

Framing Address: A Framework for Analyzing Financial Market Transformation

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I. INTRODUCTION

The title of this Symposium originally was “Rethinking Financial and Securities Markets.” It is, of course, somewhat presumptuous for scholars to try to rethink financial markets *per se*. Markets, including financial markets, are driven primarily by supply and demand. But scholars can and should try to influence the future of financial markets by rethinking their fundamental aspects.

This Symposium presents work from leading scholars in the fields of law, economics, finance, and accounting. I will try to frame the discussion from the perspectives of these four disciplines.

First, however, we need to identify what it is about financial markets that is worth rethinking. I will focus on ways in which financial markets have been changing. They are increasingly decentralized and fragmented. They are increasingly direct sources of firm capital—a process called disintermediation.¹ They are increasingly global. They are increasingly creating funding mismatches, as short-term securities are used to finance long-term capital needs.² And they (as well as financial market products) are increasingly complex and obscure to market participants, even with full disclosure. I will refer to these “financial market changes” throughout my talk.

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1. Disintermediation technically refers to the removal of the need for bank intermediation between the sources of funds (the capital and other financial markets) and the users of funds (for example, firms that operate in the real economy, such as AT&T or General Motors).

2. *See infra* notes 60–70 and accompanying text.

II. PERSPECTIVES

Focusing on these financial market changes, I will frame the discussion from the perspectives of law, economics, finance, and accounting.

From the perspective of law, we should examine whether financial regulation is keeping pace with these market changes. In that context, we should also contemplate whether regulation itself can, and should, influence these changes.

From the perspective of economics, we should examine how these financial market changes are affecting efficiency, the costs of supplying financial capital, and ultimately, the real economy.

From the perspective of finance,³ we should examine how these financial market changes intersect with market organization. For example, how should organizational reform address the funding of long-term capital needs from short-term market sources—a mismatch that makes liquidity crises more likely to occur?

From the perspective of accounting, we should rethink financial information disclosure in light of these market changes. Do existing accounting rules and principles adequately disclose the risks of decentralized, fragmented, and mismatched funding? To what extent are such rules and principles harmonized for global markets, and to what extent do they need to be harmonized?

All of these perspectives are interrelated, of course. Fundamentally, the normative goals of law, economics, finance, and accounting are the same: to optimize financial markets to enable capital formation. Financial markets are “crucial for the allocation of resources in a modern economy. They channel household savings to the corporate sector and allocate investment funds among firms. They allow intertemporal smoothing of consumption by households and expenditures by firms.

3. I recognize that there is an increasing overlap between finance scholarship and economic scholarship, but there remains a meaningful difference in this context. See E-mail from Simon Gervais, Assoc. Professor of Fin., Fuqua Sch. of Bus., Duke Univ., to author (Feb. 13, 2012) (on file with author) (responding to author’s query asking, “[F]rom the standpoint of examining financial markets, how would you (briefly) describe the difference between what finance professors do and economics professors do?”).

The line is not that clear, but I would say that financial economists probably concentrate more on the investment and asset pricing sides of finance than economists do. That is, economists are more interested in the real side of finance (growth, general equilibrium, credit, banking, etc.), whereas financial economists spend more time on portfolio formation, return and trading volume patterns, and partial equilibrium models. I would also say that the recent crisis has closed the gap between the two groups.

Id.

They allow both firms and households to share risks.”⁴ Law, economics, finance, and accounting proceed from distinct perspectives with varied toolkits to achieve these goals.⁵

At times, the perspectives and toolkits of one discipline can seem inaccessible or inadequate to scholars of another discipline. Economists and finance scholars, for example, often rely on abstract models, whereas legal scholars often engage more of the messiness of reality. Both approaches, however, can have merit. Also, economists and finance scholars often see pricing as an important proxy for efficiency. In contrast, legal scholars usually examine broader consequences. But these analyses can be complementary. Even though legal scholars rarely discuss pricing, they usually are familiar with efficiency concepts, including Kaldor-Hicks efficiency and Pareto optimality.⁶ Finally, economists and finance scholars have strong incentives to test their models empirically—an approach known as hypothetico-deductivism. Legal scholars engage less in empirical work and more in theory.⁷ Theoretical inquiry, however, can be valuable,⁸ whereas empirical inquiry can sometimes be misleading if it relies on imperfect modeling based on a flawed assumption or imperfect data.⁹

4. FRANKLIN ALLEN & DOUGLAS GALE, *COMPARING FINANCIAL SYSTEMS* 3–4 (2000) (describing the traditional purposes ascribed to financial markets). While capital formation and allocation are the most fundamental functions of financial markets, others have been suggested. Large, deep equity markets serve as a “market for corporate control,” in H.G. Manne’s famous phrase. Henry G. Manne, *Mergers and the Market for Corporate Control*, 73 J. POL. ECON. 110, 113 (1965). Risk sharing and risk transfer, while traditional components of the allocation function, have taken on increased salience in recent years with the advent of transactions like securitization that facilitate the disintermediation of financial markets. Saule T. Omarova, *The New Crisis for a New Century: Some Observations on the ‘Big-Picture’ Lessons of the Global Financial Crisis of 2008*, 13 N.C. BANKING INST. 157, 162 (2008).

5. Law and accounting, for example, help to reduce information-asymmetry costs by increasing transparency through disclosure—risk disclosure in the case of law, financial information disclosure in the case of accounting.

6. For example, Federal Reserve economists Tobias Adrian and Adam B. Ashcraft focus heavily on pricing. TOBIAS ADRIAN & ADAM B. ASHCRAFT, FEDERAL RESERVE BANK OF NEW YORK STAFF REPORTS, NO. 559: SHADOW BANKING REGULATION (2012), available at http://www.newyorkfed.org/research/staff_reports/sr559.pdf. I have independently analyzed shadow-bank regulation using more generic market-failure terminology. Our analyses, however, are complementary. See *infra* note 31.

7. Even empiricists often rely on theory, however, to formulate hypotheses that are the basis of the models being tested.

8. Cf. Kevin A. Clarke & David M. Primo, *Overcoming ‘Physics Envy,’* N.Y. TIMES, Apr. 1, 2012, at SR 9 (observing that “theoretical models can be of great value even if they are never supported by empirical testing”).

9. Cf. *id.* (“Rather than attempt to imitate the hard sciences, social scientists [such as economists] would be better off doing what they do best: thinking deeply about what prompts human beings to behave the way they do.”).

The Symposium description also asks whether financial markets are still socially relevant institutions. Empirically, I believe the answer is yes: markets respond to actual societal needs. My talk assumes there is and will continue to be a significant need for financial capital. If that need diminishes, the question will be less important. And if non-financial-market sources of capital become less expensive than market sources, users of capital will vote with their feet.¹⁰

In these inquiries, I would urge us to expand our focus beyond equity securities. The debt markets—which include markets for corporate bonds, commercial paper, covered bonds, and securitization—are increasingly important sources of financial capital¹¹ and are also the most rapidly changing financial markets.¹²

III. ANALYSIS

I now consider, in more depth, how the perspectives of law, economics, finance, and accounting provide distinct, yet overlapping, frameworks for analysis of the future of financial markets.

10. Even banks obtain a significant portion of their funds from the financial markets. Steven L. Schwarcz, *Disintermediating Avarice: A Legal Framework for Commercially Sustainable Micro-finance*, 11 U. ILL. L. REV. 1165, 1169 n.19 (2011).

11. The amount of outstanding domestic debt securities issued by U.S. financial institutions and corporate issuers was \$14.058 trillion in December 2010. See *Securities Statistics and Syndicated Loans*, BANK FOR INT'L SETTLEMENTS (Sept. 2012), <http://www.bis.org/statistics/secstats.htm>. By contrast, the World Bank lists the total market capitalization of listed U.S. companies at the end of 2010 as \$17.139 trillion. *Market Capitalization of Listed Companies (Current US\$)*, WORLD BANK, <http://data.worldbank.org/indicator/CM.MKT.LCAP.CD> (last visited Oct. 4, 2012); cf. Mortimer B. Zuckerman, *No Time to Lose*, U.S. NEWS & WORLD REP., Mar. 2009, at 80 (observing that securitization “once accounted for 70 percent of our credit while conventional bank lending had dropped to 30 percent”).

12. There is, of course, a trend in equity markets toward more global consolidation, especially of formal, established markets. See, e.g., Norman S. Poser, *The Stock Exchanges of the United States and Europe: Automation, Globalization, and Consolidation*, 22 U. PA. J. INT'L ECON. L. 497, 498–99 (2001). This trend is perhaps best exemplified by the merger of the New York Stock Exchange with its European rival, Euronext N.V.; see, for example, Aaron Lucchetti et al., *NYSE, Euronext Set Plan to Form a Markets Giant*, WALL ST. J., June 2, 2006, at A1, and the abortive attempt of the resulting NYSE Euronext to merge with Germany's Deutsche Boerse. *Deutsche Boerse: Brussels Blocks NYSE Merger*, BUS. WEEK (Feb. 1, 2012), <http://www.businessweek.com/ap/financialnews/D9SKHD800.htm>. In part, consolidation is a response to growing competition from decentralized electronic communication networks (ECNs) that brought automation to equity markets in the 1990s. Jerry W. Markham & Daniel J. Harty, *For Whom the Bell Tolls: The Demise of Exchange Trading Floors and the Rise of ECNs*, 33 J. CORP. L. 865, 908–11 (2008). Thus, it may be that the very decentralization inherent in the rise of certain shadow-banking markets may be putting pressure on traditional stock exchanges to move in the opposite direction and consolidate to survive.

A. A Legal Framework: Rethinking Market Regulation

Is financial regulation keeping pace with these financial market changes?¹³ I will first focus on disintermediation and the resulting decentralization and fragmentation. Then, I will separately focus on increasing financial market globalization.

1. Disintermediation, Decentralization, and Fragmentation

Disintermediation, and the resulting decentralization and fragmentation of financial markets, are associated with the rise of shadow banking. Although the term is not well defined, “shadow banking” generally means the provision of financial products and services other than through traditional banking.¹⁴ These products and services are provided by so-called “shadow banks,” which are (non-traditional-bank) entities such as special-purpose entities (SPEs), finance companies, hedge funds, mutual funds, investment banks, and government sponsored enterprises (GSEs).¹⁵ Some of these products and services are provided through financial markets.¹⁶

Shadow banking can sometimes contribute to the social good.¹⁷ Disintermediation, for example, removes the need for bank intermediation and middleman profit-taking.¹⁸ Decentralization can increase consumer welfare by expanding the menu of funds and financial products available to individual investors, allowing them to tailor portfolios to their own preferences.¹⁹ Moreover, decentralized markets can offer new funding options for firms lacking access to traditional bank credit and capital markets.²⁰ By reducing the size of firms, decentralization can also

13. Recall that the financial market changes are set forth in the text accompanying notes 1–2, *supra*.

14. Steven L. Schwarcz, *Regulating Shadow Banking*, 31 REV. BANKING & FIN. L. 619 (2012).

15. *Id.*

16. *Id.*

17. See, e.g., Edward J. Kane, *The Inevitability of Shadowy Banking* 6 (Mar. 19, 2012), available at http://www.frbatlanta.org/documents/news/conferences/12fmc/12fmc_kane.pdf (“Almost all forms of [what he calls] shadowy banking offer some benefits to society.”).

18. ZOLTAN POZSAR ET AL., FEDERAL RESERVE BANK OF NEW YORK STAFF REPORTS, NO. 458: SHADOW BANKING 5 (2010), available at http://www.newyorkfed.org/research/staff_reports/sr458_July_2010_version.pdf (“While shadow banking activities certainly include activities which appear to have limited purpose other than regulatory capital arbitrage, it also includes a range of [non-bank] intermediation activities which appear to have significant economic value outside the traditional banking system.”).

19. Franklin Allen & Douglas Gale, *A Welfare Comparison of Intermediaries and Financial Markets in Germany and the U.S.*, 39 EUR. ECON. REV. 179, 189 (1994) (comparing the decentralized U.S. financial system to Germany’s bank-dominated financial system).

20. See, e.g., Nicolas P.B. Bollen & William G. Christie, *Market Microstructure of the Pink Sheets*, 33 J. BANKING & FIN. 1326, 1328 (2009) (observing that securities relying on the so-called “Pink Sheets” OTC market include “securities that are economically distressed . . . Microcap issues

mitigate the “too big to fail” problem. And a decentralized financial system, in which losses are distributed among many small financial institutions, may also be more robust in the face of negative shocks.

On the other hand, shadow banking can sometimes be harmful to the social good. To the extent that shadow banking is motivated by regulatory arbitrage,²¹ regulatory arbitrageurs might use deal structures with higher transaction costs than the regulated alternative, but that offer a net gain to parties because they avoid regulation.²² Regulatory arbitrage also disadvantages market participants that lack the wealth, expertise, and (often) political connections to capitalize on arbitrage opportunities.²³

Shadow banking might also be harmful to the extent that it reflects a shift from more formal to less formal financial markets.²⁴ Benefits of

that do not qualify for listing in other markets and would typically fall under the penny stock umbrella . . . [and, securities of] companies that are very tightly held and trade very infrequently”); David J. Denis & Vassil T. Mihov, *The Choice Among Bank Debt, Non-Bank Private Debt, and Public Debt: Evidence from New Corporate Borrowings*, 70 J. FIN. ECON. 3, 5 (2003) (finding that “firms with the highest credit quality borrow from public sources, firms with medium credit quality borrow from banks, and firms with the lowest credit quality borrow from non-bank private lenders”).

21. Professor Langevoort observes, for example, that

[w]hat was happening from a regulatory standpoint was product market regulatory arbitrage, although there were other economic reasons for this shift as well. The intense safety and soundness regulation for banks, particularly capital adequacy rules, simply did not apply in the USA to financial products intermediated by securities firms, and so they could take on much more risk in this process if they wanted.

Donald C. Langevoort, *Global Securities Regulation After the Financial Crisis*, 13 J. INT’L ECON. L. 799, 803 (2010).

22. Victor Fleischer, *Regulatory Arbitrage*, 89 TEX. L. REV. 227, 275 (2010). As Fleischer notes, this can result in an overall welfare loss to society because the benefits of regulation are negated while the benefits of the private transaction are reduced by the costs of arbitrage. *Id.*; see also Frank Partnoy, *Financial Derivatives and the Cost of Regulatory Arbitrage*, 22 J. CORP. L. 211, 240–42 (describing a dynamic economic model of the efficiency of derivatives regulation).

23. Fleischer, *supra* note 22, at 280–82. Donald Langevoort and Robert Thompson urge particular caution with respect to securities regulation, noting as follows:

Most all of securities regulation is educated guesswork rather than rigorous cost-benefit analysis, because we lack the ability to capture the full range of possible costs or benefits with anything remotely resembling precision. That opens the door to bias—whether the influence of deliberate rent-seeking, ideological preferences or just preconceived (and unfalsifiable) notions—on the part of the many actors who contribute to the process of policy formulation.

Donald Langevoort & Robert B. Thompson, “Publicness” in *Contemporary Securities Regulation* 30–31 (Georgetown Law & Econ., Working Paper No. 12-002, 2012), available at <http://ssrn.com/abstract=1984686>.

24. See, e.g., Markham & Harty, *supra* note 12, at 866 (describing the displacement of traditional exchange trading). Compare this description with Noeth and Sengupta’s comment:

However, unlike traditional banking, which involves a simple process of deposit-taking and originating loans that are held to maturity, shadow banking employs a much more complicated process to achieve maturity transformation. At the deposit end of the shadow banking system are wholesale investors (providers of funds) using the repo market and money market intermediaries such as money market mutual funds (MMMFs) to provide short-term loans that are essentially withdrawable on demand. At the loan origination end

formal markets can include transparency (which facilitates regulatory oversight and price discovery), quality control via minimum listing requirements, rapid error reporting and correction, dispute resolution mechanisms, and self-regulation by market participants.²⁵

Finally, shadow banking might be harmful to the extent that its decentralization makes it harder to control market failures.²⁶ Decentralized financial markets, for example, might increase the likelihood that systemic risk will be triggered by making panics, which often serve as the trigger that commences a chain of systemic failures,²⁷ more likely.²⁸

Shadow banking thus has the potential to create both benefit and harm. Empirically, we do not yet know which effect is likely to dominate. Any inquiry into financial regulation of shadow banking should therefore strive to examine, among other things, how to mitigate the potential harm while preserving the potential benefit.²⁹ Because the market failures associated with shadow banking are not all susceptible to legal solutions,³⁰ financial regulation will at best provide only partial solutions.³¹

are finance companies and even traditional banks that engage in the activity of originating loans, much like the traditional banking system.

Bryan J. Noeth & Rajdeep Sengupta, *Is Shadow Banking Really Banking?*, REGIONAL ECONOMIST, Oct. 2011, at 9.

25. Markham & Harty, *supra* note 12, at 882–87 (discussing formal equity markets).

26. Cf. Steven L. Schwarcz, Keynote Address at the European Central Bank Seminar on Regulation of Financial Services in the E.U.: Surveillance-Resilience-Transparency: A Regulatory Framework for Managing Systemic Risk (Oct. 20, 2011), available at http://scholarship.law.duke.edu/faculty_scholarship/2459/ [hereinafter ECB Keynote Address] (showing how market failures can contribute to systemic failures).

27. Steven L. Schwarcz, *Systemic Risk*, 97 GEO. L.J. 193, 199–201 (2008).

28. Professor Dan Awrey argues, implicitly due to decentralization, that shadow banking creates market fragmentation, interconnectedness, and opacity. See Dan Awrey, *Complexity, Innovation and the Regulation of Modern Financial Markets*, 2 HARV. BUS. L. REV. (forthcoming 2012), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1916649 (arguing that these factors make shadow banking especially prone to endogenous shocks); Jon Danielsson et al., *Endogenous and Systemic Risk*, in QUANTIFYING SYSTEMIC RISK (forthcoming 2013), available at <http://www.riskresearch.org/files/JD-HS-JZ-37.pdf> (same). That makes it difficult for market participants to effectively process information. Cf. Awrey, *supra* at 9–10 (defining complexity as a function of information costs and bounded rationality). This allows risks to accumulate unnoticed and unchecked. *Id.* at 12. Awrey argues that these pathologies may lead not only to inefficient contracting among market participants, but also to “fraud, misconduct, and other opportunistic behavior” by financial institutions. *Id.* at 52. When hidden risks suddenly become apparent, market participants effectively panic. *Id.* at 27–28; see also Danielsson et al., *supra* at 4–6.

29. To that end, economists and finance scholars may want to study the balance, whereas legal scholars may want to study how shadow banking should be regulated if the balance is indeterminate.

30. Cf. Steven L. Schwarcz, *Controlling Financial Chaos: The Power and Limits of Law*, 2012 WIS. L. REV. 815 (2012) [hereinafter Schwarcz, *Controlling Financial Chaos*] (examining the limits of law in addressing the types of market failures inherent in the financial system); see also Steven L. Schwarcz, *Regulating Complexity in Financial Markets*, 87 WASH. U. L. REV. 211 (2009) [hereinafter Schwarcz, *Regulating Complexity*]; Steven L. Schwarcz, *Disclosure’s Failure in the Subprime*

2. Financial Market Globalization

The other important legal inquiry is whether financial regulation is keeping pace with increasing financial market globalization. The limited international cooperation in response to the recent financial crisis highlights the fundamental tension between increasingly globalized financial markets and fragmented, state-centric market regulation. In that context, state-centric regulation not only is inefficient, it is also potentially anti-competitive—the latter insofar as nations engaging in that regulation may find their local markets diminishing.³² This renews the question of whether a “supra-national regulatory regime in the financial services sector” is now necessary.³³ Professors Weber and Arner explain why such a regime may be needed:

[I]nternational financial regulation today is an accretion of institutions, organizations, international standards, and domestic laws and rules in many ways not designed to address the requirements of the continuing integration of domestic economies into an increasingly

Mortgage Crisis, 2008 UTAH L. REV. 1109, 1110 (2008) [hereinafter Schwarcz, *Disclosure's Failure*] (explaining why disclosure is insufficient).

31. Adrian & Ashcraft, *supra* note 6, essentially argue that (1) shadow banks are inherently fragile because they engage in maturity transformation, thereby exposing themselves to rollover risk without having central bank safety nets; (2) shadow banks therefore contracted for what was thought to be the equivalent: liquidity and credit put options with traditional banks; (3) because of neglected risks (such as failure to see correlations, underappreciated agency problems, and long intermediation chains that obscured information), traditional banks underpriced the risk of these liquidity and credit arrangements and thus entered into too many of them (which ultimately required tapping public funds to help avoid traditional bank failures); and (4) regulatory reform of shadow banking should therefore focus on increasing the transparency, thus enabling more appropriate pricing of shadow-bank liquidity and credit arrangements. I have argued, in contrast, that regulation cannot correct all the market inefficiencies. See Schwarcz, *supra* note 14, at 22 and accompanying text (“Regulation can help to control, but cannot completely eliminate those failures.”). Therefore, regulation aimed at increasing transparency and enabling more accurate pricing is necessary but insufficient. We also need to focus on how regulation can help to mitigate the harmful consequences of mispricing and systemic failure resulting from shadow banking.

32. However, I leave open the possibility that state-centric regulation can be crafted to signal integrity and reliability, thereby making local markets more competitive. Cf. Roberta Romano, *Against Financial Regulation Harmonization: A Comment*, in 3 LAW AND ECONOMICS OF GLOBAL FINANCIAL INSTITUTIONS 27, 43–44 (Peter Nobel et al. eds., 2010), available at <http://ssrn.com/abstract=1697348> (suggesting that international regulatory harmonization can also harmonize risks among countries, increasing the chances of systemic problems in financial markets).

33. Omarova, *supra* note 4, at 158–60. Increasing financial market globalization raises a host of other issues, of course. Professor Avgouleas questions, for example, whether “the gradual elimination of diversity, due to homogenization, [has] made the global financial system less resistant to disturbance.” EMILIOS AVGOULEAS, FINANCIAL MARKETS AND FINANCIAL CRISES 145 (2012). He also argues that the credit-default swap (CDS) market has increased the interconnectedness of global financial markets, calling into question whether and how cross-border CDS should be regulated. *Id.* at 103.

globalized financial system. . . . [It] lacks any coherent overarching economic, institutional, or legal framework.³⁴

In designing an international standards framework for financial regulation, scholars have suggested incorporating goals of financial development in addition to financial stability—the latter being the existing focus.³⁵ To this end, they point to the European Union regulatory model, which focuses on both of those goals.³⁶ As part of its effort to build a common market for financial services, the European Union implemented a regime based on mutual recognition of national financial laws and regulations premised on a set of agreed minimum standards for regulation.³⁷ This approach is best exemplified by the European Union’s single passport system, which permits financial services companies to operate across borders by branching in any E.U. state as long as certain minimum regulatory criteria are met.³⁸ The passport system has increased cross-border competition in financial services while maintaining a baseline level of stability through regulation, and it ultimately is paving the way for more ambitious regulatory harmonization.³⁹

Ironically, there is a degree of covariance in the financial regulation I have discussed. To the extent it increases opportunities for regulatory arbitrage,⁴⁰ efforts by international regulators “to strengthen the [global] financial system by tightening bank rules may inadvertently serve to boost opportunities for unregulated or ‘shadow’ financial players.”⁴¹

Next, consider the future of financial markets from the perspective of economics.

B. An Economic Framework: Rethinking Market Efficiency

From the perspective of economics (and, to some extent because of the scholarly overlap, finance), consider how the financial market chang-

34. Rolf H. Weber & Douglas W. Arner, *Toward A New Design for International Financial Regulation*, 29 U. PA. J. INT’L L. 391, 427 (2007).

35. *Id.* at 453.

36. *Id.*

37. *Id.* at 440–41.

38. *Id.* at 441–42.

39. *Id.* at 442. The ongoing financial troubles of the Eurozone should not undermine the valuable lesson provided by the European Union’s single passport system. *Cf.* ECB Keynote Address, *supra* note 26 (discussing E.U. financial regulation).

40. *See* Schwarcz, *supra* note 14 (observing that stronger bank regulation can encourage the provision of financial services and products by unregulated non-banks).

41. *See, e.g.*, Philip Halstrick, *Tighter Bank Rules Give Fillip to Shadow Banks*, REUTERS (Dec. 20, 2011, 9:17 AM), <http://uk.reuters.com/2011/12/20/uk-regulation-shadow-banking-idUKLNE7BJ00T20111220>.

es are affecting efficiency.⁴² One might broadly ask, for example, whether the rise of shadow banking increases or reduces efficiency. I have already observed, however, that although shadow banking has the potential to create both benefit and harm, we do not yet know which effect is likely to dominate. Further empirical inquiry will be needed.

There are, however, more limited efficiency-related questions that might be easier to test. For example, the financial market changes have been spurring the creation of complex new financial products.⁴³ Does the advent of new financial products itself increase efficiency? Some scholars believe, contrary to rational expectations models, that new financial products may not increase efficiency because investors in such products might ignore “improbable risks.”⁴⁴ Scholars also have questioned whether investors really understand all of the risks.⁴⁵ Indeed, to the extent new financial products, which usually are crafted by skilled financial engineers,⁴⁶ are more complex than existing products, one might question whether they are inherently riskier—if due only to the limited capacity of market participants to fully understand them.⁴⁷

If one accepts this critique of financial innovation—that new financial products can contain inherent, largely unrecognized risks—it raises the question of whether *ex ante* regulation of new financial instruments might be preferable to the current *ex post* regulatory approach. I briefly consider this question, reverting to the perspective of financial regulation.

42. Although there are numerous technical definitions of efficiency, most observers considering the topic of financial innovation seem to assume a relatively basic economic definition: maximizing the total welfare of market participants based on the measurable costs and benefits of the financial product, defined by reference to price. *See, e.g.*, Laurence S. Moss, *Neoclassical Economics*, in *ENCYCLOPEDIA OF ECONOMICS* 701 (Douglas Greenwald ed., 1982) (defining economic efficiency in the neoclassical theory of economics).

43. *See The Ferment of Finance: Moving from Ideas to Products to Markets*, *ECONOMIST*, Feb. 25, 2012, at 6–7 (citing both new regulations and the need to hedge emerging risks, like increased longevity of pension fund beneficiaries, as drivers of financial innovation).

44. Nicola Gennaioli, Andrei Shleifer & Robert Vishny, *Neglected Risks, Financial Innovation, and Financial Fragility*, 104 *J. FIN. ECON.* 452 (2012) (arguing that investors will neglect improbable risks, extrapolating from the failure of investors in mortgage-backed securities to foresee the rapidity of the housing market’s deterioration and the price sensitivity of highly rated mortgage-backed securities to underlying home values).

45. Raghuram G. Rajan, *Has Finance Made the World Riskier?*, 12 *EUR. FIN. MGMT.* 499 (2006) (highlighting a number of potential risks posed by innovations in contemporary financial markets, including broadening market access to unsophisticated investors, herding behavior, perverse incentives to increase risk in markets, and hidden tail risk).

46. *See generally* SCOTT PATTERSON, *THE QUANTS: HOW A NEW BREED OF MATH WIZARDS CONQUERED WALL STREET AND NEARLY DESTROYED IT* (2010) (offering a journalistic account of the rise of so-called “quants” who applied sophisticated mathematical analyses to finance).

47. I do not claim that complex new financial products are necessarily systematically riskier than investors think. I am simply observing that new financial products that are not fully understood by investors could increase the error of risk estimation both on the upside and the downside.

Several academic observers have proposed just such an *ex ante* regime in which new, complex financial instruments would be subject to a mandatory approval process.⁴⁸ Professor Saule Omarova proposes a plan that, while not barring any financial activities, would impose a duty on innovators to show (1) that their proposed product has economic utility; (2) that they have the ability to manage the risks of the product; and (3) that their product does not create an “unacceptable risk of increasing systemic vulnerability.”⁴⁹ Professors Eric Posner and E. Glen Weyl offer a more stringent preapproval plan that targets those financial derivatives that decrease social utility by promoting speculation.⁵⁰ In their framework, a “Financial Products Regulator” would have the power to “approve, reject, or approve with certain conditions” financial products submitted to its approval process.⁵¹ Professor Edward Kane refers to this type of approach as “the FDA model applied to finance,”⁵² a comparison Omarova, Posner, and Weyl make directly in their papers.⁵³

Another efficiency-related question is whether the financial market changes create externalities by imposing uncompensated costs on taxpayers. Professor Kane makes this argument, referring not to “shadow” but to what he calls “shadowy” banking.⁵⁴ The problem, he contends, is that certain new financial market instruments, especially in the repo and securitization markets, “trade for substantial periods of time as if they carried zero counterparty risk” because investors believe that government “will be afraid *not* to absorb all or most of the losses [they] might suffer.”⁵⁵ Reforms therefore must involve better ways to “impose and en-

48. Saule T. Omarova, *License to Deal: Mandatory Approval of New Complex Financial Products*, 90 WASH. U. L. REV. (forthcoming 2012), available at <http://ssrn.com/abstract=1996755> or <http://dx.doi.org/10.2139/ssrn.1996755>; Eric A. Posner & E. Glen Weyl, *An FDA for Financial Innovation: Applying the Insurable Interest Doctrine to 21st Century Financial Markets*, 107 NW. U. L. REV. (forthcoming 2012), available at <http://ssrn.com/abstract=2010606> or <http://dx.doi.org/10.2139/ssrn.2010606>.

49. Omarova, *supra* note 48, at 5.

50. Posner & Weyl, *supra* note 48, at 16. Under the authors’ proposal, the test applied by the *ex ante* regulator

would be whether the welfare gains from insurance allowed by a new product exceeded the likely costs created by the speculation it facilitates. The agency’s evaluation of a financial product would begin with a market demand analysis of the sort performed by any firm planning to market a new financial product, to identify the likely sources of demand. The agency would then classify these sources of demand as [hedging] or [speculation] and quantify the benefits and harms arising from each.

Id.

51. *Id.* at 44.

52. E-mail from Edward J. Kane, Professor of Fin., Bos. Coll., to author (Feb. 8, 2012) (on file with author).

53. Omarova, *supra* note 48, at 24; Posner & Weyl, *supra* note 48, at 3–4.

54. Kane, *supra* note 17, at 2.

55. *Id.* (emphasis in original).

force stronger and clearer moral duties on unwilling financiers, politicians, regulators, and credit-rating firms.”⁵⁶

Yet another efficiency-related question concerns credit bubbles. There is some empirical evidence that credit bubbles often precede financial crises.⁵⁷ Economists therefore might wish to study whether credit bubbles can be recognized and deflated early, before they trigger a crisis.

Finally, the recent financial crisis highlighted behavioral challenges to ideas of market efficiency. Humans have bounded rationality, following the herd in their investment choices and over-relying on heuristics, such as rating-agency ratings. Market participants are also prone to panic. And, due to optimism and availability biases, we are unrealistically optimistic when thinking about extreme events with which we have no recent experience, devaluing the likelihood and potential consequences of those events.⁵⁸ We need to better understand how to achieve market efficiencies notwithstanding these and related cognitive limitations.

C. A Finance Framework: Rethinking Market Organization

From the perspective of finance, consider how the financial market changes are affecting market organization. There appear to be at least two ways: facilitating the funding of long-term capital needs from short-term market sources, and fragmenting markets.⁵⁹

56. *Id.* at 16 (emphasis omitted). To this end, Kane suggests—although it is as yet unclear how to effectuate his suggestion—that taxpayers should hold a stake in firms equal to the stake held by the firm’s shareholders. *Id.*

57. See, e.g., CHARLES P. KINDLEBERGER, *MANIAS, PANICS, AND CRASHES: A HISTORY OF FINANCIAL CRISES* (1978); CARMEN M. REINHART & KENNETH S. ROGOFF, *THIS TIME IS DIFFERENT: EIGHT CENTURIES OF FINANCIAL FOLLY* (2009).

58. See, e.g., Iman Anabtawi & Steven L. Schwarcz, *Regulating Systemic Risk: Towards an Analytical Framework*, 86 NOTRE DAME L. REV. 1349, 1366–68, 1386–89 (2011); Geoffrey P. Miller & Gerald Rosenfeld, *Intellectual Hazard: How Conceptual Biases in Complex Organizations Contributed to the Crisis of 2008*, 33 HARV. J. L. & PUB. POL’Y 807 (2010). One of the causes of the financial crisis may have been intellectual hazard, “the tendency of behavioral biases to interfere with accurate thought and analysis within complex organizations.” Miller & Rosenfeld, *supra*, at 808. Some examples of behavioral biases include complexity bias, the tendency to analyze a situation wrongly because of inadequate ability to interpret complex information; incentive bias, the tendency to see the world in accordance with their own self-interest; and asymmetry bias, the tendency to rely on preformed and fixed ideas, judgments, or attitudes. *Id.* at 813–18. During the financial crisis, actors in complex organizations enabled the spread of systemic risk by failing to properly acquire, process, transmit, and implement key risk-related information. *Id.* at 810.

59. My colleague, Bill Brown, contends that leverage exists not only directly (through the traditional means of borrowing) and indirectly (through derivatives), but also “infinitely,” by which he refers to commodities–futures exchanges where positions are not margined at their intraday maximums, but are only margined at the net open position at the close of the day. This unfettered leverage allows unnecessary high-frequency and proprietary trading risk. To address this market risk, he would impose margin and capital restrictions on maximum intraday commodities–futures positions. I have not yet independently examined this risk, but questions may include how to measure, monitor, and control the risk on a real-time basis.

1. Short-Term Funding of Long-Term Capital Needs

A potential liquidity discontinuity occurs when markets provide short-term funding of long-term capital needs. One might conceptualize this as a market organization problem insofar as ideally organized markets should provide funding that matches the maturities of the needs. In reality, though, the interest rate on short-term debt is usually lower than that on long-term debt because, other things being equal, it is easier to assess an obligor's ability to repay in the short term than in the long term.⁶⁰ Long-term debt is thus (again, other things being equal) riskier.

Firms therefore sometimes prefer cheaper short-term funding even though that potentiates a liquidity discontinuity—that the firm will be unable to “roll over” the short-term debt by borrowing new debt to repay the maturing debt. This preference ideally should reflect the firm's belief that it will have little problem in rolling over the short-term debt. To some extent, however, it might reflect a calculated externality, in that the firm saves real money through short-term borrowings whereas, in the unlikely event the firm cannot roll over the debt, at least part of the harm from the firm's default will impact third parties.⁶¹ Thus, even if the firm perfectly understands the risk of funding its long-term projects with short-term debt, it may not pay the full cost of that mismatch.⁶²

For example, Gary Gorton and Andrew Metrick argue that shadow banking, in the form of repo lending,⁶³ might increase systemic risk

60. Short-term interest rates may also be lower than long-term rates because the term structure of interest rates (also known as the yield curve) is usually increasing despite the fact that it represents the risk-free rate for various horizons. E-mail from Simon Gervais, Assoc. Professor of Fin., Fuqua Sch. of Bus., Duke Univ., to author (Apr. 14, 2012) (on file with author).

61. *Cf.* Schwarcz, *supra* note 27, at 206 (“[T]he externalities of systemic failure include social costs that can extend far beyond market participants. Thus, market participants will not want to internalize those costs and will take an insufficient amount of care to prevent them. As a result, there is a type of tragedy of the commons, in which the benefits of exploiting finite capital resources accrue to individual market participants, each of whom is motivated to maximize use of the resource, whereas the costs of exploitation, which affect the real economy, are distributed among an even wider class of persons.” (citations omitted)).

62. If investors in the short-term funding fully understand the rollover risk, they may demand that it be priced into the firm's cost—for example, charging the firm an incrementally higher interest rate, or conditioning their funding on the firm purchasing a liquidity facility (which would facilitate the rollover if the firm is unable to do so). Because of asymmetric information between the firm and its investors, however, the investors may not fully understand that risk.

63. Repo lending refers to a transaction in which Party *A* advances money to Party *B* in exchange for securities with an agreement, termed a repurchase agreement, that Party *B* will subsequently repay Party *A* and get back the securities. One way to view the transaction is as a loan by Party *A* to Party *B* collateralized by the securities. Another way to view the transaction is as a purchase of the securities by Party *A* with a simultaneous agreement by Party *B* to subsequently buy back the securities.

through short-term funding of long-term capital needs.⁶⁴ In the recent financial crisis, the precipitous decline in value of mortgage-backed securities used as collateral for short-term repo loans prompted repo lenders to demand additional collateral.⁶⁵ Gorton and Metrick maintain that these demands approximated bank runs—in which panicked depositors withdraw funds from their banks—to the extent bank repo-borrowers were forced to sell assets to generate the additional collateral.⁶⁶ These forced asset sales also further depressed asset prices, creating a shock that spread rapidly through the interconnected financial system, impacting shadow-banking entities (like structured investment vehicles and money-market mutual funds) that relied on short-term debt.⁶⁷

Financial market organization should be rethought to help mitigate externalities caused by short-term funding of long-term capital needs. The problem, however, does not arise from shadow banking per se. Although some, including Gorton and Metrick, may regard short-term funding as a central characteristic of shadow banking, shadow banking can (and does) provide both short- and long-term funding,⁶⁸ and even traditional banks fund themselves through short-term deposits (with resulting liquidity discontinuities being the real bank runs).⁶⁹

64. Gary Gorton & Andrew Metrick, *Regulating the Shadow Banking System*, in BROOKINGS PAPERS ON ECONOMIC ACTIVITY 261, 261 (2010).

65. *Id.* at 279 (identifying these demands as the “epicenter” of the financial crisis); *cf.* Gary Gorton & Andrew Metrick, *Securitized Banking and the Run on Repo*, 104 J. FIN. ECON. 425, 448 (2012) (arguing that these demands were caused primarily by opacity about the exposure of different borrowers to the flagging real estate market and the value of borrowers’ collateral in the event of defaults).

66. Gorton & Metrick, *supra* note 64, at 279.

67. *Id.* at 279–80 (observing that structured investment vehicles (SIVs) that relied on short-term debt to finance purchases of asset-backed securities and money-market mutual funds were forced to liquidate assets to repay panicked investors who redeemed their shares). I have made similar arguments in *Regulating Complexity in Financial Markets*, *supra* note 30, at 232–33 (discussing information uncertainty through the example of mark-to-market accounting and margin calls by broker-dealers).

68. In securitization transactions, for example, the issued securities often have long-term maturities.

69. The so-called Volcker Rule, which would limit a systemically important firm’s right to make short-term investments for its own account, 12 U.S.C. § 1851 (2010) (codifying steps to implement rules limiting proprietary trading), addresses a somewhat related “short-term” question. One might be skeptical, though, of any such paternalistic regulation aimed at protecting a sophisticated financial firm from itself. The only scenario where that type of regulation might be justified is where firms can externalize systemic-risk costs, but there are more direct and arguably effective ways to require firms to internalize those costs. *See* Schwarcz, *Controlling Financial Chaos*, *supra* note 30 (proposing a privatized systemic risk fund for that purpose); *see also infra* notes 105–07 and accompanying text.

Short-term funding of long-term capital needs is thus a fundamental problem of the financial system.⁷⁰ In the recent financial crisis, for example, it is alleged that “substantial contraction” in the asset-backed commercial paper (ABCP) market in the last five months of 2007 “played a central role in transforming concerns about the credit quality of mortgage-related assets into a global financial crisis.”⁷¹ Whether or not one agrees with that claim, empirical research indicates that this contraction was caused by investor concern that issuers of the ABCP did not have sufficient liquidity to cover shortfalls from maturing mortgage loans.⁷² Issuers with “full liquidity support” did not appear to experience the same contraction.⁷³ Questions for further inquiry might therefore include whether financial markets could be organized better to provide liquidity to address discontinuities.⁷⁴

2. Market Fragmentation

There is an extensive ongoing debate about the relative merits of financial market fragmentation and consolidation. Even for equity securities, approximately 30% of all trades are being executed outside of stock exchanges.⁷⁵

Professors O’Hara and Ye found, empirically, that these “fragmented stocks generally have lower transaction costs and faster execution speed” than stock traded on formal exchanges,⁷⁶ although the “specific effects of this fragmentation differ across firm sizes, and it differs as well for NYSE-listed and Nasdaq-listed firms.”⁷⁷ They conclude that “market

70. Cf. Morgan Ricks, Visiting Assistant Professor, Harvard Law Sch., Comments at the Boston University School of Law Symposium: Shadow Banking: Past, Present, Future (Feb. 24, 2012) (arguing that the instability of short-term “money-like” securities is the central problem for financial regulatory policy) (notes on file with author). Possible responses might include better standards on match-funding coverage and better internal controls on collateral valuation and margining policies.

71. Daniel M. Covitz, Nellie Liang & Gustavo A. Suarez, *The Evolution of a Financial Crisis: Panic in the Asset-Backed Commercial Paper Market* 16 (Fed. Reserve Bank Fin. and Econ. Discussion Series, Working Paper No. 2009-36, 2009), available at <http://ssrn.com/abstract=1364576>.

72. *Id.* at 29.

73. *Id.* The authors suggest imposing standards on liquidity support as one possible solution. *Id.* at 31.

74. Cf. Ing-Haw Cheng & Konstantin Milbradt, *The Hazards of Debt: Rollover Freezes, Incentives, and Bailouts*, 25 REV. FIN. STUD. 1070, 1071 (2012) (arguing that making a moderate amount of emergency liquidity financing available in the event of a rollover freeze should be value-increasing, even when including potential losses of the liquidity provider).

75. Maureen O’Hara & Mao Ye, *Is Market Fragmentation Harming Market Quality?*, 100 J. FIN. ECON. 459, 460 (2011).

76. *Id.* at 460–61.

77. *Id.* (“[For large firms,] fragmentation is associated with faster execution time. For small firms, effective spreads are lower, but there are no significant effects on speed. For NYSE-listed stocks, large, liquid stocks appear to gain the most from fragmentation, and for Nasdaq-listed stocks, small, illiquid stocks benefit from fragmentation.”).

quality, as measured by effective spreads, is not harmed by market fragmentation.⁷⁸ In contrast, however, Professors Hendershott and Jones find that market fragmentation causes a reduction in transparency, worsening overall price discovery.⁷⁹ The net impact of market fragmentation is thus far from resolved.

*D. An Accounting Framework: Rethinking
Financial Information Disclosure*

As mentioned, financial information disclosure is primarily the province of accounting. I broadly framed the inquiry by asking whether existing accounting rules and principles adequately disclose financial information, especially given increasingly decentralized and fragmented financial markets and mismatched funding, and whether those rules and principles should be harmonized for global financial markets. Within that broad inquiry,⁸⁰ let me attempt to identify two specific concerns: fair value accounting and special purpose entities. Thereafter, I will digress by examining the limits of disclosure more generally.

First, the recent financial crisis has unleashed a vigorous debate over the efficacy of fair value accounting (FVA), popularly known as “mark to market.” Many have criticized FVA for putting artificial pressure on firms’ balance sheets in times of market turmoil by forcing firms to recognize short-term fluctuations in the value of assets with long maturities.⁸¹ Others note the difficulty of valuing assets for which there is not a transparent, liquid market.⁸² Although accurately capturing the value of assets held by a firm, and communicating that information to inves-

78. *Id.*

79. Terrence Hendershott & Charles M. Jones, *Island Goes Dark: Transparency, Fragmentation, and Regulation*, 18 REV. FIN. STUD. 743, 744 (2005).

80. See, e.g., Katherine Schipper, *Required Disclosures in Financial Reports*, 82 ACCT. REV. 301, 301, 312–15, 322 (2007) (arguing that accountants lack a comprehensive theory of mandatory disclosures and that many questions remain as to how preparers, auditors, and users of financial reports view disclosures, and concluding that disclosures are generally underweighted by financial statement users).

81. See, e.g., R. Christopher Whalen, *The Subprime Crisis—Cause, Effect and Consequences*, 17 J. AFFORDABLE HOUSING & COMMUNITY DEV. L. 219, 225 (2008) (“Fair value accounting is driving investor fears about the solvency of many financial institutions.”); Adair Turner, Case Business School Lecture 2012: Shadow Banking and Financial Instability 16 (Mar. 14, 2012) (on file with author) (observing that the “interaction of secured lending practices and mark-to-market accounting . . . exacerbates the risk of procyclicality and the volatility of credit creation”); Peter J. Wallison, *Fair Value Accounting: A Critique*, AEI: FIN. SERVICES OUTLOOK, July 28, 2008, at 2, available at http://www.aei.org/files/2008/07/28/20080728_23336JulyFSOg.pdf (“[M]arket-based movements in asset values can create substantial volatility in balance sheets and earnings reports—again, depending on a company’s business model.”).

82. See George J. Benston, *The Shortcomings of Fair Value Accounting Described in SFAS 157*, 27 J. ACCT. & PUB. POL’Y 101, 103 (2008).

tors and regulators in a relevant format, are crucial functions of accounting,⁸³ there is no perfect method that always accomplishes these goals.⁸⁴ Trade-offs are inherent in setting accounting standards.⁸⁵ Accounting scholars may wish to continue studying and debating FVA and its trade-offs (including in a global context), identifying and weighing FVA's costs and benefits, and analyzing when and how it should be applied.⁸⁶

Second, accountants have been struggling with how to disclose financial information about special-purpose entities (SPEs).⁸⁷ SPEs are at the heart of shadow banking, which can cause financial market decentralization and fragmentation.⁸⁸ In that context, one of the central questions is how to determine whether SPEs and their liabilities should be consolidated, for accounting (and thus public reporting) purposes, with their sponsoring firms. The answer can have profound consequences because non-consolidation means that an SPE's liabilities are not reflected on the sponsoring firm's balance sheet—commonly referred to as off-balance-sheet financing. Yet the sponsoring firm might ultimately feel compelled to backstop those liabilities, even if it is not legally obligated to do so. For example, at the outset of the recent financial crisis many banks backstopped their affiliated “structured investment vehicle” SPEs solely to protect the banks' reputations.⁸⁹ This heightened the crisis by unexpectedly stripping away bank assets.⁹⁰

83. See FIN. ACCT. STANDARDS BD., RULES OF PROCEDURE 2–3 (2012), available at <http://www.fasb.org/jsp/FASB/Page/SectionPage&cid=1176154526495>; INT'L ACCT. STANDARDS BD., CONCEPTUAL FRAMEWORK FOR FINANCIAL REPORTING: THE REPORTING ENTITY (EXPOSURE DRAFT) 9 (2010) (draft for public comment), available at <http://www.ifrs.org/NR/rdonlyres/363A9F3B-D41C-41E7-9715-79715E815BB1/0/EDConceptualFrameworkMar10.pdf>.

84. Christian Laux & Christian Leuz, *The Crisis of Fair Value Accounting: Making Sense of the Debate*, 34 ACCT. ORG. & SOC. 826, 828–29 (2009).

85. *Id.* (comparing fair value accounting with historical cost accounting).

86. Laux and Leuz offer a good example of this kind of work in their analysis of the FVA debate. See *id.*; see also Mary E. Barth & Wayne R. Landsman, *How Did Financial Reporting Contribute to the Financial Crisis*, 19 EUR. ACCT. REV. 399, 403–07 (2010) (analyzing FVA rules in GAAP and IFRS to determine what role they played in the financial crisis); Joerg-Markus Hitz, *The Decision Usefulness of Fair Value Accounting: A Theoretical Perspective*, 16 EUR. ACCT. REV. 323 (2007) (critiquing arguments in favor of FVA asserted by both the FASB and IASB); Nicolas Véron, *Fair Value Accounting Is the Wrong Scapegoat for This Crisis*, 5 ACCT. EUR. 63 (2008) (discussing the role of FVA in the financial crisis in both Europe and the United States).

87. Cf. Barth & Landsman, *supra* note 86, at 409 (examining how accounting rules limited the amount of information that banks had to disclose about assets sold to SPEs in securitization transactions).

88. See *supra* notes 14–16 and accompanying text; cf. Schwarcz, *supra* note 14 (also observing that SPEs engage in shadow banking by providing financial products and services through the financial markets).

89. Shannon D. Harrington & Elizabeth Hester, *Citigroup to Consolidate Seven SIVs on Balance Sheet (Update3)*, BLOOMBERG NEWS (Dec. 13, 2007), <http://www.bloomberg.com/apps/news?pid=21070001&sid=aT0Ix2iDnZRk>. Citigroup backstopped its affiliated “structured investment vehicle” SPEs (also called SIVs) in the amount of \$49 billion, following similar decisions by

I also want to say a few words about the limits of disclosure generally, beyond accounting for financial information.⁹¹ Disclosing risks traditionally has been viewed under U.S. and most foreign securities laws as the primary financial market-regulatory mechanism.⁹² It works by reducing, if not eliminating, asymmetric information among market players, making the risks transparent to all. Empirical evidence suggests that investors place a significant value on effective disclosure and react negatively to instances of fraud, even when such fraud impacts cash flows minimally.⁹³

But the efficacy of disclosure is limited by the increasing complexity of financial markets and market transactions. In the recent financial crisis, for example, there is little question that virtually everything regarding complex mortgage-backed securities was disclosed. Yet many sophisticated institutional investors bought these securities based primarily on their ratings, without fully understanding them.⁹⁴

There are a host of reasons why this occurred. Analysts overrelied on heuristics such as rating-agency ratings. Analysts and investors followed the herd in their investment choices. Conflicts of interest were driven by short-term management compensation schemes (such as paying yearly bonuses based on deals booked during the year, even though a deal could underperform in the long term), especially for technically sophisticated secondary managers. These conflicts are unlike the traditional

HSBC Holdings PLC and WestLB AG to backstop their SIVs, notwithstanding that doing so reduced Citigroup's capital ratio (which regulators monitor to gauge its ability to withstand losses on bad loans) and also caused Moody's to lower Citigroup's long-term credit rating. *Id.*

90. See Steven L. Schwarcz, *The Use and Abuse of Special-Purpose Entities in Public Finance*, 97 MINN. L. REV. 369 (2012).

91. In general, accounting covers financial information disclosure and securities law covers all other forms of disclosure. In the United States, the Securities and Exchange Commission specifically delegates responsibility for financial information disclosure to the accounting profession. See *infra* note 104.

92. See, e.g., Cynthia A. Williams, *The Securities and Exchange Commission and Corporate Social Transparency*, 112 HARV. L. REV. 1197 (1999).

93. See, e.g., Gennaro Bernile & Gregg A. Jarrell, *The Impact of the Options Backdating Scandal on Shareholders*, 47 J. ACCT. & ECON. 2 (2009) (concluding that "investors' reaction to [stock options] backdating news may reflect an increase in perceived agency costs and information risk, if the accusations impair the reputation and credibility of targeted companies").

94. See generally Emilius Avgouleas, *The Global Financial Crisis and the Disclosure Paradigm in European Financial Regulation: The Case for Reform*, 6 EUR. COMPANY & FIN. L. REV. 1 (2009); Schwarcz, *Disclosure's Failure*, *supra* note 30. David Hirshleifer and Siew Hong Teoh theorize that, under conditions of bounded rationality, full disclosure in exacting detail of the features of a complex security may not result in rational investment decisions and could, potentially, make such decisions *less* likely when investors' attention and processing power are constrained by time and other costs. David Hirshleifer & Siew Hong Teoh, *Limited Attention, Information Disclosure, and Financial Reporting*, 36 J. ACCT. & ECON. 337, 378-80 (2003) (concluding that the form of information-equivalent disclosures is significant when investors' attention and processing power are limited).

focus of scholars and politicians on conflicts between senior managers and shareholders. The retention by underwriters of residual risk portions may have fostered false confidence in investors, in effect creating a “mutual misinformation” problem. By signaling their (unjustified) confidence in the securities being sold, the underwriters inadvertently misled investors into buying those securities.⁹⁵

Requiring increased disclosure might therefore be appropriate, but only if that disclosure is better directed at the audience’s understanding and is properly supplemented—such as by addressing the conflicts of interest that are inherent in short-term compensation structures, especially of secondary managers.⁹⁶ Requiring enhanced internal controls that cabin managers’ discretion in reporting could also improve the quality of financial disclosures. Some empirical evidence supports the link between internal controls on disclosure quality, though only at the cost of reduced conservatism in financial disclosure due to managers’ lack of discretion in reporting.⁹⁷ Further empirical inquiry may be merited.

IV. CONCLUSIONS

I have attempted to help frame an inquiry into what we, as scholars, should try to rethink about financial markets. To that end, I have focused primarily on the ways in which financial markets have been changing. The fact that financial markets tend to change over time not only reinforces the importance of this symposium; it also indicates the importance of periodically reexamining these markets.⁹⁸ In an arguably analogous

95. See generally Schwarcz, *Regulating Complexity*, *supra* note 30. Furthermore, in the context of systemic risk, individual market participants who fully understand that risk will be motivated to protect themselves but not the system as a whole. See *supra* note 61. The solution to that dilemma is to try to require market participants to internalize this systemic externality. See *infra* notes 103–04 and accompanying text.

96. See Hirshleifer & Teoh, *supra* note 94, at 380 (suggesting that redundancy and information aggregation may actually improve the ability of investors to process complex financial disclosures).

97. Jennifer Altamuro & Anne Beatty, *How Does Internal Control Regulation Affect Financial Reporting?*, 49 J. ACCT. & ECON. 58, 59 (2010) (examining the impact of the Federal Deposit Insurance Corporation Improvement Act on bank financial reporting and finding “reduced discretion creates a greater association between current reported accrual numbers and future cash flow numbers,” which leads to the reported accrual numbers becoming less conservative). *But see* Ryan LaFond & Haifeng You, *The Federal Deposit Insurance Corporation Improvement Act, Bank Internal Controls and Financial Reporting Quality*, 49 J. ACCT. & ECON. 75, 83 (2010) (“Internal controls cannot prevent bad decisions. At the very best, internal controls can merely make it more difficult to make bad decisions. Internal controls cannot prevent fraud, but they likely can make fraud easier to detect and more difficult to carry out. What internal controls do not do is change the incentives. While they may have a second-order effect of discouraging certain behaviors by increasing oversight, controls do not eliminate these behaviors.”).

98. *Cf.* Turner, *supra* note 81, at 35–36 (observing that “it is the nature of modern global finance[] that it continually mutates to create new risks and new interconnections [and to] inform that response we need to keep the system under permanent surveillance”).

context, for example, the Permanent Editorial Board of the Uniform Commercial Code (UCC) periodically reexamines commercial law in the United States in light of changing commercial practices.⁹⁹ As a result, the UCC is frequently amended to respond to commercial reality,¹⁰⁰ making it one of America's most continuously successful business-law statutes.¹⁰¹ Perhaps financial market changes should be periodically reexamined too.

Also, throughout the address I have mentioned the potential for financial market changes to trigger systemic collapses. The very increase in the size and significance of financial markets as a source of capital is making these markets more central to systemic concerns. In other contexts, I have argued for responses such as a market liquidity provider of last resort to help stabilize panicked financial markets¹⁰² and a systemic risk fund to help internalize systemic costs and motivate cross-monitoring.¹⁰³

In the United States, there are strong precedents for requiring the private sector to contribute to funds that would help to internalize externalities. The Federal Deposit Insurance Corporation, for example, requires member banks to contribute to a Deposit Insurance Fund to ensure

99. Steven L. Schwarcz, *A Fundamental Inquiry Into the Statutory Rulemaking Process of Private Legislatures*, 29 GA. L. REV. 909, 917 (1995) [hereinafter Schwarcz, *Fundamental Inquiry*]; cf. Steven L. Schwarcz, *The Impact on Securitization of Revised UCC Article 9*, 74 CHI.-KENT L. REV. 947, 949–50 (1999) [hereinafter Schwarcz, *Impact of Securitization*] (describing how revised UCC Article 9's expanded definition of "account" and addition of "payment intangibles" and "promissory notes" to its scope brought many securitization transactions under the ambit of the UCC's secured transaction rules); James J. White, *The Influence of International Practice on the Revision of Article 5 of the UCC*, 16 NW. J. INT'L L. & BUS. 189, 195 (1995) (explaining how bank practice regarding letters of credit, codified in the Uniform Customs and Practice, "influence[d] . . . almost every change in Article 5").

100. These amendments occur approximately once a decade. Schwarcz, *Fundamental Inquiry*, *supra* note 99, at 917–18.

101. Accounting already includes periodic updating, perhaps because accounting itself is, at least in the United States, a form of private ordering in which government delegates to the accounting profession the regulation of financial information disclosure by firms. See, e.g., Steven L. Schwarcz, *Private Ordering*, 97 NW. U. L. REV. 319, 320 (2002). The profession itself is therefore motivated to continue to earn the trust of the delegating government agency.

102. See Schwarcz, *Regulating Complexity*, *supra* note 30, at 247–56.

103. See Steven L. Schwarcz, *Marginalizing Risk*, 89 WASH. U. L. REV. 487 (2012); cf. International Monetary Fund, *Global Financial Stability Report: Sovereigns, Funding, and Systemic Liquidity* (Oct. 2010), ch. 2, at 1, available at <http://www.imf.org/external/pubs/ft/gfsr/2010/02/index.htm> (proposing that to "address the externality that some firms impose on the system as a whole, a measure of systemic liquidity risks attributable to them needs to be devised and perhaps a surcharge or insurance premia imposed"). In 2011, Congressman Peter DeFazio introduced a bill in the U.S. House of Representatives that would impose a 0.03% tax on the purchase or transfer of securities on U.S. trading facilities by U.S. persons. Wall Street Trading and Speculators Tax, H.R. 3313, 112th Cong. (2011). Tom Harkin introduced an identical bill in the Senate. S. 1787, 112th Cong. (2011). The bills have been referred to the Ways and Means and Finance committees, respectively.

that depositors of failed banks are repaid. In a systemic risk context, the likelihood that systemically important firms—including those that believe they are “too big to fail”—will have to make additional contributions to a systemic risk fund to replenish bailout monies should motivate those firms to monitor each other and help control each other’s risky behavior.¹⁰⁴

Professor Whitehead similarly argues that financial regulation needs to be fundamentally rethought with a view to directly addressing systemic risks within financial markets. Regulators, he contends, “must begin to address whether there are now market-based risks—beyond any single intermediary—that raise the same systemic concerns that underlie bank and insurance regulation, a prospective look that differs from the reactive process that has characterized much of financial regulation to date.”¹⁰⁵ He believes, as I do, that the systemic risk regulations proposed by the Obama administration (and later adopted in the Dodd-Frank Act) do not go far enough in this direction because they focus more on systemically important financial firms than on financial markets.¹⁰⁶

104. Cf. Jeffrey N. Gordon & Christopher Muller, *Confronting Financial Crisis: Dodd-Frank’s Dangers and the Case for a Systemic Emergency Insurance Fund*, 28 YALE J. ON REG. 151, 156 (2011) (calling for a systemic emergency insurance fund that is funded by the financial industry). I understand that the European Commission has also been considering the idea of a privatized systemic risk fund in connection with its proposal to tax the financial sector.

105. Charles Whitehead, *Reframing Financial Regulation*, 90 B.U. L. REV. 1, 6 (2010).

106. *Id.*