} More recently, as private credit instruments have become more liquid, the feedback provided by changes in credit pricing has begun to provide the same kind of information as the public equity markets.\textsuperscript{29}

Intermediaries also help smooth the transfer of capital from suppliers to consumers.\textsuperscript{30} Suppliers prefer liquid, short-term investments that can be quickly turned into cash, such as bank deposits that are payable on demand. Borrowers, by contrast, require the stability of longer-term loans, with term loans having an average maturity of 69

\textsuperscript{26} See Fama, supra note 24, at 30; Hayne E. Leland & David H. Pyle, \textit{Informational Asymmetries, Financial Structure, and Financial Intermediation}, 32 J. FIN. 371, 384 (1977) (noting that less risky firms have incentives to deal with intermediaries better able to sort risk); Mark Carey et al., \textit{The Economics of the Private Placement Market} 11 (Bd. of Governors of the Fed. Reserve Sys., Staff Study No. 166, Dec. 1993).
\textsuperscript{29} See Whitehead, supra note 18, at 668-70.
\textsuperscript{30} See Merton, supra note 23, at 23.
months. Banks help to balance the resulting mismatch by managing a portfolio of loans against their obligation to make depositors whole – drawing on liquid reserves and the proceeds of loans that, over time, are transferred or repaid. A key to the juggling act is the ability of banks to gradually realize on their investments, without being forced – by sudden and widespread withdrawals – to liquidate assets quickly and at fire sale prices. More recently, finance companies and MMFs have replicated the balance traditionally struck by banks. On the consumer side, finance companies are in the business of lending to retail and business borrowers, relying on MMFs for funding through the sale to them of short-term commercial paper. On the supplier side, MMFs offer investors many of the conveniences of a bank, like checking services, by managing their portfolio investments against the possibility of capital withdrawals. The result, if we consider MMFs and finance companies together, is the functional equivalent of deposit-taking and lending by banks. Unlike banks, however, MMFs are understood to be able to sell assets and raise money quickly, in part due to special requirements that impose strict (and detailed) standards on the credit quality and liquidity of their investment portfolios.

Intermediaries, over the last thirty years, have started to take a more active role in managing and allocating risk-bearing – from originators, who are often prepared to pay to transfer risk, to others (including intermediaries) who can manage that risk at lower cost. Risk management, of course, has long been an aspect of intermediation. Insurance policies, for example, provide purchasers with one means to transfer the financial risk of future loss to insurance providers, who can cap some portion of that risk through deductibles, limits, and other policy features, but who then manage or disperse the remaining risk across a large pool of policyholders. Insurers may also hedge risk by issuing securities whose value is tied to losses on outstanding policies or by swapping some portion of that risk with others in order to further diversify their total exposure.

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36 MMF investments are limited to liquid, high quality, short-term assets as one means to protect against credit and market risk. See 17 C.F.R. 270.2a-7 (2006); see also ICI, Money Market Report, supra note 6, at 31-39 (describing regulation of MMFs).
More recently, the role of intermediaries in managing risk has grown. A bank, for example, traditionally manages investment risk more effectively than its depositors. The principal risk, that a borrower will default on repaying its loan, can be addressed through portfolio diversification, as well as close relationships that enable the bank at low cost to monitor and enforce loan covenants. However, as portfolio risk management has improved, bank lenders have sought, like insurers, to transfer risk to others, starting with the syndication of loans, and over time, resulting in lower cost alternatives – such as loan trading and credit derivatives – to the traditional reliance on monitoring and loan covenants. The result, for banks and other intermediaries, has been a dramatic rise in derivatives trading, enhancing their ability to structure products that can offer their customers stable returns over time.

B. Risks of Intermediation

Intermediation, however, itself involves risk. By their nature, financial intermediaries may be more exposed to the risk of insider fraud, self-dealing, or other misconduct at the expense of investors. Consumers, for example, may find it difficult to evaluate the financial assets or services they purchase – in many instances, such as pension funds, because the benefits are unlikely to accrue until far in the future. If performance falls short of what was promised, it may be difficult to determine how much resulted from a simple change in market conditions and how much was due to incompetence or dishonesty. Financial assets, in particular, may be more susceptible to self-dealing than less liquid holdings, providing one basis for imposing a higher standard of conduct on the directors and officers of financial intermediaries. Mutual funds, as a result, are subject to special regulation against potential conflicts of interest. Section 17(a) of the Investment Company Act of 1940 prohibits affiliates from buying or selling securities to or from a mutual fund or borrowing money from the fund, and section 17(d) prohibits mutual funds from acting jointly with affiliates in transacting business with a third party in contravention of SEC rules. The SEC subsequently issued rule 17d-1, which has been expansively construed to limit a mutual fund’s transactions with affiliates, absent an SEC exemption, without regard to whether the mutual fund benefits. The result has

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42 See Whitehead, supra note 18, at 655-59.
43 See Allen & Santomero, supra note 40, at 1466-74, 1482.
50 See, e.g., *In the Matter of Imperial Financial Services, Inc.*, 42 S.E.C. 717, 727 (1965).
been a substantial decline in the fraud that permeated the mutual fund industry before 1940.51

Regulators can also use the licensing process to screen directors, managers, and employees. The failure, for example, of an insurer or its agent to satisfy the applicable standards of conduct – such as an agent or broker acting in bad faith, incompetently, or dishonestly – may result in the revocation of its license by the state insurance commissioner.52 Customer suitability requirements – which help to align product sales and customer interests – serve a similar function for securities firms.53 The Basel Committee on Banking Supervision (a global forum of senior banking regulators) also lists as a best practice the vetting of directors and senior managers to assess personal integrity, in addition to determining business skill and experience.54

Financial intermediaries must also address the classic agency cost rivalry between equity and debt.55 In a simplified balance sheet, risk capital is provided by shareholders, which cushions against losses the intermediary may incur on its investment portfolio. A shareholder’s risk is capped at her invested capital, whereas returns are tied to the intermediary’s profits. The intermediary’s principal liabilities arise from the products it sells to customers – for example, deposits for banks, and policies for insurance companies. Repayment amounts are fixed – typically at a pre-agreed rate – but subject to the intermediary not defaulting. In the absence of a government guarantee,56 creditors – like in the standard agency cost framing – are likely to be concerned that a manager will favor shareholder interests over their own.57 The manager, for example, could invest in riskier assets in an attempt to increase shareholder returns, but at greater risk of default to depositors or policyholders.58

How, then, to assess the risk of default? Banks, for example, are likely to conceal borrower information from depositors, rather than risk releasing it to competitors. Most depositors, therefore, have only limited information 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-dated maturities, so that any information a policyholder obtains today may not be relevant when the policy becomes due. Even if that information is accessible, banks,

52 See 7-49 APPLEMAN ON INSURANCE §§ 49.7, 49.9 (2009); see also N.Y. INS. LAW §§ 1102, 1104, 2601 (McKinney 2009).
56 See Merton H. Miller, Do the M&M Propositions Apply to Banks?, 19 J. BANKING & FIN. 483, 485 (1995); see also infra notes 106-115 and accompanying text.
insurers, and other intermediaries can subsequently change their risk levels – in the ordinary course, through a change in portfolio strategy or the granting of new loans – reflecting the relative liquidity, compared to most companies, of the assets they hold.\(^{59}\)

The result, for the financial markets, is systemic risk. Broadly defined, “systemic risk” reflects the possibility that the default or failure of one financial intermediary may impact the continued viability of others\(^{60}\) – damaging the ability of intermediaries to collect and allocate capital and potentially harming the economy as a whole.\(^{61}\) Not knowing how to differentiate among intermediaries, in light of the high cost of obtaining and analyzing the necessary information, customers may take the collapse of one firm – even if small relative to the market as a whole – as an indication that the industry overall is weak or that intermediaries have acted opportunistically at the expense of customers. Customers may be able to single out individual firms by relying on less costly means, such as reputation, to bridge the information gap, but a good reputation takes time to establish and, in any event, may not be a reliable check if the benefits of default are sufficiently high.\(^{62}\)

A customer can, of course, adjust the terms of its investment contract to reflect intermediary credit risk. Insurance premiums, for example, could be reduced if there is a greater likelihood that an insurer will not be able to pay its policyholders when the policies become due. Policyholders, however, may not have sufficient information on which to assess the risk of nonpayment, particularly over the long term\(^{63}\) – making market mechanisms inadequate to control against the risk of intermediary default.

In the case of banks, the very characteristic that makes them special – the ability to transform assets, from illiquid, longer-term loans to liquid, shorter-term deposits – increases the damage resulting from a “run on the bank” in the event one or more of them is perceived as being unstable. Once rumors start that a bank may fail, investors face a collective action problem. If none of them withdraws, then the bank may avoid the need to sell portfolio assets at fire sale prices. Panicked depositors, however, without sufficient information to gauge a bank’s health or the value of its assets, may rush to withdraw money from a stable bank rather than risk being last-in-line to collect their deposits in the event the bank fails. The subsequent liquidity shock – reflecting the bank’s inability to liquidate assets quickly or at full value in order to pay depositors – may cause the rumor of instability to become a self-fulfilling prophecy.\(^{64}\) Concerns over the health of one bank may, in turn, be projected on to others, setting off a domino effect across the

\(^{59}\) See Clark, supra note 44, at 14-18.


\(^{61}\) See Ben S. Bernanke, Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression, 73 Am. Econ. Rev. 257, 264-65 (analyzing economic damage resulting from fear of bank runs and decline in credit intermediation during Great Depression).

\(^{62}\) See Clark, supra note 44, at 15-18.

\(^{63}\) See Merton, supra note 23, at 43.

\(^{64}\) 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 27, at 8-9, 14-17, 18-19.
industry. The social costs, in the case of a bank run, are particularly high, since widespread withdrawals make it difficult for non-financial borrowers to fund or otherwise transact business in the ordinary course.65

Non-banks, as well, use short-term debt to finance longer-term assets. Creditors rely on shorter maturities as one means to police borrowers, particularly (as in the case of financial intermediaries) where borrower information is limited and changes in risk-bearing are more likely.66 A borrower can manage its portfolio in whatever way it believes to be profitable, and creditors can then price any increase (or decrease) in risk in subsequent loans.67 Creditors, however, may simply choose not to refinance – on the fear that the borrower’s other creditors will walk away first – potentially resulting in a bank-like run by creditors on a non-bank intermediary.68 Bear Stearns’ collapse in spring 2008 was precipitated by a drop in liquidity in the subprime loan market. Only a few days earlier, analysts had commented that Bear Stearns held enough liquid assets and sufficient borrowing capacity to stay in business for almost two years. That liquidity dried up – a classic bank run – in the face of concerns over Bear Stearns’ exposure to credit derivatives and subprime loans.69 As asset prices declined, lenders became unwilling to roll-over or extend credit, resulting in a further decline as those assets were sold at depressed prices. The drop in value of Bear Stearns’ portfolio affected the value of similar assets held by others, transmitting the financial shock across the market.70 Bear Stearns was not the first example of a bank run on a securities firm. Drexel Burnham declared bankruptcy in 1990 after the collapse of the secondary market for high-yield bonds. Securities that traded freely became illiquid following Michael Milken’s six felony convictions, changes in regulation requiring thrifts to sell their holdings, and a collapse in confidence over the value of high-yield instruments – resulting, like in the case of Bear Stearns, in a halt in lending that forced Drexel Burnham to liquidate its assets at fire sale prices.71

66 See Berger et al., supra note 57, at 10; Strahan, supra note 31, at 20-21.
67 See Flannery, supra note 58, at 321-22.
Even if it holds liquid assets, the perception that an intermediary cannot fully repay its investors can cause a sudden run. In fall 2008, when the share price of the Reserve Primary Fund, the nation’s oldest MMF, fell below $1/share – the first MMF in fourteen years to “break the buck,” triggered by losses on Lehman Brothers bonds – the news sparked a market-wide run by investors, who withdrew a total of approximately $480 billion in cash. Breaking the buck was particularly worrisome, since investors tacitly understood that fund advisors would make up any shortfall, even though there was no express guarantee of share price. In order to meet investor demands, MMFs were forced to liquidate their portfolios, which contributed to a run-up in the cost of commercial paper and a general freeze in new issuance.

C. Managing Intermediation Risk

Intermediaries manage risk in the ordinary course. Managing a borrower’s credit risk, for example, lies at the heart of a bank’s function as an intermediary between suppliers and consumers of capital. More recently, credit derivatives have opened the door for lenders to separate their role as working capital providers from their traditional job as risk managers, in the process introducing a new category of market participants –

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74 In the case of the Reserve Primary Fund, that understanding may have been explicit. Regulators are investigating whether fund managers lied to investors, saying the fund’s advisory firm would support the fund’s $1/share value in an effort to stop a run on the fund before it broke the buck. See Diya Gullapalli, Regulators Say Reserve Told Lies to Investors, WALL ST. J., Jan. 14, 2009, at C2.

75 See, e.g., Leslie Wayne, Investors Lose Money In “Safe” Fund, N.Y. TIMES, Sept. 28, 1994, at D1 (listing fifteen MMFs whose advisors made up for shortfalls from losses, rather than allowing fund share prices to fall below $1).

76 Commercial paper is used by large industrial firms, like General Motors, IBM, and Microsoft, to fund short-term mismatches in cash flow. See Joe Nocero, 36 Hours of Alarm and Action as Crisis Spiraled, N.Y. TIMES, Oct. 2, 2008, at A1 (describing problems that could arise if MMFs abandon commercial paper).


78 See supra notes 37-43 and accompanying text.


80 See Whitehead, supra note 18, at 657-58; Robert C. Merton, Financial Innovation and Economic Performance, 4 J. APPLIED CORP. FIN. 12, 12 (1992) (noting that working capital, used to finance firm projects, can be separated from risk capital that bears those projects’ risks); see also Hamish Risk, Loan Credit-Default Swaps Surge as Hedge Funds Hunger for Yield, BLOOMBERG, Aug. 22, 2006, at http://www.bloomberg.com/apps/news?pid=20601087&sid=a4fg_8Gw37Fw&refer=home (noting that “[w]hen investors can’t get the loans, they’re increasingly using credit-default swaps”).
increasingly, hedge funds – who are willing to invest in the credit of a referenced borrower without committing capital to extend loans.\textsuperscript{81} In effect, risk capital can now be separated from working capital, permitting traditional providers to fund real investments while transferring some portion of the risk to firms that assume it for a fee or are better able, on a comparative basis, to manage it at lower cost.\textsuperscript{82}

Customers can also manage their exposure to an intermediary by buying and selling instruments whose payoffs are tied to the intermediary’s credit. A depositor, for example, concerned about a bank’s investments, could short its stock. Short selling would involve the depositor’s sale of bank stock she does not own, but which she can borrow from her broker or another custodian. The depositor would expect to buy back the stock at a future date in order to repay her loan. In the interim, however, she would profit if the stock price declined (selling high; buying back low), potentially offsetting any loss on her deposit if it turned out the bank had made poor portfolio choices. In effect, by profiting from a downturn in the bank’s share price, the depositor could disaggregate the risky portion of the bank’s business – potentially reflected in any drop in stock price – from its riskless investments.\textsuperscript{83} For her to do so effectively, however, she would need to be as capable of assessing the bank’s portfolio risk as the bank’s own managers. Monitoring sources of risk can be complex (increasingly so as the portfolio grows) and difficult to measure. Depositors also may not have complete access to confidential bank information.\textsuperscript{84} Consequently, rather than managing risk on her own, the depositor may reasonably expect the bank itself to manage risk more effectively and at lower cost.\textsuperscript{85}

Managers have their own incentives to manage portfolio risk. Intermediaries with more convex tax schedules have been found to hedge more, suggesting that hedging may reduce pre-tax earnings variability and, for firms facing convex tax functions, enhance post-tax value.\textsuperscript{86} In addition, hedging may reduce the risk premium that firms must pay employees whose wealth is substantially invested in their employer (through stock awards, options, and bonuses).\textsuperscript{87} Managers may also benefit from hedging to the extent it


\textsuperscript{82} See Merton, supra note 23, at 23.


\textsuperscript{85} See Gilson & Whitehead, supra note 17, at 248.


reduces an intermediary’s profit variability and, in their superiors’ eyes, evidences stronger management performance.88 Risk management also reduces cash flow volatility by offsetting losses with payments received under derivatives and other risk transfer instruments.89 An intermediary that manages risk is less likely to incur the real cost of financial distress, such as bankruptcy cost, indirect cost from a decline in competitiveness, and risk premiums demanded by customers, counterparties, and employees.90 Minimizing earnings volatility can also result in an increase in debt capacity.91 Thus, for banks, risk management has helped to reduce a recent rise in earnings volatility—prompted by the banks’ move away from traditional lending revenues to a greater reliance on new, and less reliable, fee-based earnings tied to services and products sold to customers.92 Clients can also benefit from reduced cash flow volatility in the same way as the bank itself. Accordingly, in addition to reducing cost, an intermediary’s expertise in risk management can provide an additional source of revenue for the services it provides.93

In complete markets,94 intermediaries and investors would be able to hedge away most of their risk, with the result that bank runs would become less common and systemic risk would decline.95 Hedging, however, is less effective in still-incomplete markets, requiring an alternative means to manage risk-taking. Likewise, the cost of incurring risk may not be fully borne by any one market participant. For example, the social cost of a bank run—in light of its broad economic impact—is greater than the cost incurred by the bank, its shareholders, and its depositors, but is unlikely to be taken into account by the bank when deciding to hedge or incur greater risk.96 Market discipline,

88 See Peter M. DeMarzo & Darrell Duffie, Corporate Incentives for Hedging and Hedge Accounting, 8 REV. FIN. STUD. 743, 746 (1995).
90 See Smith & Stulz, supra note 86, at 395-98.
93 See Allen & Santomero, supra note 40, at 1465.
96 See infra notes 206-209 and accompanying text.
consequently, may not completely manage risk-taking, resulting in greater risk being incurred than is socially optimal.

Financial regulation bridges that divide by restricting the amount and types of risk-bearing that an intermediary can assume,\(^\text{97}\) directly through requirements that circumscribe the riskiness of an intermediary’s portfolio assets,\(^\text{98}\) and indirectly through rules regarding the intermediary’s net worth, capital or surplus that effectively cap their risk-taking activities.\(^\text{99}\) Those regulations address systemic risk by limiting the likelihood

\(^{97}\) See Clark, supra note 44, at 15-18, 23-24.

\(^{98}\) In his thoughtful 1976 article on financial regulation, Professor Clark provided a comprehensive set of examples of how a financial intermediary’s investment portfolio is regulated. See id. at 44-48 nn.125-27. My purpose here is to provide an updated, but abbreviated, list of those statutes and rules to illustrate the continued regulatory supervision over the assets and liabilities of financial intermediaries.

**COMMERCIAL BANKS**


C. **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. See, e.g., CAL. FIN. §§ 750, 751 (West 2009); N.Y. BANKING LAW § 98 (McKinney 2009). State regulations may also proscribe the valuation of bank assets. See, e.g., id. § 104.

**LIFE INSURANCE COMPANIES**

For examples of minimum capital investment requirements, asset restrictions and valuation rules for investments, stocks and bonds, see N.Y. INS. LAW §§ 1405, 1414, 4202, 4217 (McKinney 2009). These provisions set minimum paid-in-capital requirements, restrict the investment of liability reserves to specific investment types, and require annual valuation of reserve liabilities.

**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. See, e.g., 15 U.S.C. §§ 80a-8(b)(4), 80a-12(a), 80a-13 (2006); 17 C.F.R. § 210.6-03 (2006). MMFs, however, are subject to special requirements regarding the credit quality of, and ability to liquidate, their investment portfolios. See supra note 36 and accompanying text.


Examples of regulations that restrict net worth, capital, or surplus are set out below. A discussion of differences in regulatory capital requirements among financial intermediaries is also set out infra at notes 155-157 and accompanying text.

**COMMERCIAL BANKS**

of disruption in the intermediation process itself.\textsuperscript{100} 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.\textsuperscript{101} In addition, prudential regulation circumscribes the debt and equity obligations that a financial intermediary can issue, as well as their valuation for regulatory purposes.\textsuperscript{102} Capital regulations also require an intermediary to set aside

B. \textit{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; after admission, capital stock may not be reduced without the Board’s approval. \textit{Id.} \textsection{ 329; Regulation H, 12 C.F.R. pt. 208 (2008).} Within statutory limits, the Board also sets reserve requirements as a percentage of deposits. 12 U.S.C. \textsection{461(b) (2006); Regulation D, 12 C.F.R. pt. 204 (2008).}

C. \textit{Other State Banks}: States set minimum legal capital requirements for banks chartered under their laws, \textit{see, e.g.}, N.Y. BANKING LAW \textsection{4001 (McKinney 2009)}, provide remedies for capital impairment and regulate capital reduction, \textit{see, e.g.}, CAL. FIN. §§ 660, 661 (West 2009); N.Y. BANKING LAW \textsection{114 (McKinney 2009)}, and establish reserve requirements, \textit{see, e.g.}, N.Y. BANKING LAW §§ 14, 107 (McKinney 2009).

**LIFE INSURANCE COMPANIES**

For an example of minimum capital requirements, see N.Y. INS. LAW \textsection{4202 (McKinney 2009)} (requiring paid-in capital of at least $2,000,000 and paid-in initial surplus equal to greater of $4,000,000 or 200 percent of its capital). Insurers may also be subject to regulations on how to calculate their financial condition, \textit{see N.Y. INS. LAW \textsection{1301 (McKinney 2009)}, as well as to risk-based and minimum capital requirements, \textit{see N.Y. INS. LAW Art. 14, \textsection{1322 (McKinney 2009)}.**

**INVESTMENT COMPANIES**

In general, the required minimum net worth for an investment company is $100,000. 15 U.S.C. \textsection{80a-14 (2006); 17 C.F.R. §§ 270.14a-l, 14a-2 (2008).}

\textsuperscript{100} See Herring & Santomero, \textit{supra} note 27, at 13-14.


\textsuperscript{102} Set out below are examples of limitations on the types, amounts, and valuation of equity and debt instruments that can be issued by financial intermediaries.

**COMMERCIAL BANKS**

Some of the historical limitations on commercial banks have been modified or repealed, most notably the phase-out of Regulation Q, which had 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. \textit{See R. Alton Gilbert, Requiem for Regulation Q: What It Did and Why It Passed Away, REVIEW, Feb. 1986, at 22, 30-34 (Fed. Reserve Bank of St. Louis).} Certain other repealed regulations are also included below.

A. \textit{National Banks}: Prior regulation restricted indebtedness, based on a formula tied to capital stock and surplus funds. \textit{See 12 U.S.C. \textsection{82. Those restrictions were repealed in 1982.}

B. \textit{Member Banks}: The payment of interest on demand deposits continues to be prohibited, except as permitted by 12 U.S.C. \textsection{371(a) (2006). Limitations on bankers’ acceptances appear in 12 U.S.C. \textsection{372.}

C. \textit{Other State Banks}: The payment of interest on demand deposits in insured banks is prohibited by 12. U.S.C. \textsection{1828(g) (2006) and 12 C.F.R. \textsection{329 (2008). Capital adequacy, under state law, may also be tied to a bank’s liabilities (including capital notes or debentures and any contingent liabilities). \textit{See, e.g.}, CAL. FIN. CODE \textsection{884 (West 2009).**

**LIFE INSURANCE COMPANIES**

Life insurers can typically borrow funds in the ordinary course of business, but repayment may be restricted by statute to the insurer’s surplus funds. \textit{See, e.g.,} N.Y. INS. LAW \textsection{1307 (McKinney 2009). In addition, state regulation may limit the aggregate amount of indebtedness that a life insurer can issue. \textit{See, e.g.,} N.Y. INS. LAW \textsection{1323 (McKinney 2009). Other regulation sets out the provisions of a life insurance contract. \textit{See, e.g.,} N.Y. INS. LAW Art. 32 (McKinney 2009).**

**INVESTMENT COMPANIES**


capital against the risk of future loss in order to protect against the costs of financial distress in the event the entity must be bailed out. Together, these regulations control the amount of risk that an intermediary can incur by restricting both the asset and liability sides of its balance sheet.

If an intermediary defaults, its customers may still be protected from loss through government-sponsored back-up funding programs. For banks, deposit insurance provided by the Federal Deposit Insurance Corporation ("FDIC") protects investors against the loss of deposits up to $250,000. Customers of insurance companies, securities firms, thrifts, and pension funds also have the benefit of government insurance programs. Absent insurance, managers would need to pay customers for any incremental risk they incur and, once again, face the possibility of runs in the event of uncertainty over an intermediary’s credit quality. Funding programs reduce that likelihood, since investors are assured of being made whole irrespective of the intermediary’s credit or the reason for the payment default. Thus, in response to the run by MMF investors in fall 2008, the Treasury Department created a temporary program to guarantee MMF account balances – economically, not unlike bank deposit insurance – which successfully broke the run.


104 See Berger et al., supra note 57, at 16-21.

105 See Clark, supra note 44, at 47.


107 New York, for example, has a creating Life Insurance Company Guarantee Corporation whose purpose is to protect policyholders of life insurance companies in the event of an insurance company insolvency. See, e.g., N.Y. INS. LAW Art. 77 (McKinney 2009).

108 Congress created the Securities Investor Protection Corporation ("SIPC") as part of the Securities Investor Protection Act of 1970, 15 U.S.C. § 78ccc (2006). SIPC’s goal is to restore funds to investors when a securities firm is in bankruptcy or when it is otherwise financially troubled and unable to return customer deposits.


110 The Pension Benefit Guaranty Corporation was established in 1974 to ensure that employee participants in a defined benefit plan receive the benefits owed to them under the plan when an employer becomes insolvent and is unable to pay its pension obligations. See 29 U.S.C. §§ 1001-1461 (2006).

111 See Calomiris, supra note 65, at 284; Herring & Santomero, supra note 27, at 18.

112 See supra notes 72-77 and accompanying text.

Insurance, however, raises the specter of moral hazard. An intermediary’s managers may take on greater risk if they no longer face the need to pay customers. Portfolio regulation, therefore, serves a second task – beyond simply regulating portfolio risk, it also assists in offsetting the incremental risk that managers may incur as a result of insurance or other customer protection that could promote riskier activities.

D. Summary

Imperfect markets provide a role for financial intermediaries, which are able to span the gap between investors and businesses, offering low cost means to collect and allocate capital, and to manage and transfer risk. Risk, however, is also a consequence of intermediation.

First, customers are exposed to the risk of insider opportunism, which may be costly to assess in light of the difficulty in monitoring financial intermediaries. Regulation may, in response, provide one means to reinforce public confidence in the financial markets.

Second, investors face the standard agency cost rivalry between equity and debt, with senior creditors (like depositors and policyholders) being concerned that managers may favor shareholder interests over their own. Absent a low-cost means to monitor management, government-sponsored insurance may help to minimize customer concerns.

Third, in light of the first two risks, intermediaries (in particular, those that fund longer-term assets with short-term debt) may become subject to bank-like runs – with creditors, absent sufficient information on which to assess risk, withdrawing their capital in response to fears that an intermediary may not be able to repay its obligations. The potential impact of a bank run on the financial markets, and the economy generally, create a systemic risk that is unique to the financial industry.

Imperfect markets also form the basis for financial regulation. Bank runs, for example, relate to problems of information and coordination. Absent a market-based remedy, government-sponsored insurance provides one means to minimize creditor

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114 See Joe Adler, Bailout Bill’s FDIC Hike Temporary – For Now; Many View Increase in Coverage as Likely to be Made Permanent, AM. BANKER, Oct. 2, 2008, at 1 (noting that MMF guarantee makes MMFs “direct substitutes” for FDIC-insured deposits).


117 See Herring & Santomero, supra note 27, at 20.

118 See Diamond & Dybvig, supra note 64, at 417; Richard S. Grossman, Deposit Insurance, Regulation, and Moral Hazard in the Thrift Industry: Evidence from the 1930’s, 82 AM. ECON. REV. 800, 802-03 (1992); Demirgüç-Kunt & Detragiache, supra note 116, at 1402.
concerns. Systemic risk, as well, relates to information and coordination, giving rise to external costs that may not be taken into account by the direct participants. An intermediary, for example, may assess the riskiness of its investment portfolio by balancing the interests of its shareholders and creditors, but without considering the costs borne by others as greater risk increases the possibility of a bank run. Portfolio regulation, capital and balance sheet requirements, and government-sponsored insurance help close that gap.

The last thirty years have witnessed significant change in the business models that formed the basis for much of our current system of financial regulation. New means to allocate and transfer capital have enhanced the efficiency of our financial markets, but have also given rise to new risks. In the next Part, we turn to the impact of that change on the role of financial regulation.

III. REGULATION IN CHANGING FINANCIAL MARKETS

Our current system of financial regulation was born of the Great Depression – during the 1930s, for banks, securities firms, and savings institutions, and during the 1940s, for investment advisors and mutual funds. Leading up to the 1930s, there had been a growing overlap across the banking, securities, and asset management businesses. Federal regulation, however, divided intermediaries into distinct, separate categories – as banks, securities firms, insurance companies, investment advisors, and others – 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. Banking, for example, centered on collecting deposits and investing in loans, government bonds, and other assets. Investment banking covered the origination, underwriting, and distribution of securities, at the time largely comprised of stocks and various kinds of bonds. The Glass-Steagall Act reinforced that separation by providing a clear

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122 See KROOSS & BLYN, supra note 119, at 157.
123 See ADOLF A. BERLE, JR., STUDIES IN THE LAW OF CORPORATION FINANCE 27 (1928) (noting that the markets were broadly divided into one of two categories: stocks or bonds). For most, the financial markets were comprised of only the capital and loan markets, principally made up of stocks, bonds, other traditional securities, and loans. See, e.g., Gene Smiley, The Expansion of the New York Securities Market at the Turn of the Century, 55 BUS. HIST. REV. 75, 80 (1981) (showing categories of earning assets held by U.S. financial institutions from 1890 to 1908). The capital markets generally did not extend to derivative instruments, in large part due to uncertainty over whether they constituted illegal gaming contracts. See EDWARD J. SWAN, BUILDING THE GLOBAL MARKET—A 4000 YEAR HISTORY OF Derivatives 251-54 (2000). Commodities were a notable exception. The Chicago Board of Trade was established in 1848 and focused exclusively on commodities contracts until the mid-1970s. The predecessor to the Chicago Mercantile Exchange was established in 1898 to trade spot and futures contracts on eggs and dairy, later expanding to include live cattle, feeder cattle, and pork bellies, and principally remaining an agricultural marketplace until the early 1970s. ERIK BANKS, EXCHANGE-TRADED Derivatives 119, 129 (2003).
regulatory divide between the two.\textsuperscript{124} Twenty years later, the Bank Holding Company Act\textsuperscript{125} extended that separation by walling off banks from the underwriting of insurance products.\textsuperscript{126}

A. Changing Financial Markets

The traditional separations began to blur in the 1970s and 1980s, in part due to increasing competition,\textsuperscript{127} new products and other innovation,\textsuperscript{128} and changes in financial services regulation.\textsuperscript{129} For banks, the introduction of new regulatory capital requirements made it more expensive to continue the lending business as they had before,\textsuperscript{130} causing them to expand into new products and services.\textsuperscript{131} Likewise, the end of Bretton Woods and the start of the OPEC oil embargo in 1973 for the first time subjected peacetime businesses to new exchange rate and energy cost volatility. Business managers began to search for cost-effective means to manage their risk. Intermediaries saw an opportunity to profit from the creation and trading of new financial instruments that responded to the new demands.\textsuperscript{132} 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.\textsuperscript{133}

Take, for example, the chief operating officer of a manufacturer (“Seller”) who wishes 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, they will increase Seller’s

\textsuperscript{131} See Allen & Santomero, supra note 127, at 8-10; Smoot, supra note 124, at 654-60.
\textsuperscript{132} See FRANKLIN ALLEN & DOUGLAS GALE, FINANCIAL INNOVATION AND RISK SHARING 38 (1994); James C. Van Horne, Of Financial Innovations and Excesses, 40 J. FIN. 621, 621-22 (1985); Allen & Santomero, supra note 40, at 1479-80; Gilson & Whitehead, supra note 17, at 245-47
\textsuperscript{133} See Van Horne, supra note 132, at 621-22; Allen & Santomero, supra note 40, at 1479-80.
exposure to the risk that Buyer will fail to make its payments when due. In the 1970s, the COO might have considered the following in order to offset that risk:

- As a preliminary matter, she might simply decide 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.\(^{134}\)

- 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.\(^{135}\)

- The COO could also sell the accounts receivable to a factor, which typically would purchase them at a discount, taking on the risk of Buyer’s default, as well as benefiting from any gain if Buyer paid more than the discounted price.\(^{136}\)

- Finally, the COO might purchase a commercial credit insurance policy that would be payable upon a Buyer default. The insurer, as part of the underwriting process, would actively monitor Buyer’s credit quality, as well as adjust the amount of its coverage depending on changes in Buyer’s financial position.\(^{137}\)

Today, the COO has available to her an even greater menu of new products and strategies to pick from.

- 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.\(^ {138}\) Like factoring, interest holders would take on both the risks and benefits of Buyer’s credit quality.\(^ {139}\)


\(^{137}\) For a description of a commercial credit insurance policy, see *AON Trade Credit, Inc. v. Quintec, S.A.*, 981 So. 2d 475, 478 (Fla. 3d DCA 2008); see also Arjan va de Wall, *Trade Credit Insurance: A New and Sustainable Approach to Corporate Credit Management*, CREDIT & FIN. MGM’T REV., Jan 1, 2004, at 4; Roberto Ceniceros, *Credit Crunch Fuels Rush for Coverage; Trade Credit Insurers See Rise in Demand as Bankruptcies Grow*, BUS. INS., Apr. 13, 2009.

\(^{138}\) See White, supra note 136, at 153-55.

Instead, the COO might decide to short sell Buyer’s stock, with any profit potentially offsetting a portion of the losses it incurs if Buyer’s credit declines. Changes in stock price, however, may 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 whose value is tied to an outstanding Buyer loan or bond. Using a CDS, 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 risk in the event of a mismatch between the CDS and the amounts owed by Buyer to Seller.

Finally, Seller could issue credit-linked notes (“CLNs”) in the capital markets whose redemption 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.

The example provides two illustrations. First, it highlights 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 provided by intermediaries (e.g., letters of credit and insurance), to lower-cost alternatives, in many cases through the capital markets (e.g., securitization and CDSs). Traditional intermediaries have, as a result, 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. Second, it illustrates that intermediaries – irrespective of the traditional category in which they fall – can achieve similar results today using a variety of products and trading strategies, many of which did not exist thirty years ago. Thus, in the preceding example, Seller’s exposure to Buyer could be managed through one or more of a bank, insurance company, securities firm, or hedge fund, in each case with economically similar outcomes.

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142 See supra note 81 and accompanying text. A description of credit derivative instruments appears in GLANTZ, supra note 81, at 531-49; Blythe Masters & Kelly Bryson, Credit Derivatives and Loan Portfolio Management, in HANDBOOK OF CREDIT DERIVATIVES 43-85 (Jack Clark Francis et al. eds., 1999).
144 See Allen & Santomero, supra note 40, at 1466-74; Herring & Santomero, supra note 27, at 27-41.
145 See Allen & Santomero, supra note 40, at 1467-68; Herring & Santomero, supra note 27, at 27-31.
The example also raises a question: Should economically equivalent products and services be regulated differently? Each intermediary in the example is subject to different regulations and regulators, depending on the category in which it falls. The extent of those differences may impact cost, resulting in a less-than-level playing field and, as I describe during the remainder of this Part, with unintended consequences. In addition, new risks – arising from new products and services – may not fit neatly into a traditional category, potentially creating a gap between financial regulation and today’s markets. I also illustrate those concerns in the next two Sections.

B. Regulation of Intermediaries

Beginning in the 1950s, financial regulation began to evolve in response to change in the financial markets, in particular as concerns arose that traditional financial intermediaries had become less competitive. The restrictions of the Glass-Steagall Act and the Banking Holding Company Act, for example, began to weaken – initially through changes in how regulators interpreted the Acts – after banks began to offer new products and services, before the barriers between banks, securities firms, insurers, and others were formally repealed. In addition, changes that reflected new products and new market participants were introduced, in some cases spurred by pressure to stay competitive, and in other cases in order to accommodate new financial practices. Nevertheless, traditional business categories have continued to set the boundaries within which financial intermediaries are regulated. As Jamie Dimon, the Chairman and CEO of J.P. Morgan, has noted, “A lot of the rules and regulations [we have] are closer to the Civil War than they are to today.”

Take, for example, the current regulatory capital requirements. For banks, capital is intended to cushion against the risk of loss arising in a portfolio of illiquid loans, focusing on the impact of a bank failure on depositors, the risk of a bank run, and in light of their systemic importance, the resulting harm to the economy. For securities firms, a

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147 See Allen & Santomero, supra note 40, at 1464-74; Herring & Santomero, supra note 27, at 29-35. For example, as described earlier, finance companies and MMFs now replicate the traditional capital accumulation and lending function provided by banks. See supra notes 33-36 and accompanying text.
148 See Sorcher & Kini, supra note 126, at 233-34.
149 See Fischer et al., supra note 120, at 474-502.
150 See Gramm-Leach-Bliley Act, 15 U.S.C. §§ 6801-6809, §§ 6821-6827 (2006); see also
151 See Coffee & Sale, supra note 3, at 23, 30.
primary concern has been the protection of accountholders who have securities or assets on deposit. Unlike banks, 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 firm’s adjusted liquidation value, requiring that the firm maintain a sufficient amount of liquid assets in order to satisfy its obligations to customers and others.156 Lastly, for insurance companies, capital requirements are principally intended to protect policyholders. Insurers, in the ordinary course, expect to pay claims as they come due, and so they normally set aside funds against future obligations. Risk-based capital requirements help to cushion against the possibility that actual claims will exceed the insurer’s projections.157

Existing capital requirements, however, are an imperfect match to today’s business practices. As noted earlier, the presumption underlying the net capital rules – a liquid securities portfolio – may no longer be accurate. Drexel Burnham and Bear Stearns both collapsed after their portfolio assets became illiquid.158 Moreover, an increasing number of non-banks are now subject to the same risks that prompted bank capital requirements, but without a corresponding shift in capital (or other) regulation.159 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.160 MMFs compete with banks for deposits, but offer higher yields, partly as a result of not being subject to the costly capital and other requirements imposed on banks. Finance companies, as well, are not subject to banking oversight, providing them with a competitive advantage in lending to customers.161 Yet, as intermediaries, they run the same types of risks as banks, without being subject to the same types of regulation,162 prompting calls – in light of their aggregate size,163 the recent investor run, and the U.S. government guarantee of fund accounts164 – for MMFs to be regulated like banks.165 As Paul Volcker, former Federal

156 See Joint Forum, Risk Management, supra note 103, at 11-12, 30-31, 38-41; see also Allen & Herring, supra note 71, at 22-24. The basic net capital rules also limit a securities firm’s aggregate indebtedness. See 17 C.F.R. § 240.15c3-1(a)(1) (2008). However, under the SEC’s Consolidated Supervised Entity Program, qualifying securities firms – limited to the five largest – could elect to be subject to alternative net capital requirements that did not contain a limitation on leverage. See Coffee & Sale, supra note 3, at 21-24.


158 See supra notes 69-71 and accompanying text.

159 See supra notes 66-68 and accompanying text.

160 See ICI, Money Market Report, supra note 6, at 18-20.


164 See supra notes 112-115 and accompanying text.

165 Group of Thirty, Financial Reform, supra note 2, at 9.
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.”

Existing regulations also impose different costs on different intermediaries. Regulators have long known that intermediaries transfer risk based on their relative cost of capital. Risk transfer was understood to optimize risk allocation, permitting banks to transfer credit risk to non-bank intermediaries – in many cases, insurance companies – who were less susceptible to financial shocks and therefore better able to manage that risk. Properly structured, capital requirements could provide an incentive for banks and other intermediaries to transfer risk to lower cost buyers, who might optimally manage that risk based on their ability to assess and hedge exposures.

Problems arose, however, as competition grew among intermediaries. Over the last twenty years, the asset-backed securities market has been fueled by the drive toward lower cost off-balance sheet financing. Banks were reportedly forced to move subprime assets off their balance sheets in light of the greater capital costs to which they were subject compared to securities firms. Assets that were traditionally held by banks moved to a “shadow” banking system comprised of structured investment vehicles and other financing conduits that were set up to minimize regulatory capital charges and shield banks from loss. By 2007, the shadow banking system had combined 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. As former Citigroup Chairman and CEO Charles Prince told Rep. Barney Frank, off-balance sheet financing was necessary because on-balance sheet financing “would have put Citigroup at a disadvantage with Wall Street investment banks that were more loosely regulated and were allowed to take far greater risks.”

The difference in treatment had unintended consequences. By moving assets off-balance sheet, banks could underwrite riskier loans without incurring greater capital

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168 See Allen & Gale, *supra* note 95, at 346.
172 See Geithner, *supra* note 171.
costs, resulting in a decline in underwriting standards. Citigroup, like other banks, understood the greater risks that were being underwritten, but believed them to be necessary in order to remain competitive. As Mr. Prince was famously quoted, “When the music stops, in terms of liquidity, things will get complicated. But as long as the music is playing, you’ve got to get up and dance. We’re still dancing.”

Many of the mortgage loans were financed on a short-term basis. However, unlike banks, those conduits lacked a safety net – no insurance and no minimum capital requirements – making them more vulnerable to bank-like runs when financing began to tighten. Once the music stopped, the loans were transferred back on to the banks’ balance sheets, resulting in sudden write-offs – to the surprise of regulators, customers, and shareholders – as mortgage values declined.

Hedge funds present a similar story. Initially, bank lenders had syndicated loans in order to reduce credit exposure, spurring growth in the private credit market and secondary trading in loan assets. Loan 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. CDSs permitted lenders to transfer all or a portion of a borrower’s credit risk, without requiring a working capital commitment. In effect, with CDSs, banks could continue to hold an asset while outsourcing a portion of the credit risk – which was then swapped from investor to investor, a majority of who are now hedge funds.

Outsourcing, in this case, may raise particular concerns. Hedge funds and their advisors are subject to minimal regulation – often being defined by reference to the

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175 See Geithner, supra note 171; see also supra notes 66-68 and accompanying text.
178 See Whitehead, supra note 18, at 656-57.
180 See Risk, supra note 80; Daniel Fisher, *A Dangerous Game*, FORTUNE, Oct. 16, 2006, at 40,40 (citing Greenwich Associates analysis that 58% of CDSs are traded by hedge funds); Janet Morrissey, *Credit Default Swaps: The Next Crisis?*, TIME, Mar. 17, 2008, at http://www.time.com/time/business/rticle/0,8599,1723152,00.html (noting that an original CDS can be traded fifteen or twenty times).
181 See Paredes, supra note 60, at 979-83 (describing regulation of hedge funds); Steven M. Davidoff, *Black Market Capital*, 2008 COLUM. BUS. L. REV. 172, 211-16 (same). Although exempt from regulation, it is estimated that about 70% of hedge fund assets are managed by advisors that have voluntarily registered with the SEC, largely due to market pressures to do so. *After Dodging Many Bullets, Hedge Funds Are*
federal securities laws from which they are exempt. Moreover, the hedge fund industry – traditionally under SEC oversight – is not subject to systemic risk regulation, which is principally a function of the Federal Reserve and Treasury. Absent that regulation, and during times of financial distress, there is a risk that losses – brought on by forced liquidations – may cause short-term creditors to refuse to refinance their loans to hedge funds, resulting in a bank-like run. The resulting impact on the financial markets is difficult to gauge, but – like the AIG Financial Products (“AIGFP”) story, below – a run on hedge funds may affect other intermediaries that have relied on CDSs to mitigate credit exposure. The key here is that hedge funds have started to take on a function that was traditionally managed by banks and other regulated intermediaries, but without being subject to the same oversight. Systemic risk in the hedge fund industry is not, as is often suggested, limited to the potential impact of trading or liquidation on the stock markets. The complete story must also include a role for hedge funds, in effect, as extensions of the traditional banking and credit markets.

C. AIG Financial Products

AIG provides the most recent, and perhaps 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


See, e.g., Paredes, supra note 60, at 1000; Coffee & Sale, supra note 3, at 51-53.

Although derivatives are held among a broad cross-section of banks, the impact of a fall in the CDS market is likely to be concentrated among the five largest, which currently hold 97% 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 1, 5-6 (Dec. 29, 2008), available at http://www.occ.treas.gov/ftp/release/2008-152a.pdf.

See, e.g., Houman B. Shadab, The Challenge of Hedge Fund Regulation, REG., Spring 2007, at 36, 39-40; Paredes, supra note 60, at 985-86.

See Nicholas Chan et al., Do Hedge Funds Increase Systemic Risk?, 91 ECON. REV. 49, 49-50, 75 (2006).

To date, the U.S. federal government has invested over $150 billion in AIG, although that figure is likely to increase as AIG seeks additional funding to offset continuing losses. Paritosh Bansal, AIG in Talks with U.S. Government for More Funds: Source, REUTERS.COM (Feb. 23, 2009), available at http://www.reuters.com/article/newsOne/idUSTRE51M6LT20090223.

AMERICAN INTERNATIONAL GROUP, INC., 2007 ANNUAL REPORT (FORM 10-K), at 3-13 [hereinafter AIG 2007 ANNUAL REPORT], available at http://www.sec.gov/Archives/edgar/data/5272/000095012308002280/y44393e10vk.htm#102; Testimony of Scott M. Polakoff, Senior Deputy Director & Chief Operating
of AIG’s profits were generated by its insurance subsidiaries, although operating income from its non-insurance financial businesses rose to over 29% of AIG’s bottom line in 2005. A substantial portion of that income (roughly 17.5%), as well as approximately 10% 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 AAA 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 that risk at lower cost than its customers, 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 being obligated in the case of a credit event – typically a payment or other default by a reference asset or entity – to make its customers whole.

Beginning in 2003, AIGFP wrote close to $80 billion in notional amount of CDSs whose value was tied to the super-senior tranches of collateralized debt obligations (“CDOs”) – structured instruments backed by assets that, in some cases, included sub-

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AIG 2007 ANNUAL REPORT, supra note 189, at 5 (disclosing that in 2005 financial services operations accounted for $4.424 billion of AIG’s total operating income of $15.213 billion).


prime mortgage securities. It exited that market two years later, in 2005, over concerns that CDOs had become too toxic. Underwriting standards had declined, 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. and foreign financial firms, the majority of which relied on AIGFP to mitigate credit risk and minimize regulatory capital charges – so much so that AIGFP’s risk-sharing arrangements reportedly tipped the U.S. government’s decision in favor of bailing out AIG.

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. 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. What the model failed to do was assess the impact – in particular, the requirement that AIGFP post cash collateral – of a downgrade in AIG’s credit rating. As AIGFP’s swap contracts moved “in the money,” reflecting the drop in value of the underlying CDOs, AIG was forced to post billions of dollars in cash collateral against

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197 Polakoff March 2009 Testimony, supra note 189, at 5; Carol J. Loomis, AIG: The Company that Came to Dinner, FORTUNE, Jan. 19, 2009, at 70, 73.
199 AIG 2007 ANNUAL REPORT, supra note 189, at 33 (noting 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., U.S. to Take Over AIG in $85 Billion Bailout; Central Banks Inject Cash as Credit Dries Up, WALL ST. J., Sept. 17, 2008, at 1, A6 (describing a “domino effect” if AIGFP had defaulted on its swaps); Loomis, supra note 197, at 74 (describing AIGFP as a “breeding ground for this dreaded contagion”); Joe Nocera, Propping Up A House Of Cards, Feb. 28, 2009, at B1 (noting that “[a] bailout of A.I.G. is really a bailout of its trading partners – which essentially constitutes the entire Western banking system”).
200 See Gretchen Morgenson, Behind Insurer’s Crisis, Blind Eye to a Web of Risk, N.Y. TIMES, Sept. 28, 2008, at 1, 28; O’Harrow & Dennis, supra note 198, at A9; see also Press Release, U.S. Treasury, U.S. Treasury and Federal Reserve Board Announce Participation in AIG Restructuring Plan (Mar. 2, 2009), available at http://www.ustreas.gov/press/releases/tg44.htm (noting that AIG “is a significant counterparty to a number of major financial institutions”); Dennis, supra note 101, at D1 (describing AIG presentation to U.S. government indicating that AIG bankruptcy could force European banks to raise $10 billion in capital and “would cause turmoil in the U.S. economy and global markets”). Other AIG divisions, nevertheless, continued to make investments in subprime loans. Loomis, supra note 197, at 76-77. For example, AIG Investments, AIG’s securities lending subsidiary, purchased approximately $76 billion of mortgage-backed securities and other risky assets, including on behalf of AIG’s insurance businesses. Testimony of Superintendent Eric Dinallo, New York State Insurance Department, Before the Senate Committee on Banking, Housing and Urban Affairs: Hearing on American International Group: Examining What Went Wrong, Government Intervention, and Implications for Future Regulation 4-6 (Mar. 5, 2009), available at http://banking.senate.gov/public/_files/DinalloTestimonyAIG3509.pdf; Serena Ng, An AIG Unit’s Quest to Juice Profit, WALL ST. J., Feb. 5, 2009, at C1; Mary Williams Walsh, Senators Ask Who Got Money From A.I.G., N.Y. TIMES, Mar. 5, 2009, at B1.
201 Dennis & O’Harrow, supra note 193, at A1.
203 O’Harrow & Dennis, supra note 198, at A8-A9; Parloff, supra note 202, at 62.
unrealized paper losses on its CDS portfolio, weighing down AIG’s credit rating and, in turn, requiring that AIGFP post additional collateral against further losses.

Managing risk was, in theory, best handled by AIG — since external regulators, with limited access to information, were expected to be too intrusive, less reliable, and more costly. Relying on AIG, however, failed to address the limited information that AIGFP had in pricing CDSs, in particular, the impact of the downgrade in AIG’s credit rating on its collateral requirements. In addition, AIGFP may not have taken into account the full cost — to the insurance industry, the financial markets, and the general economy — of the levels of risk it was prepared to assume. Catastrophic risks may have been beyond the scope of AIGFP’s risk models, because if they occurred, AIGFP and its managers were likely to be out of business anyway. AIG’s risk managers may have also underestimated the probability of occurrence of an infrequent economic shock — sometimes referred to as “disaster myopia” — or may have taken comfort in others’ decisions to discount the likelihood of such a shock ever occurring.

CDSs are regulated as insurance contracts in some states — reflecting the similarity in payouts between CDSs and term insurance policies written against the credit downgrade of a referenced borrower. Like insurance, if a credit event was triggered,

204 AIG 2007 ANNUAL REPORT, supra note 189, at 33, 81 (noting AIG’s unrealized market valuation loss of $11.5 billion on AIGFP’s super senior CDS portfolio).
205 Morgenson, supra note 200, at 28 (describing relationship between AIGFP’s losses, AIG’s downgrade, and AIGFP’s requirement to post additional collateral); Parloff, supra note 202, at 62 (noting that AIG could start on a “downward spiral to oblivion”).
206 See Chapter 2: Barings and the Need to Recast the Form of External Regulation in Developed Countries 3-4, in GOODHART ET AL., FINANCIAL REGULATION, supra note 15. AIG had, in fact, implemented a series of centralized risk management controls, including an enterprise risk management system that was intended to minimize the firm’s aggregate risk exposures. See AIG 2007 ANNUAL REPORT, supra note 189, at 112-18 (describing AIG’s centralized risk management processes).
207 See 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?”).
208 See PRESIDENT’S WORKING GROUP ON FIN. MKTS., HEDGE FUNDS, LEVERAGE, AND THE LESSONS OF LONG TERM CAPITAL MANAGEMENT 31 (1999) (noting that individual firms limit risk taking to protect themselves, not system as a whole); see also Andrew G. Haldane, Why Banks Failed the Stress Test 11-13 (Bank of England, Feb. 13, 2009), available at http://www.bankofengland.co.uk/publications/speeches/2009/speech374.pdf (noting that bank risk managers had no incentive to run “severe stress tests” since, if there was a severe shock, “they would very likely lose their bonus and possibly their jobs”).
211 David Felsenthal & M. Sharmini Mahendran, Credit Derivatives: Legal and Regulatory Issues, in HANDBOOK OF CREDIT DERIVATIVES, supra note 196, at 277, 282-84; Phelim Boyle & Feidhlim Boyle, DERIVATIVES: THE TOOLS THAT CHANGED FINANCE 165-67 (2001); Frank Partnoy & David A. Skeel, Jr.,
AIGFP was obligated to make the customer whole – although the means by which it did so, which could include buying the impaired asset at par, differed from traditional insurance products. In New York, however, most of AIGFP’s swaps were expressly excluded from insurance regulation, so that AIGFP was able to escape the strict state-level control to which AIG’s insurance businesses were subject.\footnote{See Hearing on the Causes and Effects of the AIG Bailout Before the House Comm. On Oversight and Gov’t Reform, 110th Cong. 18-19, 81 (2008) [hereinafter AIG Hearing], available at http://oversight.house.gov/documents/20081010162126.pdf (statement of Eric R. Dinallo, Superintendent, New York State Ins. Dep’t) [hereinafter Dinallo Hearing]; Schwartz, supra note 195, at 174; N.Y. Ins. Law § 6901(j-1) (2005); 2004 N.Y. Sess. Laws Ch. 605 (S. 6679-A) (approved and effective Oct. 19, 2004).}

Importantly, by not being answerable to AIG’s insurance regulators, AIGFP ducked the reserve requirements that would have otherwise called for it to set aside capital against future liabilities.\footnote{Dinallo Hearing, supra note 212, at 27-28.} The difference in regulation sparked a curious result: By dispensing with regulatory capital, AIGFP was able to offer CDSs at 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 regulated institutions that purchased CDSs in order to reduce their own capital charges.

How do we explain AIG? One response is that AIG illustrates the distortions that can result when an entity is able to select its own regulator.\(^{219}\) AIG’s insurance subsidiaries were solvent and fully capitalized at the time the New York State Insurance Department authorized them to lend up to $20 billion to their parent.\(^{220}\) However, 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,\(^{221}\) and CDSs could offer regulated intermediaries a lower cost means to manage and transfer credit risk.\(^{222}\) 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.\(^{223}\) 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

http://www.gao.gov/new.items/d07154.pdf; AIG Hearing, supra note 212, at 51 (statement by Rep. John F. Tierney); Bill McConnell, While Washington Slept, THEDEAL.COM, Sept. 17, 2008, available at http://www.thedeal.com/servlet/Satellite?cid=1221081363955&pagename=TheDeal%2FNWStArticle&c=TDDA rticle. OTS’s initial focus was on the operations of AIG’s thrift, notwithstanding its relative insignificance to AIG’s overall business. Polakoff June 2008 Testimony, supra note 216, at 2-3; Polakoff March 2009 Testimony, supra note 189, at 8. OTS failed to focus on AIG’s other businesses until late 2003, and did not review AIGFP’s risk exposures until 2005-2006 – although, by that point, AIGFP had entered into most of the CDSs comprising its swaps portfolio. Id. at 8-11. Even then, although OTS had uncovered weaknesses in a number of AIG’s and AIGFP’s risk controls, id. at 11-12, the OTS staff appears to have been comforted – without independent verification – by determinations by AIGFP’s managers that their derivatives business posed minimal liquidity and credit risk. See Jeff Gerth, Was AIG Watchdog Not Up To The Job?, MSN MONEY, Nov. 10, 2008, available at http://articles.moneycrystal.msn.com/Investing/Extra/ was-aig-watchdog-not-up-to-the-job.aspx; Polakoff March 2009 Testimony, supra note 189, at 18-19.

\(^{219}\) AIG was not alone. A number of other institutions, ranging from American Express to Morgan Stanley, chose to be regulated by the OTS. See Polakoff June 2008 Testimony, supra note 216, at 3. In addition, recent press accounts indicate that at least thirty federally-chartered banks have converted to state charters in order to avoid federal regulatory action. See Binyamin Appelbaum, By Switching Their Charters, Banks Skirt Supervision, WASH. POST, Jan. 22, 2009, at A1 (describing conversion of federally-chartered banks to state charters).

\(^{220}\) Dinallo Testimony, supra note 216, at 2-3.

\(^{221}\) See supra notes 171-173 and accompanying text.

\(^{222}\) See supra notes 178-180 and accompanying text.

\(^{223}\) See Partnoy, supra note 167, at 227-35. Value-maximizing managers have an incentive to innovate to the extent it lowers costs. New trading markets, for example, may enhance their ability to create new financial instruments or introduce new businesses, resulting in reduced transaction costs and providing further incentives to innovate. See Merton, supra note 80, at 18-19; see also Robert C. Merton & Zvi Bodie, The Design of Financial Systems: Towards a Synthesis of Function and Structure, 3 J. INVESTMENT MGMT. 1, 14 (2005) (referring to a “financial innovation spiral”).
regulatory oversight. Instead, AIGFP was able to take on the risks that banking and insurance regulation were intended to curb, but without being subject to the same (or similar) constraints.

D. Summary

Regulation, based on traditional business categories, has failed to keep up with new products and services – and, consequently, new risks – in the financial markets. Over time, the gap has become clearer – through regulatory arbitrage, differences in relative cost (with unintended consequences), and the outsourcing of regulated risk management functions to unregulated vehicles – with AIGFP illustrating the extent of the divide between regulation and current market practice. Financial regulation must increasingly take account of change in the financial markets – addressing convergence in function, but also taking account of the move from intermediation toward market-based means of capital-raising and risk-bearing. I turn to that analysis in the next Part.

IV. ASSESSING FINANCIAL REGULATION

At the outset of this paper, I raised some questions about regulatory reform that current proposals have left open or do not completely address. Those questions touched on the scope of systemic risk, the regulation of hedge funds, and the increased regulation of MMFs, each of which has been the subject of recent debate. Having considered the traditional role of financial regulation, and the gaps it is intended to fill, we may begin to assess the effectiveness of current regulation in today’s markets, as well as proposals for change. That assessment should include a focus on changes in financial intermediation that have occurred over the last thirty years, considered in light of the gaps in regulation that the current crisis has exposed, including the introduction of new products and services, functional convergence across intermediaries, and the shift in capital-raising and risk-bearing from financial intermediaries to the capital markets. In this Part, I consider some responses to those earlier questions within the broader context of the evolving role of financial regulation.

To date, proposals to regulate systemic risk have been focused on entities that, by their size or relationships with other intermediaries, are “too big” or “too interconnected” to fail, prompted by recent experience with Bear Stearns and AIGFP. As the Congressional Oversight Panel recommended, a new regulator should be empowered “to identify and regulate institutions with systemic significance” in order to “enhance[

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224 See supra notes 210-218 and accompanying text.
226 See supra notes 167-170 and accompanying text.
227 See supra notes 171-177 and accompanying text.
228 See supra notes 178-187 and accompanying text.
229 See supra notes 9-12 and accompanying text.
230 See supra note 2 and accompanying text.
prudential regulation to limit excessive risk taking and help ensure their safety.”231 No doubt, a focus on intermediaries will be an important aspect of systemic regulation. Changes in the financial markets, however, have prompted a shift – from intermediaries to the capital markets – reflecting lower-cost means to manage and transfer capital and risk.232 Consistent with that change, the question that must also be addressed is whether there are now market-based risks – that no single intermediary can or has an interest in controlling – that raise similar systemic concerns.

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.233 When first developed, VaR was a specialized tool known only to a closed universe of risk managers. However, it quickly became a recognized standard – comprising an industry best practice for portfolio managers,234 a measure of market risk within bank regulation,235 and an accepted form of SEC disclosure236 – and, in the process, may itself have contributed to systemic risk. By measuring the risk parameters of a trader’s portfolio, 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 reduction in price, causing further sales and increased market volatility – in effect, acting in concert, even if not in coordination.237 A classic example of this problem is the feedback loop created by portfolio insurance, which involved programmed computer trading when share prices fell to pre-specified levels. As a trigger price was reached, institutional investors each separately sold their stocks, causing further declines in price and further sales, which fueled the Black Monday crash of 1987.238 Likewise, for AIGFP, the drop in CDO prices was likely sparked by similarly situated investors who decided to unwind their trading

231 COP, Special Report, supra note 2, at 23.
232 See supra notes 144-146 and accompanying text.
233 See Olivier Scaillet, The Origin and Development of Value-at-Risk, in 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 99% confidence level” is $300,000. That would mean that, under normal conditions, there is a 99% probability that the portfolio manager will not lose more than $300,000 by holding the portfolio for a day.
235 See Whitehead, supra note 99, at 723 n.146.
236 See Regulation S-K, Item 305(a)(1)(iii).
238 See Lawrence A. Cunningham, Behavioral Finance and Investor Governance, 59 WASH & LEE L. REV. 767, 784-85 (2002). Likewise, a bank may reduce lending due to a decline in the value of its assets. If the borrower cannot obtain other funding, then the borrower may be forced to sell assets at fire sale prices. To the extent those assets overlap with the lender’s portfolio, the sale may result in a further decline in value, causing a further contraction in lending, and so forth. See Morris & Shin, supra note 155, at 5-6.
positions at the same time, and then looked to sell even further as market prices continued to decline.239

What this suggests is that new financial regulation must be flexible enough to address new forms of systemic risk, without regard to the size or interconnectedness of any one firm. To do so, the regulator should be authorized to perform “stress tests” that gauge market-wide risk – in the case of VaR, prompted by information and coordination problems, as in a bank run – and then incorporate their results in new regulation that minimizes the potential for systemic shock.240 There is certainly precedent to do just that – recall the financial sector tests that were conducted in anticipation of Y2K241 and, more recently, the Treasury Department’s stress tests of the nation’s nineteen largest banks to assess their financial condition under worsening economic conditions.242

Professor Robert Merton has been a long-time advocate of functional regulation, arguing that while, at its core, the financial system is charged with the efficient allocation and transfer of economic resources,243 how it achieves that end – the institutions through which the financial system operates – may change over time.244 Consequently, he argues, a functional approach provides a more stable framework within which to assess the role of regulation, requiring traditional categories (for both intermediaries and products) to be redefined to take account of the functions being performed, rather than the institutions performing them.245

There is certainly a compelling argument for greater attention to function. The traditional approach has failed to keep up with change in the financial markets, and so functionally equivalent activities have become subject to competing regulation – potentially, as AIGFP illustrates, with disastrous results.246 Likewise, in the case of

240 Bernanke, supra note 69 (describing potential development of system-wide stress tests that highlight common exposures and potential “crowded trades”). Separately, Federal Reserve Chairman Ben Bernanke has also noted that the current approach to financial regulation may inadvertently increase market volatility. “[T]here is some evidence that capital standards, accounting rules, and other regulations have made the financial sector excessively procyclical – that is, they lead financial institutions to ease credit in booms and tighten credit in downturns more than is justified by changes in the creditworthiness of borrowers, thereby intensifying cyclical changes.” Ben S. Bernanke, Chairman, Federal Res. Board, Speech at the Council of Foreign Relations: Financial Reform to Address Systemic Risk (Mar. 10, 2009), available at http://www.federalreserve.gov/newsevents/speech/bernanke20090310a.htm.
244 See Merton, supra note 23, at 21-25.
245 See Merton, supra note 243, at 468-69.
246 See supra note 213 and accompanying text.
hedge funds, a principal focus has been on curbing the impact of trading on the capital markets and minimizing the credit risk that hedge funds, as borrowers, pose for banks and other regulated lenders. Hedge funds, however, have evolved in line with growth in the CDS market – taking on risks that historically were managed by banks and insurers. Accordingly, the Congressional Oversight Panel has proposed a modified functional approach to hedge fund regulation, requiring that “[i]f they venture into writing insurance contracts . . . hedge funds’ activities in these areas need to be regulated according to the principles governing insurance . . . .” The Group of Thirty has also recommended that hedge funds become subject to capital, liquidity, and risk management requirements – not necessarily identical to those required of banks and insurers, but sufficient so that the outsourcing of risk does not, as it does today, increase the exposure of regulated intermediaries.

A function-only approach, however, fails to take into account two important influences on intermediaries – one, a carry-over from earlier regulation, relates to institutional structure; and the other, reflecting the financial system within which intermediaries operate, is affected by change in the financial markets. Institutional structure continues to be important in regulating intermediaries. Bank runs, for example, reflect the traditional debt-equity rivalry between a bank’s depositors and shareholders – prompted by depositors’ concerns that bank managers may favor shareholder interests at their expense. Firms facing a similar agency cost problem, that are functionally similar to banks, may benefit from similar regulation. However, where only function is similar, a

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247 Hedge fund proposals range from the Hedge Fund Transparency Act of 2009, which would authorize the SEC to regulate all hedge funds, see Press Release, Grassley and Levin Introduce Hedge Fund Transparency Bill (Jan. 29, 2009), available at http://grassley.senate.gov/news/Article.cfm?customel_data PageID_1502=19024; to a significant increase in disclosure by funds and their advisors, in part so that regulated intermediaries can continue to monitor systemically significant counterparties, see Damian Paletta & Jonathan Weisman, Hedge-Fund Regulation Splits G-20 as Conference Begins, WJS.COM, Mar.14, 2009, at http://online.wsj.com/article/SB123699227525026981.html; IOSCO, Hedge Funds, supra note 182, at 32-34; to regulating all hedge funds and private equity funds “according to the same principles that govern the regulation of money managers generally,” including fiduciary standards, see COP, Special Report, supra note 2, at 29; and finally, to registering hedge fund advisors that “employ substantial borrowed funds” with “an appropriate national prudential regulator” that has the authority, for large funds, to “establish appropriate standards for capital, liquidity, and risk management,” see Group of Thirty, Financial Reform, supra note 2, at 9.


250 See supra notes 178-180 and accompanying text.

251 COP, Special Report, supra note 2, at 29.

252 Group of Thirty, Financial Reform, supra note 2, at 9.

253 See supra notes 55-58 and accompanying text.
different approach to regulation may be warranted. Recall that MMFs and finance companies provide services that are functionally equivalent to a bank’s, prompting calls for MMFs to become subject to bank regulation. Differences in institutional structure, however, may require different regulation. MMFs must comply with strict capital limitations and so do not face the depositor-shareholder conflicts to which banks are subject. They are, therefore, unlikely to benefit from bank regulation – such as risk capital requirements – to the extent it is intended to address agency problems. Consequently, instead of bank regulation, the Investment Company Institute has proposed that MMFs be required to be able to sell at least 20% of their assets within seven days (as well as other limitations on portfolio assets). Absent agency concerns, that approach may more directly address the risks to which MMFs are subject.

Change in the financial markets may also offset the need for a function-only approach to regulation. The first central counterparty (“CCP”) for CDSs began to operate in March 2009. To illustrate what a CCP does, suppose there are two parties, A and B, to a CDS transaction. Absent a CCP, each party would be contractually bound to the other for the life of the swap transaction – potentially exposed to each other’s credit risk. Thus, a bank that has outsourced its risk management function to a hedge fund would (as in the case of AIGFP) continue to bear the risk of the hedge fund failing to properly manage its exposures. With a CCP, each party will transfer its CDS position to the CCP after a trade is agreed. A’s counterparty will be the CCP, as will B’s, but their respective positions will net against each other. When a payment is made on the CDS, it will first be made to the CCP and then passed on to the other party. The CCP will require A and B to post collateral and, in aggregate, will be able to assess the capitalization of all counterparties who trade through it. If A is unable to meet its collateral obligations, the CCP can use its own capital and also draw on the capital of other participants to make up the shortfall. Accordingly, through a CCP, buyers and sellers of CDSs can minimize their counterparty credit exposure. To that extent, the outsourcing of risk management through CDSs – although equivalent to a banking or insurance function – may not require the same levels of regulation. Instead, risk management may now be handled, at lower cost, through this new trading facility, which will rely on participants’ pooled capital to minimize counterparty credit risk. New approaches to regulating CDSs may differentiate among those transactions that are conducted through a CCP and those that remain direct obligations of the parties.

254 See COP, Special Report, supra at 29. See COP, Special Report, supra note 2, at 29 (noting that “[f]unctional regulation can mean applying the same principles and not necessarily producing identical regulatory outcomes”).
255 See supra notes 160-166 and accompanying text.
256 See supra note 36 and accompanying text.
257 See ICI, Money Market Report, supra note 6, at 72-82; Andrew Ackerman, ICI: Tweak Money Market Fund Rule to Aid Liquidity, AM. BANKER, Mar. 19, 2009, at 6.
258 See Gordon Platt, ICE Begins Clearing Credit Default Swaps As Counterparty Risk Hits Record High, GLOBAL FIN. MAG., Apr. 2009, at 64.
V. CONCLUSION

This paper has focused on change in the financial markets, and the impact of that change on the regulation of financial intermediaries. New products and services – coupled with the emergence of global trading, new technologies, and new financial participants – suggest the need to reassess a system of financial regulation that has not kept pace with today’s markets.

Some of the resulting problems have been evident (if only in hindsight). One study, for example, found that there were no banking crises between 1945 and 1971, except for one in Brazil in 1962.260 Yet, between 1970 and 2007 – as intermediation evolved in line with change in the financial markets – forty-two systemic banking crises occurred in thirty-seven countries, even before the onslaught of the current credit crisis.261 A number of factors contributed to the rise. Significant among them was growing competition among intermediaries, as non-banks began to encroach on banking activities, and the absence of a regulatory framework to manage the greater risks – in essence, the change in business model – assumed by banks in response.262

My purpose, in this paper, has been to prompt a rethinking of financial regulation – in particular, with respect to risk-bearing by financial intermediaries – that takes account of those changes. A functional approach may help address the convergence in business models across financial intermediaries. Doing so, however, without considering institutional structure and change in the financial markets, may again result in regulation that fails to completely address intermediation risk. Likewise, new proposals that extend the traditional division among financial intermediaries are likely to miss new risks that have arisen in the last thirty years. A more comprehensive analysis, therefore, must include a focus on evolution in the financial markets, considered in light of the gaps in regulation that the current crisis has exposed.

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