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TOO COMPLEX TO DEPICT? INNOVATION, "PURE INFORMATION," AND THE SEC DISCLOSURE PARADIGM

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Too Complex to Depict? Innovation, "Pure Information," and the SEC Disclosure Paradigm[†]

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Since the Depression, the Securities and Exchange Commission's totemic philosophy has been to promote a robust informational foundation for private decision makers, thereby furthering efficiency and corporate governance. As a necessary corollary, the SEC's approach has been incremental. The SEC has generally not ventured beyond the realm of information to that of substantive decision making, as to stock prices or otherwise.

This disclosure philosophy has always been substantially implemented through what can be conceptualized as an "intermediary depiction" model. An intermediary—e.g., a corporation issuing shares—stands between the investor and an objective reality. The intermediary observes that reality, crafts a depiction of the reality's pertinent aspects, and transmits the depiction to investors. Securities law directs that depictions are to be accurate and complete. "Information" is conceived of in terms of, if not equated to, such depictions.

This Article's core thesis is that the longstanding intermediary depiction model is increasingly undermined by innovations in financial theory and practice, and that the disclosure paradigm must metamorphosize to comprehend

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 I wish to thank the *Texas Law Review* for asking me to help organize its February 2012 symposium, RESHAPING CAPITAL MARKETS & INSTITUTIONS: TWENTY YEARS ON and the antecedent May 1991 symposium, NEW FINANCIAL PRODUCTS, THE MODERN PROCESS OF FINANCIAL INNOVATION, AND THE LAW. I also wish to thank the presenting authors, commentators, and panelists, set forth in the Foreword to this Symposium issue. I am grateful for very helpful insights from Mark Abbott, Viral Acharya, David Becker, Jim Doty, Darrell Duffie, Gerard Hertig, Andrew Lo, Joseph McCahery, Michael Raupp, Dirk Schoenmaker, Steve Schaefer, and Roger Stein. I also appreciate the excellent assistance of Alexander Hughes, Matthew Van Leeuwen, Jane O'Connell, and Scott Vdoviak. This Article was prepared for the February 2012 symposium and the May 2012 Moody's and New York University Stern School of Business *8th Annual Credit Risk Conference—Recent Advances in Credit Risk Research*. Discussions as to the "unified approach" to regulation and the standardization of ISDA forms draw partly on the keynote addresses in my academic capacity at the National Bureau of Economic Research and Federal Reserve Bank of Cleveland *Research Conference on Quantifying Systemic Risk* (Cambridge–November 2009) and the World Legal Forum Foundation Expert Roundtable (The Hague–October 2010), respectively.

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a spectrum of what can be referred to as "pure information" models. Modern financial innovation has resulted in objective realities that are far more complex than in the past, often beyond the capacity of the English language, accounting terminology, visual display, risk measurement, and other tools on which all depictions must primarily rely. This Article illustrates this in part by focusing on the crafting of depictions of the risk–return characteristics of asset-backed securities (ABS), an important financial innovation whose informational problems helped cause the global financial crisis. The Article shows that such characteristics can be so complex that even "objective reality" is subject to multiple meanings. Given such rudimentary tools and such complex realities, the depictions may offer little more than shadowy, gross outlines of the objective reality, however that reality might be conceived.

Financial innovation can sometimes pose a second, more fundamental roadblock to good depictions: even a well-intentioned intermediary either may not truly understand or may not function as if he understands the reality he is charged with depicting. This second roadblock can flow both from complexities of financial innovation (what can be called "true misunderstanding") and organizational complexities associated with the intermediary itself (what can be called "functional misunderstanding").

The Article shows that depictions of major banks involved in financial innovation activities can suffer from both roadblocks, thus helping explain the severity of the bank disclosure problems that also helped cause the financial crisis. Such a bank's activities may be too complex relative to existing depiction tools, and the activities and the organization of the bank itself may be so complex that the bank may suffer from both true misunderstandings and functional misunderstandings of the objective reality it is in. An afterword (at Section IV(C)(3)) uses the just-unfolding derivatives problems involving JPMorgan Chase and its Chief Investment Office to illustrate both roadblocks.

If complexities related to financial innovation are creating problems for the disclosure paradigm, technological innovation may contribute to a solution. With advances in computer and Internet technologies, it is no longer essential to rely exclusively on intermediary depictions of reality. The intermediary need not always stand between the investor and an objective reality, recounting to the investor what the intermediary sees. Figuratively, if the intermediary steps out of the way, the investor may now be able to see for himself, to download the objective reality in its full, gigabyte richness. Such "pure information" can be more granular and accurate than the intermediary's depiction. Moreover, with this "disintermediation," investors will have information freed from possible intermediary biases and misunderstandings embodied in the depictions. However, at the same time, disintermediation will also leave investors bereft of the benefits of an intermediary's efforts to analyze and distill objective reality and incorporate the resulting insights in the intermediary's depiction.

A disclosure paradigm that relies on both the intermediary depiction model and the pure information model—and the full spectrum of disclosure models between these opposite extremes—can help investors triangulate the truth. The Article illustrates the potential of this more comprehensive approach to information in both the ABS and major bank contexts. Further, the Article outlines some possible models along the spectrum, including strategies that would generate "moderately pure" information as well as strategies involving the "simplification of reality" itself. Such an analytical framework for information may implicate issues of a substantive nature. If, for instance, a major bank is "too complex to depict" and pure information-type models are insufficient, should we consider if it is also "too complex to exist"? The Article also suggests that such a metamorphosis in the SEC disclosure paradigm, while needed, would also need to be accompanied by changes in the longstanding regulatory architecture.

The Article also suggests, as a secondary matter, that challenges to the SEC disclosure paradigm extend even to the paradigm's philosophy, in particular, the philosophy's incrementalist component. Recent departures from incrementalism have been extraordinary in number and nature, even leaving aside the departures arising from the TARP program and the derivatives-related provisions of the Dodd-Frank Act. Departures such as the 2008 SEC short-selling ban illustrate not only the need to enhance SEC independence, but also the need to begin systematically considering the proper relationship between the paradigm's traditional goals of promoting efficiency and governance and the truly rare situations in which such matters as short-term financial stability ought to also be considered. Other departures, such as interventions to address the 2010 "flash crash," suggest the need to consider more urgently and comprehensively how complex innovations now dominating the microstructure of equity markets may conflict with the paradigm's traditional goals.

To remain vital, the SEC disclosure paradigm must be able to encompass in a meaningful and systematic way the vast complexities of modern markets and institutions. A fundamental and comprehensive rethinking is essential.

I. Introduction

Since the Depression, the federal government's totemic philosophy as to markets and corporations has been to help ensure a robust informational foundation for private decision makers. The rationale was that a disclosure regime center posted by the U.S. Securities and Exchange Commission would contribute to informed choices by market participants, furthering efficiency both in the paper economy and in the real economy. Moreover, this informational foundation would enhance corporate governance. Managements would be deterred from behavior unsustainable in the light of day, and the monitoring and disciplining of managements by shareholders, as well as the market for corporate control, would be facilitated.

As a necessary corollary, this philosophy was also decidedly incrementalist. The SEC would not venture beyond the realm of information to that of substantive decision making. In the paper economy, the nature and characteristics of the securities offered, the relationships between underwriters and issuers, and the securities' offering and trading prices were left to participants and overall market forces. In the real economy, corporate managements would generally be left to make their own decisions as to the deployment of resources, including in the critical area of risk taking.

This philosophy stemmed not from social science, but from Louis Brandeis's deep-seated, compellingly expressed belief in the power—and sufficiency—of bringing sunlight to markets.[1] Both the informational and incrementalist components of the philosophy came to have intellectual underpinnings in the 1970s, when the efficient market hypothesis (EMH) started entering into general consciousness. EMH's emphasis on the importance of publicly available information of securities prices bolstered the case for a robust informational foundation. And the case for incrementalism and against the "correction" of investor decisions was bolstered by EMH's claims about how well financial markets seemed to process information.[2] With a proper informational foundation, market forces could generally be left to allocate resources among industries, companies, and managements.

To be sure, the incrementalist component of the philosophy never applied to certain entities—most notably, banks. As a substantive matter, bank managements are not free to undertake whatever activities and whatever risks that they believe to be optimal from the standpoint of

1. *See infra* Subpart II(A).
2. *See infra* Subpart II(A).

shareholders. Such shareholder-optimal managerial behavior is permitted only to the extent that it is not precluded by "hard" constraints (such as those flowing from leverage and capital adequacy rules) and "soft" constraints (such as the proverbial "raised eyebrow" of bank regulators), which seek to ensure bank safety and soundness.

But for the vast preponderance of corporations and their shareholders, both components of the disclosure philosophy applied. Even the Sarbanes-Oxley Act of 2002,[3] passed a decade ago amidst a perceived crisis in corporate governance after the collapses of Enron and WorldCom, departed from this philosophy only at the margins.[4] Sarbanes-Oxley was largely in furtherance of a robust informational foundation, and tread on private decision making in isolated instances.

This Article's core thesis is that this disclosure philosophy and its longstanding implementation methodology (collectively, the "disclosure paradigm" or "paradigm") are at the brink of metamorphosis. First, and most importantly, the implementation methodology and the conception of information inherent in the methodology are incapable of dealing with the disclosure challenges stemming from modern innovations in financial theory and practice. Already, such disclosure challenges, both at the level of individual innovations and at the level of the major banks involved in such innovations, have not only caused losses for investors but also helped cause the global financial crisis (GFC). As the underlying process of financial innovation continues, the disclosure challenges will increase.

A new implementation methodology, rooted in a more comprehensive conception of information and facilitated by innovations in computer and Internet technologies, could help address such disclosure challenges. Such a metamorphosis of the disclosure paradigm's implementation methodology holds promise, but fulfilling that promise would depend on the resolution of a myriad of issues.

This Article will also show that the paradigm's philosophy itself is already in metamorphosis—in particular, the philosophy's incrementalist component. The departures from the incremental approach that have recently occurred or appear to be under consideration are extraordinary in number and nature, even leaving aside departures stemming from the Troubled Assets Relief Program (TARP)[5] and the derivatives-related provisions of the Dodd-Frank Act (Dodd-Frank).[6] Departures such as the 2008 SEC short-selling

3. Public Company Accounting Reform and Investor Protection Act of 2002, Pub. L. No. 107-204, 116 Stat. 745 (codified in scattered sections of 15 U.S.C.).

4. *See infra* Subpart II(A).

5. Creation of TARP was authorized by the Emergency Economic Stabilization Act of 2008, Pub. L. No. 110-343, 122 Stat. 3765 (codified in scattered sections of 12 and 31 U.S.C.).

6. Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, Pub. L. No. 111-203, 124 Stat. 1376 (codified in scattered sections of 5, 12, 15, and 42 U.S.C.).

ban illustrate not only the need to enhance SEC independence, but also the need to begin systematically considering the proper relationship between the paradigm's traditional goals of promoting efficiency and governance and the truly rare situations in which such matters as short-term financial stability ought to also be considered. Other departures, such as interventions to address the 2010 "flash crash," suggest the need to consider more urgently and comprehensively how complex innovations now dominating the microstructure of equity markets may conflict with the paradigm's traditional goals.

A potential metamorphosis of the paradigm's core implementation methodology rooted in a new conception of information and the actual, haphazard metamorphosis of the paradigm's incrementalist approach raise fundamental questions. This Article, an initial, exploratory overview offering some preliminary ideas, is intended as a call for a comprehensive, principled rethinking of the basic regulatory paradigm for capital markets.

The Article's consideration of the potential metamorphosis begins with a fresh way of conceptualizing how the SEC has always implemented its disclosure mandate. The SEC has substantially relied upon what can be termed an "intermediary depiction model." An intermediary—for instance, a corporation issuing shares—stands between the investor and an objective reality. The intermediary observes that reality, crafts a depiction of reality, and transmits that depiction to investors. The energies of the intermediaries, securities regulators, and lawyers, accountants, underwriters, and other gatekeepers are directed at trying to ensure that the depictions are accurate, complete, comprehensible, and accessible. Information is largely conceived of as, if not equated with, such depictions.

But it can be difficult for even the most well-intentioned of intermediaries to craft good depictions of reality, especially when the reality is highly complex. Modern financial innovation has resulted in objective realities that are far more complex than in the past. For instance, the true economic characteristics of new, esoteric financial products and of major banks involved in such innovative products are far different, and more subtle, than the characteristics of traditional stocks and bonds and of banks that only took deposits and made loans.

The first set of roadblocks such complexities pose to depictions arises from the rudimentary nature of existing depiction tools relative to the highly complex objective realities stemming from modern financial innovation. The English language, graphical, tabular, and other visual designs for showing data, and accounting terminology and conventions on which depictions must primarily rely all developed long before the emergence of modern financial science. All such traditional depiction tools are especially limited in their ability to convey the pertinent quantitative aspects of financial innovations and of banks involved in such innovations. New depiction tools developed to offer quantitative information on risk also have many limitations, especially

as actually implemented. With such rudimentary tools and complex realities, the depictions may offer little more than coarse outlines of the objective reality, too shadowy relative to what investors need. And intermediaries are not always well-intentioned.

A second set of roadblocks can sometimes exist as well: the intermediary can suffer from what can be called (i) "*true misunderstandings*" of the objective reality and (ii) "*functional misunderstandings*" of the objective reality. Sometimes, even a well-intentioned intermediary may not truly understand, or may not function as if he understands, the objective reality. If he does suffers from either type of misunderstanding, any depictions of reality that he crafts are bound to be flawed from the start. I have long argued that, in fact, there are structural reasons to expect that financial institutions can be counted on to have such misunderstandings when it comes to derivatives and other financial innovations.[7] The misunderstandings can flow not only from the complexities of financial innovation but also from the complexities of the intermediary itself. Thus, the complexities of financial innovation may be so daunting that no one at the intermediary understands such complexities ("true misunderstanding"). But sometimes, even if one or more individuals at an intermediary do understand such complexities, the intermediary as an organization may make decisions that do not reflect such insights ("functional misunderstanding"). That is, the organizational complexities of an intermediary, such as those associated with principal–agent problems within the organization and the "stove piping" or "siloing" of information within the organization (even in the absence of principal–agent problems), could cause the organization to function as if it did not understand the objective reality. Even the most sophisticated financial institutions are not immune.

The latest example is unfolding as this Article is undergoing final edits. In mid-May 2012, we are learning that certain credit derivatives-related matters that the CEO of JPMorgan Chase had characterized only a month earlier as a "complete tempest in a teapot" were matters of an altogether different dimension and nature.[8] The Article shows, at least based on currently available information on an unfolding situation, that the JPMorgan Chase situation can be used to illustrate both the "depiction tools" roadblock and the "true" and "functional" misunderstanding roadblocks.

Complex financial realities and associated informational problems, such as those associated with asset-backed securities (ABS), appear to have played

7. *See generally* Henry T. C. Hu, *Misunderstood Derivatives: The Causes of Informational Failure and the Promise of Regulatory Incrementalism*, 102 YALE L.J. 1457 (1993) [hereinafter Hu, *Misunderstood Derivatives*].

8. *See infra* Section IV(C)(3).

key roles in the GFC.[9] The intermediary depiction model can be said to have contributed to the worst economic and financial crisis since the Depression.[10]

Recognition that the disclosure paradigm can be conceptualized as having relied on an intermediary depiction model can yield a new perspective on how disclosure problems can arise and what other models may be available.

If complexities related to financial innovation are creating problems for the disclosure paradigm, technological innovation may contribute to a solution. With advances in computer and Internet technologies, it is no longer essential for an investor to rely exclusively on intermediary depictions. The intermediary need not always stand between the investor and an objective reality, recounting to the investor what the intermediary sees. Figuratively, if the intermediary steps out of the way, the investor may now be able to see for himself, to download the objective reality in its full, gigabyte richness. If the investor is given the opportunity to see reality itself with his own eyes, he could come much closer to pure information, the objective truth in all of its quantitative and qualitative dimensions. Such a "pure information" model can sometimes offer more granular and more accurate information than the longstanding intermediary depiction model.

With such "disintermediation" of information, the other major problem of the intermediary depiction model is circumvented: the intermediary's failure to properly understand reality. If the intermediary itself misunderstands reality, even the foundational predicate for a good depiction is absent. With direct access to reality, the investor can try to understand reality for himself, free from possible intermediary misunderstandings or biases embodied in the intermediary's depictions.

However, at the same time, this disintermediation will also leave investors bereft of a keen and diligent intermediary's efforts to analyze and distill objective reality and incorporate those insights in the intermediary's depiction. Whatever its limitations, the intermediary's depiction will have value, even if it does not embody the full range of insights of the person likely most familiar with the objective reality.

This Article thus suggests that a disclosure paradigm that relies on both the intermediary depiction model and the pure information model—and the full spectrum of possibilities between these two opposite extremes—can help investors triangulate the truth. Some possibilities may involve strategies intended to generate "moderately pure" information. Some possibilities may

9. *See infra* Subpart IV(A).

10. To put this period into perspective, over the decade ending in 2010, investors in U.S. large company stocks did even worse than in the 1930s—"earning" a compound annual return of *negative* 0.9 percent. MORNINGSTAR, INC., IBBOTSON SBBI 2011 CLASSIC YEARBOOK: MARKET RESULTS FOR STOCKS, BONDS, BILLS, AND INFLATION 1926–2010, at 25 (2011). As for the real economy, over the decade ending in 2011, the U.S. economy grew at its slowest rate since the Depression. Floyd Norris, *A Bleak Outlook for Long-Term Growth*, N.Y. TIMES, Feb. 4, 2012, at B3.

draw on elements from both extremes: one such possibility would focus not on the depiction of reality, but on the reality itself. That is, if the objective reality itself can be made simpler—a "simplification of reality" strategy—the task of depicting reality becomes simpler as well, thereby increasing the robustness of the intermediary depiction model. At the same time, this simplification can sometimes allow for greater provision of relatively pure information.

The disclosure paradigm need no longer conceive of information largely in terms of an intermediary's depictions of reality, but instead can also comprehend relatively pure information as to objective reality itself, as well as objective reality's moderately pure cousins. And, to the extent a simplification of reality model makes sense, the disclosure paradigm can make the shaping of objective reality itself a policy tool.

To move beyond such generalities, I begin by illustrating how such pure information models can improve disclosure in the context of ABS, the class of financial innovations at the heart of the GFC. I discuss the intermediary depiction model applicable to ABS in place since before the GFC and the depiction model's limitations in this context. I then explore the potential benefits of using a model verging on pure information.

Of course, investors buy not only ABS and other individual financial products, but also shares and other interests in entire corporations. With certain corporations in particular industries and certain matters at corporations across all industries, the limitations of the intermediary depiction model can be pronounced. Extending the use of pure information-type models to depiction-difficult corporations and depiction-difficult matters can sometimes be helpful. Here, I illustrate the potential benefits of such models primarily by focusing on the corporations that are perhaps most depiction-difficult, and whose disclosure problems also contributed to the global financial crisis: big money center banks deeply involved in financial innovation. By way of an afterword (Section IV(C)(3)), I offer a preliminary analysis of the potential benefits of pure information-type approaches—such as those I refer to as the "common bank models," "common bank assets," "simplification of reality" approaches—in respect of the now-unfolding credit derivatives-related issues of JPMorgan Chase.

However, there are theoretical complications associated with pure information-type models, and daunting practical difficulties would be associated with their incorporation into the disclosure paradigm. Even the critical issue of what "reality" itself means or should mean for the purposes of a pure information model can be difficult. With the intermediary depiction model, depictions are sometimes so gross that the precise subject matter does not need to be perfectly clear. A pure information model is more exacting. I show that what "reality" itself should mean for the purposes of an informational mandate—what "objective truth" is—can be surprisingly contextual in nature. In the ABS context, multiple alternative conceptions of

objective truth are in play, including "mathematical reality," "true reality," and "effective reality." Ironically and counterintuitively, the depictions of objective truth may be more relevant to investors and markets than objective truth itself, however that truth may be conceived.

This analytical framework for information may implicate issues of a substantive nature. If, for instance, a major bank is indeed "too complex to depict" and pure information-type models are insufficient, should we consider the question of whether it is also "too complex to exist"? Naturally, any consideration of this and related "too big to fail" matters must appropriately reflect the full range of social and private benefits (and costs) of major banks, and of financial innovation as to which they play such an important role.

The incorporation of pure information-type models would necessitate major changes to the longstanding federal regulatory architecture itself. Such a move would implicate regulators in matters far removed from what they are accustomed to and structured to deal with. The new model calls for sophisticated understanding of advanced financial theories, as well as local knowledge about actual market practices, theoretical and practical matters that are not necessarily familiar to enough financial regulators. Moreover, such a move would require a pattern of fast-changing regulatory rules to keep up with the dynamism of the innovation process and attempts to game regulatory cubbyholes. The daunting administrative law burdens on SEC rulemaking, imposed by an unusually assertive D.C. Circuit, would be exacerbated. Pure information-type models may require the SEC to maintain continuing relationships with participants in a way that would have the side effect of distorting substantive private decision making: there will be what can be referred to as "Heisenberg" effects. Concerns about business confidentiality and individual privacy loom.

As to the disclosure paradigm's implementation methodology, there is thus a need for metamorphosis. But actual metamorphosis is prospective in nature and depends partly on appropriate resolution of manifold theoretical and practical challenges.

As a secondary thesis, this Article argues that, in contrast, a metamorphosis has already begun as to the disclosure paradigm's philosophy itself, in particular, the philosophy's incrementalist approach. This metamorphosis is, however, yet to be grounded in a coherent, internally consistent set of justifiable principles. One aspect of the incrementalist approach is that the SEC is supposed to stay neutral as prices are determined by participants in the jostle of the marketplace. In recent years, the SEC has deviated from such price neutrality in two basic areas. The first is in the area of short selling. In particular, I focus on the extraordinary short-sale constraints the SEC imposed in 2008 at the height (nadir) of the GFC. These 2008 constraints raise conceptual issues about the truly rare circumstances in which such goals as short-term financial stability should be considered

alongside the disclosure paradigm's efficiency and governance goals in framing policy. Public reports suggest that the 2008 constraints were adopted by the SEC under pressure from the Federal Reserve and the Treasury Department: with the recent creation of the Federal Stability Oversight Council and for other reasons, it is becoming yet more important to better ensure SEC independence and the fulfillment of its historic mission.

The second area in which the SEC has recently departed from price neutrality is connected with the microstructure of modern equity markets, one characterized by such new phenomena as computer- and rocket scientist-driven "high-frequency trading" strategies and the disappearance of human beings at the center of the trade-execution process. In this area, we may actually have a situation where marked SEC departures from price neutrality might potentially promote price efficiency, something contrary to the core tenets of the disclosure paradigm. Market prices during the "flash crash" of May 6, 2010 departed, unquestionably and massively, from intrinsic values: in a matter of minutes, New York Stock Exchange (NYSE) stocks exploded to over $100,000 or collapsed to a penny, something impossible under the NYSE's prior, longstanding specialist-centered trade-execution process and traditional trading strategies. Some sophisticated market observers also believe that the new market microstructure helped create a "correlation bubble" in recent years: a "risk on"–"risk off" pattern in which prices of stocks move far too closely together, too detached from the fundamentals important to the intrinsic values of individual shares. Even prior to the flash crash, the SEC had begun to consider a wide range of matters relating to the new market microstructure. Trying to ensure that the metamorphosis of the paradigm's incrementalist approach is properly grounded is not without challenges.

Recent departures from the paradigm's incrementalist approach extend beyond interventions into trading prices. In particular, the Dodd-Frank Act's so-called risk retention rule and Goldman rule are notable examples.

Part II of this Article begins by offering an overview of the disclosure paradigm, and then shows the implicit adoption of what can be conceived of as an intermediary depiction model as its primary implementation strategy. Part III describes the general structure of ABS and how the intermediary depiction model is applied to two of ABS' essential characteristics: "pool assets" and "waterfalls." Part IV first discusses the limitations of the depiction model for ABS, including limitations relating to the predicate matter of determining what the pertinent "reality" is that needs to be depicted. Subpart IV(A) offers a vocabulary for the alternate conceptions of reality at play in this context. Subpart IV(B) discusses the lure of a pure information model, and how a simplification of reality strategy could involve elements of both this new model and the intermediary depiction model. Subpart IV(C) shows how pure information-type models could extend to, and benefit disclosures relating to, entire business entities that are depiction-

difficult, focusing on major banks involved in financial innovations, and, very briefly, depiction-difficult matters affecting corporations in a wide range of industries. As an afterword, Section IV(C)(3) offers a preliminary application of the analytical framework to the current JPMorgan Chase credit derivatives-related matters. Subpart IV(D) discusses some of the theoretical and practical difficulties related to the incorporation of pure information-type models.

This Article's discussion of departures from the paradigm's incrementalist approach is more abbreviated. Part V outlines SEC departures from this approach's tenets of price neutrality, starting with the 2008 short-selling constraints and the need to better ensure SEC independence. The Article then turns to steps that the SEC has taken and may take in response to important pricing anomalies that may be occurring by reason of the high tech aspects of today's equity markets. I also discuss non-price-related governmental departures from incrementalism.

II. The Disclosure Paradigm and Its Intermediary Depiction Centerpiece

A. The Disclosure Philosophy: An Overview

The federal regulation of capital markets and corporations, which began with the enactment of the Securities Act in 1933,[11] has largely been animated by a single philosophy: disclosure.[12] The federal role was to ensure the quality and quantity of information that corporations made publicly available.

This regulatory philosophy was thus highly incremental, in the sense of avoiding substantive decision making by federal authorities. The decision makers were to be the market participants themselves: investors, underwriters, and corporations.[13] The federal role was to provide a robust informational foundation for their decisions.[14] This philosophy was contrary to what Franklin Roosevelt's principal 1932 presidential campaign advisors wanted—a federal agency to direct the flow of new investment in private industry.[15] Rexford Tugwell wanted a federal body to correct the

11. Securities Act of 1933, Pub. L. No. 73-22, 48 Stat. 74 (codified as amended at 15 U.S.C. §§ 77a–77mm (2006)).

12. *See* JOEL SELIGMAN, THE TRANSFORMATION OF WALL STREET: A HISTORY OF THE SECURITIES AND EXCHANGE COMMISSION AND MODERN CORPORATE FINANCE 39–40 (3d ed. 2003).

13. *See The Investor's Advocate: How the SEC Protects Investors, Maintains Market Integrity, and Facilitates Capital Formation*, U.S. SEC. & EXCHANGE COMMISSION, http://www.sec.gov/about/whatwedo.shtml (last modified Apr. 24, 2011) ("[T]he disclosure of important financial information . . . enables investors, not the government, to make informed judgments about whether to purchase a company's securities.").

14. *Cf. id.* ("As with the proxy rules, [disclosure of information related to direct purchases or tender offers] allows shareholders to make informed decisions on these critical corporate events.").

15. SELIGMAN, *supra* note 12, at 40.

misallocation of capital, to "encourage or discourage the flow of capital into various industries."[16] Adolph Berle wanted a federal body to "exercise a real control over undue expansion of groups of credit instruments."[17] Raymond Moley wanted federal controls to, among other things, "stabilize economic activity."[18]

Roosevelt's contrary approach was neither grounded in social science nor motivated by concerns over resource allocation or economic recovery.[19] Magazine articles by Louis Brandeis, compiled into a book first published in 1913 entitled *Other People's Money and How the Bankers Use It*, provided the inspiration for Roosevelt.[20] One key article focused on how disclosure could help deter excessive underwriting fees and help investors in their decision making. In that article, Brandeis famously wrote, "Publicity is justly commended as a remedy for social and industrial diseases. Sunlight is said to be the best of disinfectants; electric light the most efficient policeman."[21] The disclosure must be obligatory and "real": the facts must be provided and "stated in good, large type in every notice, circular, letter and advertisement inviting the investor to purchase."[22]

Disclosure would both help investors make better decisions and help deter abusive behavior. Brandeis explicitly rejected the notion that law should go beyond this by entering the realm of substantive decision making. Generally, "the law should not undertake . . . to fix bankers' profits. And it should not seek to prevent investors from making bad bargains."[23] Full disclosure of the underwriters' "commissions and profits" would not only put investors "on their guard" but encourage the underwriters to charge "what is fair and reasonable."[24]

In 1933, when Roosevelt recommended to Congress what was to be enacted as the Securities Act, he reiterated these themes and paid homage to Brandeis:

> [T]he Federal Government cannot and should not take any action which might be construed as approving or guaranteeing that newly issued securities are sound in the sense that their value will be maintained or that the properties which they represent will earn profit.

16. *Id.* at 41 (internal quotation marks omitted).
17. *Id.* (internal quotation marks omitted).
18. *Id.* at 40 (internal quotation marks omitted).
19. *Id.* at 41.
20. *Id.*; *see* LOUIS D. BRANDEIS, OTHER PEOPLE'S MONEY AND HOW THE BANKERS USE IT v–xiv (Frederick A. Stokes Co. 1914) (1913).
21. LOUIS D. BRANDEIS, *What Publicity Can Do*, *in* OTHER PEOPLE'S MONEY AND HOW THE BANKERS USE IT, *supra* note 20, at 92.
22. *Id.* at 104.
23. *Id.* at 103.
24. *Id.* at 103–04.

> There is, however, an obligation upon us to insist that every issue of new securities to be sold in interstate commerce shall be accompanied by full publicity and information, and that no essentially important element attending the issue shall be concealed from the buying public.
>
> . . . .
>
> What we seek is a return to a clearer understanding of the ancient truth that those who manage banks, corporations and other agencies handling or using other people's money are trustees acting for others.[25]

Under the disclosure philosophy, the SEC would generally limit itself to promoting a robust informational foundation. The Securities Act would do so in connection with the offering of securities. The Securities Exchange Act of 1934[26] would do so by, among other things, ensuring a continual flow of information from certain public companies.[27] Investors would make their own decisions. The market would determine whether issuers would offer securities, what form the securities would take, and what their offering and trading prices would be. This federal disclosure philosophy stood in sharp contrast to the "merit regulation" adopted by some state blue sky law administrators, wherein government decision makers sought to prevent offerings they believed were not "fair, just [or] equitable," or which they deemed "grossly unfair."[28]

Some four decades after the enactment of the federal securities acts, the general public started becoming aware of the EMH hitherto considered only by social-science academics.[29] EMH also emphasized the centrality of publicly available information. And EMH suggested how well the market seemed to process information. EMH came to provide a social-science-based justification for the disclosure paradigm, and strongly influenced the paradigm's implementation.

In January 1976, partially in response to EMH research, the SEC established an Advisory Committee on Corporate Disclosure to evaluate "the present system of corporate disclosure and the role of the [SEC] within that

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25. Franklin D. Roosevelt, President, Message to Congress on Federal Supervision of Investment Securities (Mar. 29, 1933), *in* 2 THE PUBLIC PAPERS AND ADDRESSES OF FRANKLIN D. ROOSEVELT 93–94, *available at* http://www.presidency.ucsb.edu/ws/index.php?pid=14602.

26. Securities Exchange Act of 1934, Pub. L. No. 73-291, 48 Stat. 881 (codified at 15 U.S.C. §§ 78a–78pp (2006)).

27. *Id.* §§ 12, 13 (codified as amended at 15 U.S.C. §§ 78*l*, 78m (2006)).

28. *See, e.g.*, JOHN C. COFFEE, JR. & HILLARY A. SALE, SECURITIES REGULATION 67 (11th ed. 2009) (internal quotation marks omitted); Ad Hoc Subcomm. on Merit Regulation of the State Regulation of Sec. Comm., *Report on State Merit Regulation of Securities Offerings*, 41 BUS. LAW. 785, 805 (1986).

29. *See generally* PETER L. BERNSTEIN, CAPITAL IDEAS: THE IMPROBABLE ORIGINS OF MODERN WALL STREET (1992).

system."[30] Consisting of prominent outside experts and chaired by an SEC Commissioner (A. A. Sommer), the Advisory Committee, with the help of a full-time staff of eight to ten people, issued its report in November 1977.[31] The Advisory Committee concluded that the disclosure system established by the Securities Act and the Exchange Act, "as implemented and developed by the [SEC] . . . , is sound and does not need radical reform or renovation."[32] With some dissent, it concluded that:

> (1) The "efficient market hypothesis"—which asserts that the current price of a security reflects all publicly available information—even if valid, does not negate the necessity of a mandatory disclosure system. This theory is concerned with how the market reacts to disclosed information and is silent as to the optimum amount of information required or whether that optimum should be achieved on a mandatory or voluntary basis;
>
> (2) Market forces alone are insufficient to cause all material information to be disclosed.[33]

The Advisory Committee did not explicitly endorse EMH. Indeed, the Committee noted that "there are members . . . who have themselves achieved significant success" through fundamental research[34] (Warren Buffett was a member).[35] However, there is little question that EMH helped provide an intellectual touchstone for its conclusions. In particular, the Advisory Committee noted that, generally speaking, "[t]he market price of a security reflects true information and false information with equal efficiency . . . . Thus, a fraudulent income statement, not known to be false, will be reflected in the market price of a security to the same extent as a true one."[36] Moreover, "competition among analysts results in security prices that reflect a broad set of information."[37]

There was also express recognition of the interconnectedness of a robust informational foundation and the proper allocation of resources in the real

30. H. COMM. ON INTERSTATE AND FOREIGN COMMERCE, 95TH CONG., REPORT OF THE ADVISORY COMMITTEE ON CORPORATE DISCLOSURE TO THE SECURITIES AND EXCHANGE COMMISSION D-3 (Comm. Print 1977) [hereinafter DISCLOSURE ADVISORY COMMITTEE REPORT]; *see also* A. A. Sommer, Jr., *The U.S. Securities and Exchange Commission Disclosure Study*, 1 J. COMP. CORP. L. & SEC. REG. 145, 145–46 (1978) (stating that one reason for the creation of the Advisory Committee on Corporate Disclosure was to conduct research regarding the efficient market hypothesis).

31. DISCLOSURE ADVISORY COMMITTEE REPORT, *supra* note 30, at II.

32. *Id.* at 2.

33. *Id.* at D-6.

34. *Id.* at XXXVIII.

35. *Id*. at 3.

36. *Id.* at XXXIII–XXXIV.

37. *Id.* at 620–21.

economy.[38] The Advisory Committee stated that, in contrast to a communist economy, in the United States "the allocation [of resources] is largely performed by market forces and is accomplished through a multitude of individual decisions. . . . the most efficient allocation of resources will occur when the information is sufficient for the purposes of those making [investment] decisions, when it is reliable, and when it is disseminated in a timely manner."[39]

Financial institutions such as banks and investment companies were treated differently. A robust informational base was also important here, but not enough. It was long understood that government needed to play a major role in ensuring that the substantive decisions made by banks' management did not undermine the banks' safety and soundness.[40] Risk taking that would be optimal from the standpoint of a bank's shareholders would be prohibited if doing so would violate governmental constraints.[41] And the Investment Company Act of 1940,[42] which applied to entities like mutual funds and closed-end investment trusts, reflected a congressional decision to adopt substantive protections beyond the disclosure requirements of the Securities Act and the Exchange Act.[43]

But outside of the financial sector, departures from the disclosure philosophy were limited to a narrow group of companies or an extremely narrow set of issues. The Securities and Enforcement Remedies and Penny Stock Reform Act of 1990[44] amended the Securities Act to address offerings by newly formed companies that had no specific business plan or purpose or whose plan was to merge with an unidentified company.[45] The investors were, in effect, being asked to give blank checks to the promoters, a circumstance that Congress had found to be rife for "abusive and harmful practices."[46] Pursuant to the amendment, the SEC adopted Rule 419, which went well beyond disclosure by requiring that funds received in an offering

38. *See id.* at XV ("It would appear to be self-evident that the quality of any investment allocation decision . . . will in large measure be determined by the quantity and quality of the information that is available concerning the potential investments which may be made.").

39. *Id.* at XIII–XIV, XVI.

40. As to the rationales for government intervention in the operation of financial institutions, see, for example, Robert Charles Clark, *The Soundness of Financial Intermediaries*, 86 YALE L.J. 1, 12–23 (1976).

41. Because of highly asymmetric incentive structures, the peculiarities of financial "science," cognitive bias, and other reasons, some individuals at banks dealing with complex financial products may take even more risk than would be optimal from the standpoint of diversified shareholders. Hu, *Misunderstood Derivatives*, *supra* note 7, at 1476–95.

42. Investment Company Act of 1940, Pub. L. No. 76-768, 59 Stat. 789 (codified as amended at 15 U.S.C. § 80A (2006)).

43. DIV. OF INV. MGMT., U.S. SEC. & EXCH. COMM'N, PROTECTING INVESTORS xvii (1992).

44. Securities and Enforcement Remedies and Penny Stock Reform Act of 1990, Pub. L. No. 101-429, 104 Stat. 931 (codified as amended in scattered subsections of 15 U.S.C. §§ 77, 78, 80 (2006)).

45. *Id.* at § 502 (codified as amended at 15 U.S.C. § 78*o* (2006)).

46. *Id.*

be placed in an escrow account and by giving purchasers the right to the return of escrowed funds after an acquisition of assets meeting certain criteria.[47]

The Sarbanes-Oxley Act,[48] enacted in 2002 in the panic after the collapse of Enron, WorldCom, and other large public companies and amidst widespread disclosure problems, represented another point of departure. Although Sarbanes-Oxley did intervene as to substantive decision making by corporations, the bulk of its provisions did not. Most of its provisions were largely consistent with the traditional federal focus on a robust informational base. Thus, core components of Sarbanes-Oxley, such as the creation of the Public Company Accounting Oversight Board (PCAOB),[49] requirements that the CEOs and CFOs of public companies provide prescribed certifications of their companies' financial statements,[50] enhanced disclosure of corporate financial condition and off-balance-sheet transactions,[51] and provisions increasing the independence of gatekeepers such as auditors[52] and securities analysts[53] are all in this vein.

Where Sarbanes-Oxley did intervene as to private decision making, it did so primarily in the audit committee area: the audit committee would be composed exclusively of independent directors and its authority and role would be enhanced.[54] However, at most corporations, the audit committee is largely a bystander to the overarching business decisions that determine corporate success or failure. Other Sarbanes-Oxley departures related to restatements of financial results and enhancing the ability of the SEC to bar officers and directors from their positions.[55] In the critical area of managerial compensation, Sarbanes-Oxley focused merely on prohibiting corporations from *lending* to executives, a signal "ripped-from-the-headlines" move.[56]

47. *See* 17 C.F.R. § 230.419(b) (2011) (rule relating to the placing of funds received into escrow).

48. For a discussion of Sarbanes-Oxley, see generally RICHARD W. JENNINGS ET AL., SARBANES-OXLEY ACT SPECIAL SUPPLEMENT: FEDERAL SECURITIES LAWS (2002). For a vigorous challenge to Sarbanes-Oxley, see Roberta Romano, *The Sarbanes-Oxley Act and the Making of Quack Corporate Governance*, 114 YALE L.J. 1521 (2005).

49. Sarbanes-Oxley Act of 2002 § 101, 15 U.S.C. § 7211 (2006).

50. *Id.* § 302 (codified at 15 U.S.C. § 7241 (2006)); *id.* § 906 (codified as amended at 18 U.S.C. § 1350 (2006)).

51. *Id.* §§ 401–409 (codified at 15 U.S.C. §§ 78m, 78p, 7261–66 (2006)).

52. *Id.* §§ 201, 202 (codified at 15 U.S.C. §§ 78j-1, 7231 (2006)).

53. *Id.* § 501 (codified at 15 U.S.C. § 78*o*-6 (2006)).

54. *Id.* § 301 (codified at 15 U.S.C. § 78j-1 (2006)).

55. *See id.* § 304(a) (codified at 15 U.S.C. § 7243 (2006)) (requiring financial penalties for the CEO and CFO in the event a company restates financials); § 305 (codified at 15 U.S.C. §§ 78t(e), 78(u)(d) (2006)) (making the standards for director bars more flexible).

56. *See id.* § 402(a) (codified at 15 U.S.C. § 78m (2006)) (barring corporate loans to directors and executive officers); *Ebbers out at WorldCom*, CNNMONEY (Apr. 30, 2002), http://money.cnn.com/2002/04/30/technology/ebbers/ (reporting that former WorldCom CEO Bernard Ebbers had received over $366 million in personal loans from the company before its collapse); *see also* 148 CONG. REC. S6690 (daily ed. July 12, 2002) (statement of Sen. Schumer) (explaining the need for an amendment to Sarbanes-Oxley banning personal loans to executives).

Corporations remained free to *pay* executives whatever they wished. Moreover, although Sarbanes-Oxley did intrude on decision making by corporations, it did not seek to affect prices or decision making in the capital markets.

The disclosure philosophy has been and remains widely accepted, as a sampling of views subsequent to the public emergence of the EMH illustrates. In 1977, the Disclosure Advisory Committee sought to have the SEC explicitly adopt the following statement of objectives, reflecting the philosophy's twin informational and incrementalist components:

> The Commission's function in the corporate disclosure system is to assure the public availability in an efficient and reasonable manner and on a timely basis of reliable, firm-oriented information material to informed investment, and corporate suffrage decision-making. The [SEC] should not adopt disclosure requirements which have as their principal objective the regulation of corporate conduct.[57]

Although the SEC has yet to adopt an official statement, the SEC's longstanding goals and approach have not wavered. In 1996, amidst an SEC reexamination of some of the fundamental concepts of the regulatory framework for the public offering of securities, securities market trading, and corporate reporting, the SEC issued a concept release stating that "[t]he Securities Act and the issuer disclosure provisions of the Exchange Act are premised on the view that investors are best protected in making investment decisions if they are presented with full and fair disclosure of all material information about the investments."[58] Today, in the "unofficial" words of the SEC's own website:

> The laws and rules that govern the securities industry in the United States derive from a simple and straightforward concept: all investors, whether large institutions or private individuals, should have access to certain basic facts about an investment prior to buying it, and so long as they hold it. To achieve this, the SEC requires public companies to disclose meaningful financial and other information to the public. This provides a common pool of knowledge for all investors to use to judge for themselves whether to buy, sell, or hold a particular security. Only through the steady flow of timely, comprehensive, and accurate information can people make sound investment decisions.

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57. DISCLOSURE ADVISORY COMMITTEE REPORT, *supra* note 30, at D-8. The SEC declined to do so, not on substantive grounds, but primarily because the SEC was concerned about the potential impact on its enforcement activities. *See* Sommer, *supra* note 30, at 150 ("The Commission determined not to adopt such a statement, principally because it was fearful that the existence of such a statement would complicate its enforcement program and litigation work since the statement could provide a procedural weapon that might impede the Commission's work.").

58. Securities Act Concepts and Their Effects on Capital Formation, Securities Act Release No. 7314, Exchange Act Release No. 37,480, 61 Fed. Reg. 40,044, 40,046 (July 31, 1996).

> The result of this information flow is a far more active, efficient, and transparent capital market that facilitates the capital formation so important to our nation's economy.[59]

B. Implementation of the Disclosure Philosophy: The "Intermediary Depiction" Model

1. Corporate Information Prior to the Federal Securities Acts.—In 1866, the treasurer of the Delaware, Lackawanna & Western Railroad Company responded to the request of the NYSE for copies of any reports to security holders it had issued recently.[60] The response consisted of one sentence: "The Delaware, Lackawanna & Western R.R. Co. make no reports and publish no statements and have done nothing of the sort for the last five years."[61]

Until the enactment of the federal securities acts some seven decades later, corporate disclosure was essentially voluntary. Neither the stock exchanges on which a corporation's shares were traded nor the states in which the corporations were incorporated required much.

The NYSE was not to be broadly successful in requiring financial information from listed companies until 1895.[62] But, until 1910, shares could be traded on the NYSE without listing; no information was required at all of unlisted issues.[63] After 1910, companies still wishing to avoid providing information could easily do so by registering as an unlisted security on the New York Curb Exchange, the second largest exchange in the country.[64] As of November 1933, 82% of all securities traded there were unlisted.[65]

Even when reports were provided to shareholders, they were not necessarily very helpful. Writing in 1933, a finance professor characterized some as "wholly lacking in facts or at least in easily understood, significant facts."[66] Speaking of corporate annual reports to shareholders, he stated that:

> Every intelligent analyst restates much of the information contained in current reports before he puts much faith in it. Much of the "alteration" necessary to inject accuracy and dependability into some

59. *The Investor's Advocate*, *supra* note 13.

60. N. LOYALL MCLAREN, ANNUAL REPORTS TO STOCKHOLDERS: THEIR PREPARATION AND INTERPRETATION 4 (1947).

61. *Id*. at 4–5.

62. Douglas C. Michael, *Untenable Status of Corporate Governance Listing Standards Under the Securities Exchange Act*, 47 BUS. LAW. 1461, 1466 (1992).

63. *See id*. & n.24 (referring to the NYSE's 1910 abolition of its "Unlisted Department").

64. SELIGMAN, *supra* note 12, at 47.

65. Joel Seligman, *The Historical Need for a Mandatory Corporate Disclosure System*, 9 J. CORP. L. 1, 54 n.221 (1983).

66. HENRY E. HOAGLAND, CORPORATION FINANCE 31 (1933).

> reports is comparable to having a tailor "alter" a pair of red trousers into a blue coat.[67]

The accounting conventions used also varied from firm to firm, making cross-firm comparisons difficult.[68] For instance, there were several commonly used methods for recording inventory value or depreciating the value of perishable assets.[69] Moreover, practices varied as to whether to distinguish between operating income and other income, with some companies reporting income boosted by the sale of a corporate asset.[70]

In the original 1934 edition of their seminal treatise on securities analysis, Benjamin Graham and David Dodd wrote that every listed company published an annual report and most published quarterly reports.[71] However, the contents varied widely from company to company, especially as to the income account.[72] Some of the income account reports gave no more than the earnings available for dividends and the amount of dividends paid.[73] Many companies even refused to provide information as to annual sales, on the ground that it might be used by competitors.[74] Graham and Dodd asserted that "less than half of our industrial corporations" supplied such core income account data as sales, income taxes, and dividends paid.[75] As for quarterly reports, the data provided ranged "from a single figure of net earnings (sometimes without allowance for depreciation or federal taxes) to a fully detailed presentation of the income account and the balance sheet," together with the president's remarks.[76]

The majority of states did not generally require corporations to provide any reports either to the general public or to stockholders.[77] Those states that did were ambiguous as to the content of the reports and nearly all failed to require any information concerning subsidiaries.[78] In theory, shareholders

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67. *Id.* at 36.

68. SELIGMAN, *supra* note 12, at 48–49.

69. *Id.*

70. *Id.* at 49.

71. BENJAMIN GRAHAM & DAVID L. DODD, SECURITY ANALYSIS: THE CLASSIC 1934 EDITION 41–43 (1996).

72. *See id.* at 43–44 (setting forth a standard of "reasonable completeness" for companies' income accounts and discussing various ways in which companies failed to meet that standard).

73. *Id.*

74. *Id.* at 44.

75. *Id.*

76. *Id.* at 43.

77. E. Merrick Dodd, Jr., *Statutory Developments in Business Corporation Law, 1886–1936*, 50 HARV. L. REV. 27, 49 (1936). Public utilities were subject to special rules. "Thus, under the [Illinois statute in place in 1936], the Public Utilities Commission [was] authorized . . . to prescribe accounting practices, to require reports which [were] to be open to public inspection, and to regulate security issues . . . ." *Id.* at 50.

78. *See* Wiley B. Rutledge, Jr., *Significant Trends in Modern Incorporation Statutes*, 22 WASH. U. L.Q. 305, 332–33 (1937) (suggesting that state statutes went too far in protecting corporations by limiting the information the corporations were required to report); *see also* HOAGLAND, *supra* note 66, at 30 (noting how even though Ohio law required more information than laws of some other

could have sought to rely on their common law or statutory rights to inspect books and records.[79] However, at least in the 1930s, the difficulty and expense of exercising such rights served to limit the value of such rights.[80] Moreover, in some states, only those who held the requisite percentage of shares outstanding for a specified period of time prior to the date of demand were entitled to inspection rights.[81] Finally, state blue sky laws governing the issue and sale of securities were easily evaded on jurisdictional grounds by making offerings across state lines through the mails.[82] Besides, most blue sky laws were quite porous.[83]

2. The Federal Securities Acts and the Implicit Adoption of the Intermediary Depiction Model.—If viewed functionally, the disclosure philosophy has, from the start, been implemented largely through a single informational strategy. An intermediary (for instance, the corporation issuing securities) would be required to craft a depiction of reality that met specified quality standards and content requirements and be required to make its depiction available to investors. The accuracy and completeness of the depictions mandated by such quality standards and content requirements would be backed up by vigorous public and private enforcement.[84] Completeness would not, however, entail consideration of the entire variety of economic, political, social, and other aspects of the real world that could affect the fortunes of a company's investors: the mandate has long centered on firm-specific matters.[85]

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states, insiders "would hardly care to base their own investment judgment upon the information required by the Ohio law").

79. Dodd, *supra* note 77, at 49. For a discussion of the origins of shareholder inspection rights, see Randall S. Thomas, *Improving Shareholder Monitoring of Corporate Management by Expanding Statutory Access to Information*, 38 ARIZ. L. REV. 331, 335–40 (1996).

80. *Id.* at 49 n.91 (citing the Illinois statute as exemplifying such restrictions). In light of these and other restrictions, E. Merrick Dodd's article characterizes inspection rights as being "of little value." *Id.* at 49. Benjamin Graham and David Dodd note that "[c]ompelling a company to supply information involves expensive legal proceedings and hence few shareholders are in a position to assert their rights to the limit." GRAHAM & DODD, *supra* note 71, at 98.

81. *See* Rutledge, *supra* note 78, at 332 (providing Louisiana and Michigan as examples of such states).

82. SELIGMAN, *supra* note 12, at 45.

83. *Id.*; *see also* Stuart R. Cohen & Gregory C. Yadley, *Capital Offense: The SEC's Continuing Failure to Address Small Business Financing Concerns*, 4 N.Y.U. J.L. & BUS. 1, 15–16 (2007) (noting that state blue sky laws were often evaded by operating across state lines because of states' inability to regulate interstate transactions).

84. As to current efforts on the part of the SEC to deter violations of the federal securities laws, see, for example, David M. Becker, *What More Can Be Done to Deter Violations of the Federal Securities Laws?*, 90 TEXAS L. REV. 1849(2012).

85. A few judges have gone so far as to seemingly suggest that only firm-specific information is required under federal securities law. Most notably, Judge Frank Easterbrook has written that "[i]ssuers of securities must reveal firm-specific information. Investors combine this with public information to derive estimates about the securities' value. It is pointless and costly to compel firms to reprint information already in the public domain." Wielgos v. Commonwealth Edison Co., 892 F.2d 509, 517 (7th Cir. 1989).

Thus, when the Securities Act was enacted in 1933, the heart of the Act involved requiring that the issuer disclose in the registration statement filed with the Federal Trade Commission[86] and in prospectuses available to investors, the items of data set forth in Schedule A.[87] Schedule A's content requirements not only involved the issuer's financial records, but also required "disclosure of information about the firm's business, need for capital, officers, and the costs of the securities issuance."[88] The quality of the depiction would be enforced by the harsh provisions of Section 11; with material misstatements and omissions, it was conceivable that the issuer itself, each of its directors, certain officers, outside accountants who certified a part of the registration statement, and the underwriters could be held liable.

The Securities Act triggered corporate disclosure only on issuance of securities; absent the happenstance of a subsequent issuance, the information provided in connection with the Securities Act registration would quickly go stale. The Exchange Act, enacted in 1934, helped address this informational gap by providing that corporations registered on national securities exchanges would be required to provide periodic reports to investors.[89] The antifraud provisions of the Exchange Act's Rule 10b-5 would help ensure their quality.[90]

This intermediary depiction model has remained largely unchanged. All efforts at addressing or reforming disclosure have been premised on this model. The energies of the securities regulators and securities bar have focused on ensuring not only that the intermediary's depictions are accurate and complete, but also that they are comprehensible (such as through former SEC Chairman Arthur Levitt's efforts at requiring the use of "plain English" in disclosures[91]), accessible (including through such measures as the EDGAR-izing of filings to facilitate easy downloading by investors[92]), and not unduly burdensome (including through such measures as the integration

86. The SEC was not created until 1934, with the enactment of the Securities Exchange Act of 1934. U.S. SEC. & EXCH. COMM'N, SECOND ANNUAL REPORT OF THE SECURITIES AND EXCHANGE COMMISSION: FISCAL YEAR ENDED JUNE 30, 1936, at 1 (1936). Prior to September 1, 1934, the Securities Act was administered by the Federal Trade Commission. *Id.*

87. SELIGMAN, *supra* note 12, at 70.

88. *Id.*

89. U.S. SEC. & EXCH. COMM'N, FIRST ANNUAL REPORT OF THE SECURITIES AND EXCHANGE COMMISSION: FISCAL YEAR ENDED JUNE 30, 1935, at 2–3 (1935).

90. *See* 17 C.F.R. § 240.10b-5 (2009) (prohibiting schemes to defraud, through material representations or omissions, and practices which operate as a fraud in connection with the purchase or sale of a security).

91. *See, e.g.*, Plain English Disclosure, Securities Act Release No. 7497, Exchange Act Release No. 39,593, 63 Fed. Reg. 6370, 6377 (Feb. 6, 1998) (describing efforts started by Chairman Levitt to simplify the disclosure process, which resulted in the plain English requirement).

92. For a brief description of the development of EDGAR (Electronic Data Gathering, Analysis and Retrieval), see, for example, 1 LOUIS LOSS, JOEL SELIGMAN & TROY PAREDES, FUNDAMENTALS OF SECURITIES REGULATION 218–21 & n.65, 677–78 (6th ed. 2011); William W. Barker, *SEC Registration of Public Offerings Under the Securities Act of 1933*, 52 BUS. LAW. 65, 69–70 (1996) (describing the EDGAR system).

of Securities Act and Exchange Act disclosures[93] in circumstances likely to be justified by EMH).

There are, however, two inflections to this implementation of the disclosure philosophy worth noting, both of which relate to the malleability of the depictions offered by corporations. First, at least in the early years of the SEC, accounting matters were largely a regulatory backwater. Second, with the dramatic shift in the provision of "soft information" that began about two decades ago, the centerpiece of the narrative in disclosure documents has, almost by definition, moved to depictions heavily driven by managerial judgments and more resistant to objective verification.

Accounting conventions and the particular accounting judgments a corporation makes will significantly affect the depictions of reality found in the corporation's financial statements. If such conventions and judgments result in depictions that depart from the true economic state of affairs, and the investor is unable to reverse engineer his way to the objective reality, a serious disclosure problem arises. Similarly, if firms vary widely as to the conventions used and judgments made, cross-firm comparisons become extremely difficult.

Given the importance of such accounting-related considerations and the manifest accounting problems extant, it was ironic that the SEC did little in its early years to address accounting.[94] A majority of the commissioners reassured accountants that the SEC would not soon exercise its statutory authority to develop uniform accounting principles. The first SEC chairman, Joseph Kennedy, tended to view most technical accounting questions as relatively unimportant. The second SEC chairman, James Landis, publicly complained that "almost daily tilts with accountants" had left him with "little doubt that their loyalties to management are stronger than their sense of responsibility to the investor." However, Landis did not direct the SEC's chief accountant to develop uniform accounting principles, and the chief accountant pursued a policy of cooperation with the accounting profession.

A 1939 study of balance sheets and income statements of seventy large corporations concluded as follows:

> Reports to stockholders, whether judged by the standards set by the SEC or by one's own lights, seem very inadequate. On vital counts, investors are left conjecturing—sales, cost of sales, depreciation, inventories and surplus generally are so inadequately described that an

93. *See, e.g.*, Securities Offering Reform, Securities Act Release No. 8591, Exchange Act Release No. 26,993, 70 Fed. Reg. 44,722, 44,724 (Aug. 3, 2005).

94. *See* SELIGMAN, *supra* note 12, at 116–17 (describing the Commission's reluctance to introduce uniform accounting standards).

> investor does not have a minimum of information upon which to form an intelligent opinion on buying or selling. . . .[95]

It should go without saying that accounting issues have not gone away. The Enron and WorldCom accounting and disclosure disasters occurred only a decade ago. And accounting conventions sometimes still seem to carry us far from economic reality.[96] However, there is an order-of-magnitude difference between the malleability of accounting depictions today and the situation in the early years of the SEC. Sarbanes-Oxley adopted a wide variety of measures designed to enhance auditor independence, and created the PCAOB to oversee audits "in order to protect the interests of investors and further the public interest in the preparation of informative, accurate, and independent audit reports."[97] Moreover, the SEC has oversight over the PCAOB, and the five members of its Board are appointed by the SEC.[98] And, at least until there is convergence with the more "principles-based" International Financial Reporting Standards, companies are all subject to tighter "rules-based" Generally Accepted Accounting Principles.[99]

Leaving aside the possible impact of such convergence and matters relating to the complex financial products made possible by modern financial science, the malleability of corporate depictions in the area of accounting has probably decreased. However, with a dramatic shift in SEC attitudes toward soft information, the malleability of depictions found in the central narratives of public reports has probably increased.

Traditionally, the SEC largely limited corporate disclosure in filings to historical or "hard" information.[100] Disclosure of "soft" information, such as opinions, predictions, analyses, and other more subjective evaluations, was prohibited.[101] This prevented such information from receiving undue credence from investors or being manipulated by companies.[102] On the other hand, critics such as Homer Kripke felt that such information would be

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95. Maurice C. Kaplan & Daniel M. Reaugh, *Accounting, Reports to Stockholders, and the SEC*, 48 YALE L.J. 935, 978 (1939).

96. *See, e.g.*, Glenn H. Greenberg, *The Quest for Rational Investing*, *in* SECURITY ANALYSIS 395, 400 (6th ed. 2009) (offering examples).

97. Sarbanes-Oxley Act of 2002 § 101(a), 15 U.S.C. § 7211(a) (2006).

98. *Id.* §§ 101(e)(1), (e)(4), 107(a) (codified at 15 U.S.C. §§ 7211(e)(1), (e)(4), 7217(a) (2006)). As to the views of the current PCAOB chairman on the PCAOB's role and activities, see generally James R. Doty, *The Relevance, Role, and Reliability of Audits in the Global Economy*, 90 TEXAS L. REV. 1891 (2012).

99. *See, e.g.*, OFFICE OF THE CHIEF ACCOUNTANT, U.S. SEC. & EXCH. COMM'N, WORK PLAN FOR THE CONSIDERATION OF INCORPORATING INTERNATIONAL FINANCIAL REPORTING STANDARDS INTO THE FINANCIAL REPORTING SYSTEM FOR U.S. ISSUERS: A COMPARISON OF U.S. GAAP AND IFRS 2 (2011) (noting that Generally Accepted Accounting Principles currently apply to all U.S. issuers, and that an unknown threshold of development needs to be reached in order to incorporate IFRS into the financial reporting system).

100. DISCLOSURE ADVISORY COMMITTEE REPORT, *supra* note 30, at D-14.

101. *Id.*

102. SELIGMAN, *supra* note 12, at 610.

extremely useful to investors and that corporate management would be in a stronger position to dissect historical patterns and assess future prospects.[103]

In 1977, the Advisory Committee (of which Kripke was a member)[104] recommended that the SEC move from precluding disclosure of soft information to actively encouraging it.[105] In 1979, the SEC adopted Rule 175 under the Securities Act and Rule 3b-6 under the Exchange Act to encourage the disclosure of such information and to create safe harbors for certain kinds of "forward-looking statements."[106]

More importantly, in 1987, the SEC moved to enhance its "Management's Discussion and Analysis of Financial Condition and Results of Operations" (MD&A) disclosure requirements—disclosures mandated both in Securities Act registration statements and Exchange Act Forms 10-Q and 10-K.[107] The SEC stated that:

> The Commission has long recognized the need for a narrative explanation of the financial statements, because a numerical presentation and brief accompanying footnotes alone may be insufficient for an investor to judge the quality of earnings and the likelihood that past performance is indicative of future performance. MD&A is intended to give the investor an opportunity to look at the company through the eyes of management by providing both a short and long-term analysis of the business of the company.[108]

More specifically, such "eyes of management" would be required for "known trends or any known demands, commitments, events or uncertainties" relating to any material change in the company's liquidity.[109] Similarly, material trends as to the company's capital resources, and known trends or uncertainties that would have a material impact on net sales, revenues, or income from continuing operations would be required to be disclosed.[110]

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103. *See, e.g.*, Homer Kripke, *The Myth of the Informed Layman*, 28 BUS. LAW. 631, 637 (1973) (asserting that projections and estimates can help investors develop their own opinions on the value of a company); *see also* Homer Kripke, *The SEC, the Accountants, Some Myths and Some Realities*, 45 N.Y.U. L. REV. 1151, 1198 (1970) (claiming that management is in a better position to make forecasts about their own companies than the general public).

104. DISCLOSURE ADVISORY COMMITTEE REPORT, *supra* note 30, at 4.

105. *Id.* at D-14.

106. COFFEE & SALE, *supra* note 28, at 199.

107. Management's Discussion and Analysis of Financial Condition and Results of Operations; Certain Investment Company Disclosures, Securities Act Release No. 6835, Exchange Act Release No. 26,831, Investment Company Act Release No. 16,961, 54 Fed. Reg. 22,427, 22,427 (May 24, 1989).

108. Concept Release On Management's Discussion and Analysis of Financial Condition and Operations, Securities Act Release No. 6711, Exchange Act Release No. 24,356, 52 Fed. Reg. 13,715, 13,717 (Apr. 24, 1987).

109. Regulation S-K, 17 C.F.R. § 229.303(a)(1) (2011).

110. *Id.* § 229.303(a)(2)(ii), (3)(ii) (2011).

The MD&A has become a major, if not the major, form of narrative disclosure that is studied, together with financial statements, for investment decision making and analysis purposes.[111] One practitioner has noted (with slight hyperbole) that the MD&A requirements can be summarized as follows: "*Disclose . . . all material information, historical or prospective, that has impacted or might foreseeably impact on the financial affairs of the registrant.*"[112]

III. Asset-Backed Securities and the Applicable Intermediary Depiction Approach

A. The Financial Alchemy of Asset-Backed Securities

At its core, securitization involves the pooling of assets, such as loans and mortgages, followed by the issuance of prioritized claims against the asset pool.[113] Because of the prioritization of the claims, known as tranches, the cash flows directed to the more senior tranches may be more assured than the cash flows associated with the average asset in the underlying asset pool.[114] Loosely speaking, risky assets in the pool could thus be converted to "safe" securities that could be rated "AAA" by credit ratings agencies. The first asset-backed securities involving private creditors (as opposed to, say, Fannie Mae or Freddie Mac) occurred in 1993.[115]

Financial as well as nonfinancial entities held the raw material for such financial alchemy—risky assets throwing off cash—and often had incentives to dispose of such assets.[116] In an ABS transaction, the entities would transfer those assets to a special purpose vehicle (SPV) expressly set up for that particular transaction, and upon the sale of the various tranches of the asset-backed security, would receive the offering proceeds. With this exchange of the risky assets for cash, financial institutions obtained new funds to enter into new mortgages and other lending activity. Moreover, the financial institutions' exposure to the interest rate and liquidity risks associated with those transferred assets was reduced.[117] Nonfinancial entities became directly involved in securitizations as well. For instance, the

111. *See* Orie E. Barron et al., *MD&A Quality as Measured by the SEC and Analysts' Earnings Forecasts*, 16 CONTEMP. ACCT. RES. 75, 80 (1999) ("We focus on MD&A because a growing body of evidence suggests that the SEC and users of financial reports view MD&A as particularly important, despite the fact that MD&A is only a small part of each firm's total disclosure.").

112. Carl W. Schneider, *MD&A Disclosure*, 22 REV. SEC. & COMMODITIES REG. 149, 150 (1989) (emphasis added).

113. Joshua Coval et al., *The Economics of Structured Finance*, 23 J. ECON. PERSP. 3, 3 (2009).

114. *Id.*

115. GRETCHEN MORGENSON & JOSHUA ROSNER, RECKLESS ENDANGERMENT 48–49 (2011).

116. BD. OF GOVERNORS OF THE FED. RESERVE SYS., REPORT TO THE CONGRESS ON RISK RETENTION 8–10 (2010) [hereinafter RISK RETENTION REPORT].

117. TIMOTHY F. GEITHNER, FIN. STABILITY OVERSIGHT COUNCIL, MACROECONOMIC EFFECTS OF RISK RETENTION REQUIREMENTS 9 (2011) [hereinafter MACROECONOMIC EFFECTS].

"captive" finance-company subsidiaries of vehicle manufacturers became heavily dependent on securitizations for the funding of auto loans and auto leases.[118] In short, securitization provided liquidity "to nearly all major sectors of the economy including the residential and commercial real estate industry, the automobile industry, the consumer credit industry, the leasing industry, and the commercial lending and credit markets."[119]

On the other side of the ABS transaction, investors had the opportunity to buy debt securities that had been analyzed by credit ratings agencies and, through a "AAA" designation, certified to have very low credit risk.[120] Tranching—the prioritization of claims—was the animating force that allowed such a designation. The so-called waterfalls defined precisely the cash-flow rights of each of the tranches. The holders of the junior tranches would be the first to suffer if the cash flow from the pool assets proved insufficient to meet all of the promised interest payments. The extent of the protection offered by the junior claims—overcollateralization—was essential to the fate of senior tranche holders.

The appeal of this financial alchemy grew rapidly among entities with risky assets and investors seeking returns. The issuance of asset-backed securities constituted 16% of all debt issued in the United States between 2002 and 2010.[121] In 2006 alone, nearly $2 trillion in ABS issuances occurred.[122]

B. The Existing Disclosure Regime: The Intermediary Depiction Approach Applicable to Asset-Backed Securities

1. Financial Innovation and a Traditional Intermediary Depiction Response.—Currently, and extending back to the period prior to the GFC, the disclosure requirements applicable to registered ABS offerings flow primarily from Regulation AB, adopted by the SEC in 2004.[123] Longstanding SEC disclosure and reporting requirements were designed for corporate issuers and their securities, and were focused on such matters as the corporation's business or management.[124] With ABS, there was no business or management. Instead, information about the characteristics of the asset pool, the servicing of the assets, and the transaction structure was

118. RISK RETENTION REPORT, *supra* note 116, at 19–20.

119. Asset-Backed Securities, Securities Act Release No. 9117, Exchange Act Release No. 61,858, 75 Fed. Reg. 23,328, 23,330 (May 3, 2010).

120. *See, e.g.*, Coval et al., *supra* note 113, at 4–5 (noting that in mid-2007, there were 37,000 AAA-rated structured finance issues in the United States alone).

121. RISK RETENTION REPORT, *supra* note 116, at 6 & n.8.

122. Credit Risk Retention, Exchange Act Release No. 64,148, 76 Fed. Reg. 24,090, 24,094 tbl.A (Apr. 29, 2011).

123. Asset-Backed Securities, Securities Act Release No. 8518, Exchange Act Release No. 50,905, 70 Fed. Reg. 1506, 1506 (Jan. 7, 2005).

124. *Id.* at 1508.

often what was most important to investors. Over time, through no-action letters and the registration review process, a framework emerged to address the different nature of ABS "while being cognizant of developments in market practice."[125] Regulation AB was generally intended to consolidate and codify the SEC staff positions as well as industry practice.[126]

Regulation AB was thus designed to respond to the unique characteristics of an important financial innovation. But this response relied on the traditional intermediary depiction model applicable to corporate issuers and their securities. Effectively, with both ABS and corporate offerings, the issuer was required to craft and transmit depictions of reality. Consistent with how the intermediary depiction model operates with regard to corporations and corporate issuances of securities, the SEC identifies explicit items that should be covered in such depictions of ABS and offers guidance as to both the substantive content and its narrative, numerical, and graphical presentation.

In the ABS context, among the items that the SEC explicitly identifies are two of the key drivers of the value of any tranche of an asset-backed security. The first is in the area of the characteristics of the underlying pool assets. Knowledge of the quality, diversification, and other characteristics of the pool assets would contribute to the accuracy of predictions of the amount and patterns of aggregate cash flows that service the ABS transaction as a whole.

The second is the "flow of funds" or "waterfall" associated with the particular tranche of the asset-backed security that the investor is purchasing. Typically, the asset-backed security's "pooling and servicing agreement" among the sponsor, the trustee, and the servicer specifies how the aggregate cash flows generated by the asset pool will be divided among the tranches. The waterfall provisions of the agreement specify the allocation and order of cash flows, including interest, principal, and other payments on the various classes of securities.[127] Such provisions may also direct cash flows into various accounts, "such as reserve accounts, to provide support against potential future shortfalls."[128]

In broad overview, Regulation AB adopted a loose, principles-based approach to mandating that the issuer[129] provide verbal (and, where

125. *Id.*

126. *Id.*

127. *See* FIN. CRISIS INQUIRY COMM'N, THE FINANCIAL CRISIS INQUIRY REPORT: FINAL REPORT OF THE NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES 43 (2011) [hereinafter CAUSES OF THE FINANCIAL CRISIS] ("Bankers often compared [the tranching] to a waterfall; the holders of the senior tranches—at the top of the waterfall—were paid before the more junior tranches. And if payments came in below expectations, those at the bottom would be the first to be left high and dry.").

128. Asset-Backed Securities, 70 Fed. Reg. at 1511.

129. As to who is deemed to be the "issuer" in the ABS context, see LATHAM & WATKINS, CLIENT ALERT NO. 432, REGULATION AB—A SUMMARY OF THE SEC'S NEW SET OF RULES AND

appropriate, graphical and statistical) depictions of the overall asset pool. With respect to the waterfall, only issuer depictions of a verbal variety are required, with the filing of the pooling and servicing agreement as an exhibit.

2. "Pool Assets."—In terms of pool assets, the core Regulation AB provisions are Items 1111[130] and 1105.[131] Item 1111 requires the issuer to provide broad information regarding the asset pool types and selection criteria. In this respect, it requires such matters as a "general description" of the material terms of the pool assets; a description of the solicitation, credit granting, or underwriting criteria used to originate or purchase the pool assets; and legal or regulatory provisions that may materially affect pool-asset performance.[132]

Item 1111 also requires that the "material characteristics of the asset pool" must be described.[133] Instead of providing a mandated set of characteristics, the SEC states that "the material characteristics will vary depending on the nature of the pool assets" and that "such characteristics *may include, among other things*" such matters as the number of each type of pool assets; the pool assets' age, maturity, remaining term, average life (based on different prepayment assumptions), and current payment/prepayment speeds; the standardized credit scores of obligors; delinquency and loss information; and summaries of the representations and warranties made in relation to the pool assets.[134]

If the asset pool includes commercial mortgages, then certain additional information about such mortgages is required "to the extent material."[135]

If of a statistical nature, the above information must be provided in tabular or graphical format, if such presentation will aid understanding.[136] The statistical information must be presented in appropriate distributional groups or ranges.[137] In addition, "to the extent material," the number, amount, and percentage of pool assets by distributional group or range for each group by variables are required.[138] Rather than mandating a fixed set of variables, the SEC set out as "just examples" variables such as average balance, weighted average coupon, average age and remaining term, average

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REGULATIONS FOR ASSET-BACKED SECURITIES 7, 9 (2005) ("Under newly promulgated Securities Act Rule 191, the SEC clarifies that for ABS offerings, the depositor of assets into the issuing entity, acting solely in its capacity as depositor to the issuing entity, is the 'issuer' of the ABS for purposes of the Securities Act. . . . The sponsor may also be treated as the depositor if there is no intermediate transfer of assets from a sponsor to the issuing entity.").

130. Asset-Backed Securities, 70 Fed. Reg. at 1544.
131. *Id.* at 1538–39.
132. *Id.* at 1544.
133. *Id.* at 1606.
134. *Id.* (emphasis added).
135. *Id.*
136. *Id.* at 1544.
137. *Id.*
138. *Id.* at 1606.

loan-to-value or similar ratio, and weighted average standardized credit score or other measure of obligor credit quality.[139] The SEC further emphasized that the actual variables to be used "should be tailored to the particular asset class backing the asset-backed securities."[140] Issuers were advised to "consider providing" minimums and maximums when presenting averages and "as appropriate" provide historical data.[141]

Item 1105 of Regulation AB also requires the disclosure of what is referred to as "static pool" information, "[u]nless the registrant determines such information is not material."[142] Static pool data indicates how groups of assets perform over time and can be helpful in determining patterns that would not be clear from simply looking at overall portfolio numbers.[143] In terms of ABS with amortizing asset pools involving a seasoned sponsor, the issuer must provide static pool information "to the extent material" regarding delinquencies, cumulative losses, and prepayments for prior securitized pools of the sponsor or that asset type for specified periods.[144]

3. "Waterfalls."—The "waterfall" or "flow of funds" is typically detailed in, and governed by, the terms of the pooling and servicing agreement.[145] The servicer, not the issuer, is usually the primary party responsible for calculating the waterfall, preparing the distribution reports, and disbursing funds to the trustee.[146] The trustee "in turn uses the allocations provided by the servicer to distribute funds to security holders."[147]

The registration statement will offer two sources of information on the waterfall. First, the issuer must provide "an appropriate narrative discussion" of the flow of funds.[148] The description needs to include the payment allocations, rights, and distribution priorities among all classes of the issuing entity's securities, and within each class, with respect to cash flows, credit enhancement, and any other structural features in the transaction.[149] Any

139. *Id.*

140. *Id.*

141. *Id.* at 1544.

142. *Id.* at 1540.

143. R. CONNER, MOODY'S INVESTORS SERVICE, INC., UNDISCLOSED TRUTHS: ARE ABS INVESTORS BEING LEFT IN THE DARK? (1996); *cf.* Letter from Ass'n for Inv. Mgmt. & Research to Brian J. Lane, Dir., Div. of Corp. Fin., Recommendations for a Disclosure Regime for Asset-Backed Securities 7 (Sept. 30, 1996) (discussing the value of static pool data "in understanding the behavior of the receivables underlying an ABS").

144. Asset-Backed Securities, 70 Fed. Reg. at 1540.

145. *Id.* at 1511.

146. *See id.* ("[O]ne or more 'servicers' . . . collect payments from obligors of the pool assets, carry out the other important functions involved in administering the assets and . . . calculate and pay the amounts net of fees due to the investors that hold the asset-backed securities to the trustee . . . .").

147. *Id.* at 1535.

148. 17 C.F.R. § 229.1113(a)(2) (2011); *see also* Asset-Backed Securities, 70 Fed. Reg. at 1546 ("A clear description of the flow of funds for the transaction is required.").

149. 17 C.F.R. § 229.1113(a)(2).

requirements directing cash flows are to be described, such as reserve accounts and cash collateral accounts, along with a description of the purpose and operation of those requirements.[150] Beyond a narrative description, the issuer is required to present the flow of funds "graphically if doing so will aid understanding."[151]

Second, the issuer must file as exhibits the governing documents of the issuing entity, including the pooling and servicing agreement.[152] This could be complied with by such mechanisms as filing a Form 8-K in the case of offerings registered on Form S-3.[153]

IV. Objective Reality: Depiction Failures, The Simplification of Reality Strategy, and the Lure of a "Pure Information" Model

A. Failures in ABS Depictions

1. ABS Informational Problems and the GFC.—This key financial innovation turned out to have had risk and other characteristics far different from what had been depicted, and such informational problems had extraordinary externalities. Indeed, the ABS market, with its mistaken understandings and other problems, contributed to the GFC and collapsed in its wake.[154] U.S. Treasury Secretary Geithner stated that securitization "played a significant role in the recent financial crisis"[155] while U.K. Financial Services Authority Chairman Lord Turner went further, stating that securitization "has ended up producing the worst financial crisis for a century."[156] Financial academics have suggested that "[a]t the core of the recent financial market crisis has been the discovery that these securities are actually far riskier than originally advertised."[157]

There were many reasons why ABS transactions did not perform as expected, including those associated with the conflicts of interest and modeling failures associated with credit ratings agencies.[158] And there

150. *Id.*

151. *Id.*

152. Asset-Backed Securities, 70 Fed. Reg. at 1535.

153. *Id.* at 1535 n.216.

154. Sumit Agarwal et al., *The Asset-Backed Securities Markets, the Crisis, and TALF*, ECON. PERSP., 4th Quarter, at 106 (2010). The ABS market appears to be coming back. *See* Azam Ahmed, *Bonds Backed by Mortgages Regain Allure*, N.Y. TIMES, Feb. 19, 2012, at A4 ("Others in the industry are also bullish, pouring money back into mortgage securities. Trading has surged in recent weeks. Prices have risen more than 15 percent in the first two months of 2012, after dropping by as much as 40 percent last year.").

155. MACROECONOMIC EFFECTS, *supra* note 117, at 10.

156. FIN. SERVS. AUTH., THE TURNER REVIEW: A REGULATORY RESPONSE TO THE GLOBAL BANKING CRISIS 42 (2009).

157. Coval et al., *supra* note 113, at 3.

158. *See id.* at 20–21 (suggesting rating firms did not anticipate the effects of modest modeling errors or that there were risks of conflict of interests since issuers rather than investors paid for the ratings).

certainly was out-and-out fraud. Testifying before the Financial Crisis Inquiry Commission, the Treasurer of Cuyahoga County stated that "[s]ecuritization was one of the most brilliant financial innovations of the 20th century. . . . It worked for years. But then people realized they could scam it."[159]

But one of the most important sets of reasons, and certainly the one most pertinent to this Article's thesis, revolves around the subtle informational asymmetries and associated frictions that pervade the securitization process.[160] In particular, many parties involved in the process have information not conveyed to the ABS investors. Consider, for instance, the matter of the true quality of pool assets.[161] In a mortgage asset-backed security, the "originator" generally underwrites and initially funds and services the mortgage loans.[162] Such originators typically sell the loans to an institution known as the "arranger" or "issuer."[163] When the originators are operating in a frothy ABS market, and know that they would not retain a material ongoing economic interest in the performance of the loan, the economic incentive of the originator to carefully adhere to high underwriting

159. CAUSES OF THE FINANCIAL CRISIS, *supra* note 127, at 10.

160. *See generally* Adam B. Ashcraft & Til Schuermann, *Understanding the Securitization of Subprime Mortgage Credit* 5–12 (Fed. Reserve Bank of N.Y. Staff Report No. 318, 2008) (describing frictions between various actors and suggesting that some of them helped cause the subprime mortgage market collapse); RISK RETENTION REPORT, *supra* note 116, at 14–15 (describing informational asymmetries and their effect in the securitization chain). Mike Mayo, a bank analyst, recently put matters more dramatically:

> There were hordes of mortgage "originators," slimy operations like Countrywide, New Century, or Long Beach . . . providing loans to questionable borrowers. These firms were growing by leaps and bounds, generating huge fees by persuading people to take loans they couldn't afford to pay off and then selling off those loans before the ink was dry. They were a dark corner of U.S. finance, and I thought they had little to do with Wall Street. But big U.S. banks were buying the loans created by these shady operations, packaging the debt into mortgage-backed securities and quickly off-loading them, we thought, to ill-informed institutional investors like European insurance companies. At least, that was the thinking. It simply didn't occur to me that banks actually owned this toxic debt for any meaningful length of time, leaving them seriously exposed. The common refrain back then was that banks were in the "moving business, not the storage business."

MIKE MAYO, EXILE ON WALL STREET: ONE ANALYST'S FIGHT TO SAVE THE BIG BANKS FROM THEMSELVES 85 (2012).

161. On top of the problems associated with the quality of pool assets, there is another set of frictions associated with the ongoing servicing of pool assets: the collection and remittance of loan payments, the accounting for principal and interest, the provision of customer service to the mortgagors, and other mechanical aspects of dealing with the pool assets over the life of the asset-backed security. When the originators act as the servicers, the moral hazards are especially manifest, as when the originator holds a particular tranche and takes steps that would favor holders of that tranche. *See* Ashcraft & Schuermann, *supra* note 160, at 7–9 (describing ongoing servicing frictions and moral hazards).

162. *Id.* at 5.

163. *Id.*

criteria weakens and the "lemons problem" becomes especially severe.[164] The arranger, in turn, has an informational advantage over two critical third parties, both of whom are effectively agents of the ultimate investor; the lemons problem frictions are especially severe when the third parties did not engage in sufficient due diligence.[165] First, the arranger has informational advantages relative to the asset manager (for example, a mutual fund or the outside portfolio manager of a pension fund), who is an agent for the ultimate investor (the mutual fund investors or pension fund).[166] Second, the arranger has an informational advantage relative to credit ratings agencies on whom asset managers and investors rely, and seeks to game the criteria used by such agencies.[167]

The asset manager and credit ratings agencies, in turn, have informational advantages over the investor. The investor may find it difficult to observe how much due diligence either the asset manager or the credit rating agencies actually do.[168] And because the investor may not understand the true risks of ABS and may instead use crude, often misleading benchmarks, the investor may not be able to evaluate the true risk-adjusted performance of its asset managers.[169] Similarly, investors may find it difficult to evaluate the efficacy of the credit ratings agencies' models, which may suffer from inadvertent technical errors or which may be tainted by conflicts of interest.[170] In sum, of all the participants in the securities chain, the investor knows the least; yet the cumulative effect of each of the informational frictions in the chain falls ultimately on him.[171]

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164. The originators of loans increasingly relied on an "originate-to-distribute" model, wherein the originators increasingly sold their loans to securitizers who then sold securities backed by these loans to investors. Between 2001 and 2006, the ratio of securitized issuance to origination increased from 46% to 81%. RISK RETENTION REPORT, *supra* note 116, at 10.

165. *See* Ashcraft & Schuermann, *supra* note 160, at 6–7 (discussing the lemons problem and the roles of the asset manager and credit rating agencies).

166. *Id.*

167. *Id.* at 7; *see also* Coval et al., *supra* note 113, at 7 ("[B]y using a larger number of securities in the underlying pool, a progressively larger fraction of the issued tranches can end up with higher credit ratings than the average rating of the underlying pool of assets.").

168. *See* Ashcraft & Schuermann, *supra* note 160, at 9–10 (describing investors as typically financially unsophisticated and unable to observe the asset managers' due diligence efforts).

169. *See id.* at 11 (describing how asset managers are evaluated relative to their peers or benchmark indexes, which encourage them to reach for yield by purchasing structured debt with the same credit rating but higher coupons as corporate debt issues).

170. *Id.* at 9–10.

171. *See* RISK RETENTION REPORT, *supra* note 116, at 41 ("Participants in securitization markets—originators, securitizers, rating agencies, and investors—have come to recognize that investors may have less information than other members of the securitization chain, particularly about the credit quality of the underlying assets."); MACROECONOMIC EFFECTS, *supra* note 117, at 3 ("The party setting underwriting standards and making lending decisions (the originator) and the party making structuring decisions (the securitizer) are often exposed to minimal or no credit risk. By contrast, the party that is most exposed to credit risk (the investor) often has less influence over underwriting standards and may have less information about the borrower.").

To be more concrete, I turn to the quality of intermediary depictions such as pool assets and the waterfall.

2. Pool Assets: Lack of Granularity and Cross-ABS Comparability.—Regarding pool assets, the depiction is at a highly diffuse level: the depiction is required only for the pool assets in the aggregate.[172] No depictions whatsoever are required at the level of the individual assets that make up the pool. This lack of granularity is especially problematic because very subtle differences in pool characteristics can make huge differences in the possibility of default.[173]

And the depictions at the aggregate or subset level are subject to wide issuer discretion. In general, even the particular characteristics to be described are up to the good judgment of the issuer.[174] As we have seen, the SEC requirements are highly principles based, replete with phrases like "may include" and "[c]onsider providing."[175] The characteristics an issuer chooses to disclose may not correspond to what an investor may want or need. The SEC has found that, as a practical matter, the static pool information provided by issuers in response to Regulation AB has "var[ied] greatly within the same asset class" and that "[v]ariations exist not only with regard to the type or categories of information disclosed, but also with the manner in which it is disclosed."[176] Such differences significantly reduce the ability to make cross-ABS comparisons, and thus reduce the value of the information to investors.[177]

3. Waterfalls: Alternate Conceptions of the Pertinent Reality and the Ability to Map the Intermediary's Depictions to Actual Cash Flows.—As to the waterfall, depiction problems run much deeper than those associated with pool assets. Before one even gets to problems in the depiction of reality, there are foundational difficulties as to what "reality" itself means. As we shall discuss, several alternate conceptions of reality can coexist. Moreover, irrespective of the particular conception of reality implicitly used in the

172. *See* 17 C.F.R. § 229.1113 (2011) (describing disclosure requirements relative to pool assets).

173. *See* Coval et al., *supra* note 113, at 4 ("In particular, we show how modest imprecision in the parameter estimates can lead to variation in the default risk of the structured finance securities that is sufficient, for example, to cause a security rated AAA to default with reasonable likelihood.").

174. *See* Asset-Backed Securities, Securities Act Release No. 8518, Exchange Act Release No. 50,905, 70 Fed. Reg. 1506, 1531 (Jan. 7, 2005) (identifying disclosure objectives without specifying particular characteristics to be included).

175. *Id.* ("[W]e are adopting a new principles-based set of disclosure items . . . ."); *see also id.* at 1,540 ("The final rule specifies that while the material summary characteristics may vary, these characteristics may include . . . .").

176. Asset-Backed Securities, Securities Act Release No. 9117, Exchange Act Release No. 61,858, 75 Fed. Reg. 23,328, 23,384 (Apr. 7, 2010).

177. *Id.*

issuer's depiction, as a practical matter, it can be extremely difficult for the investor to map the intermediary's depiction to the actual cash flows he would encounter over the life of his investment.

a. Slippage Between the Intended Mathematical Concept and the Contractual Provisions.—First, there could be slippage between the often arcane mathematical concept intended to be implemented and the actual contractual provisions of the pooling and servicing agreement. One reason for the slippage is the difficulty the lawyer may have in drafting the contractual provisions when seeking to express arcane mathematical concepts in English. The limits of the English language can prevent even the most careful and talented lawyer from coming close to the mathematical concept, especially with more complex ABS structures. And not all lawyers write with the clarity of Hemingway and the nuance of Tolstoy. Industry observers have noted that the growing complexity of transaction structures has "seemingly outpaced discipline in drafting."[178]

Moreover, the practitioner may not have the luxury of time that bestseller royalties or Russian serfs can provide. "As the 'velocity' of transaction timetables became ever more compressed, extraordinary pressures were applied to language negotiation, especially to reach compromise to whatever degree needed to finalize documents and close 'on time.'"[179]

The foregoing assumes that the slippage between the mathematical concept and the contractual provisions is not intentional and flows from constraints of language, ability, or time. However, ambiguity is a common strategy in contractual drafting to, among other things, avoid having to address certain circumstances.[180] This strategy is also used in the contractual drafting for ABS. For example, a senior attorney at a major market participant, referring to both potential reasons for slippage, described ABS contracts as containing "interpretive ambiguities (*intentional or not*)."[181] Alternately characterized, the mathematical concept intended to be implemented may not be comprehensive enough to address all circumstances, and the intentional ambiguity in the contractual provisions may reflect the warts in the mathematical concept.

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178. Robert J. Coughlin & Ripley E. Hastings, *Survival Skills Amid the Rubble: Life as a Trustee in a Market Collapse*, 16 J. STRUCTURED FIN. 37, 42 (2010).

179. *Id.*

180. *See, e.g.*, Layman E. Allen, *Symbolic Logic: A Razor-Edged Tool for Drafting and Interpreting Legal Documents*, 66 YALE L.J. 833, 833 (1957) (stating that "[f]requently, of course, certain items may purposely be left ambiguous"); Layman E. Allen & C. Rudy Engholm, *Normalized Legal Drafting and the Query Method*, 29 J. LEGAL EDUC. 380, 384 (1978) (stating that "semantic generality and vagueness" are "frequently useful and desirable tools of the draftsman to express rules that will cover unfor[e]seen circumstances").

181. Letter from Gregory A. Baer, Deputy Gen. Counsel, Bank of Am., to Elizabeth M. Murphy, Sec'y, U.S. Sec. & Exch. Comm'n 28 (Aug. 2, 2010) [hereinafter Baer Letter] (emphasis added), *available at* http://www.sec.gov/comments/s7-08-10-s70810-108.pdf.

In sum, the intentional and unintentional ambiguity in the contractual provisions can preclude investors from interpreting and translating the provisions into programmable computer models, something referred to as "reverse-engineering the model."[182] More fundamentally, questions arise as to what the objective truth, the true reality, actually is: is it the mathematical concept intended to be implemented (warts and all), or the contractual provisions themselves (ambiguities and all)?

In discussing the additional slippages below, I will assume for simplicity that the pertinent pooling and servicing agreements are largely free from ambiguity and that the agreements' contractual provisions, not the mathematical concept, constitute true reality.

b. Slippage Between the Contractual Provisions and the Computer Program: The Computer Depiction of Reality as the "Effective Reality."

> Ransom Stoddard (*played by Jimmy Stewart*): You're not going to use the story, Mr. Scott?
>
> Maxwell Scott (*played by Carleton Young*): No, sir. This is the West, sir. When the legend becomes fact, print the legend.[183]

Second, there could be slippage between the contractual provisions and the actual computer program used by the servicing agent to distribute the cash flow among the tranches. This sets up what can be termed a difference between the true reality of the contractual provisions and the effective reality of the waterfall computer program. As a legal matter, the pooling and servicing agreement controls what cash flow should be attributed to each tranche. In practice, however, the servicing agent collecting the cash flows from the pool assets makes the attributions to each of the tranches in reliance on the computer program intended to embody the waterfall provisions of the pooling and servicing agreement.[184]

The cash flows as directed by the computer program could depart from what is clearly required by the pooling and servicing agreement. Market participants, including issuers themselves, assume that this is possible, especially when the transactions necessitate complex computer programs.[185]

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182. Letter from Jason Huang, Managing Partner, Knowledge Decision Sec., LLC, to Elizabeth M. Murphy, Sec'y, U.S. Sec. & Exch. Comm'n 2, *available at* http://www.sec.gov/comments/s7-08-10/s70810-141.pdf.

183. THE MAN WHO SHOT LIBERTY VALANCE (Paramount Pictures 1962).

184. *See* Supplemental Comment Letter from Tom Deutsch, Exec. Dir., Am. Securitization Forum, to the Sec. & Exch. Comm'n 9 (Aug. 31, 2010) [hereinafter Deutsch Letter] (describing how ABS investors "typically rely on a computer simulation of the cash flows of the pool assets under different assumptions to determine the timing of distributions on the ABS").

185. Letter from Jeffrey W. Rubin, Chair, Comm. on Fed. Regulation of Sec., Am. Bar Ass'n Bus. Law Section, and Vicki O. Tucker, Chair, Comm. on Securitization and Structured Fin., Am. Bar Ass'n Bus. Law Section, to Elizabeth M. Murphy, Sec'y, U.S. Sec. & Exch. Comm'n 56 (Aug. 17, 2010), *available at* http://www.sec.gov/comments/s7-08-10/s70810-150.pdf [hereinafter Rubin & Tucker Letter]; Baer Letter, *supra* note 181, at 41.

Issuers who have written complex models in a spreadsheet have found that "they are typically plagued by problems with change control, version control, data capacity, and execution speed."[186] To avoid the limitations of spreadsheets and because of the programming complexity, issuers often use a customized computer program created by external vendors.[187] Thus, one issuer has suggested that investors may need to be warned in the offering circular about the "adjudication of conflicts between the waterfall computer program and the Indenture/Pooling & Servicing Agreement."[188] The review and verification of the waterfall computer program typically do not receive the kind of issuer scrutiny associated with the review of prospectuses.[189]

Astonishingly, at least to this academic naïf, the waterfall computer program may often be purposely designed *not* to reflect the contractual provisions because of the difficulties in doing so. Counterintuitively, the limitations of the English language may be dwarfed by the limitations of computer language; contractual provisions may address a far wider range of contingencies than the waterfall program. Discover Financial Services has conceded as such, stating that:

> The steps of the funds flow waterfall utilized in our securitization structure are exhaustively detailed in the established governing documents and in each new offering document. Our offering documents include the logic of waterfall distributions and also explain certain triggers that occur if the performance of underlying receivables deteriorates below specified levels. *The contractual waterfall is intended to address all possible contingencies, but the actual application of the waterfall rarely reflects any of these contingencies.* As a result, many of the steps in our waterfall would be used only in a very limited set of circumstances arising from collateral performance, and we do not believe it is realistic to identify and build every possible scenario into a model. Additionally, we believe it would be impossible from a technical standpoint to build a model that can handle *all* of the possible user assumptions regarding current month or future collateral performance.[190]

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186. Baer Letter, *supra* note 181, at 41.

187. Rubin & Tucker Letter, *supra* note 185, at 56.

188. Letter from James J. Sullivan, Senior Managing Dir. & Head of Prudential Fixed Income, to Elizabeth M. Murphy, Sec'y, U.S. Sec. & Exch. Comm'n 30–31 (Aug. 2, 2010), *available at* http://www.sec.gov/comments/s7-08-10/s70810-95.pdf.

189. *See* Rubin & Tucker Letter, *supra* note 185, at 59 (discussing the wide variety of people who review disclosure documents and the difficulty in verifying the functionality and efficacy of a computer program).

190. Letter from Steven E. Cunningham, Senior Vice President & Treasurer, Discover Fin. Servs., to Elizabeth M. Murphy, Sec'y, U.S. Sec. & Exch. Comm'n 5–6 (Aug. 2, 2010) (emphasis added), *available at* http://www.sec.gov/comments/s7-08-10/s70810-104.pdf. Along the same lines, a consultant has written as follows:

> Issues sometimes arise in the administration of distributions that require considerable interpretation and judgment to make the precise amounts to each class of security

Investors in ABS transactions themselves recognize the possible slippage between the waterfall computer program and the contractual provisions.[191] Interestingly, investors characterize the waterfall program as being "more precise" than even the governing provisions.[192] The reality embodied in the computer program, whether or not correct, is the effective reality for issuers and investors.

Implicitly, and ironically, this particular computer-embodied depiction of reality may thus be more important than the true reality of the contractual provisions. Absent objection or litigation by disgruntled tranche holders, this particular computer-embodied depiction of reality actually constitutes the "effective reality" for investors.

c. Slippage Between the Prospectus and Both the Contractual Provisions and the Computer Program: The Prospectus Depiction of Reality Versus True Reality Versus Effective Reality.—Third, there are slippages flowing not from different conceptions of reality, but from the intermediary's prospectus depictions of reality. That is, there could be slippages between the prospectus depiction and both the true reality of the contractual provisions and the effective reality embodied in the computer program.

As discussed, drafting the waterfall in connection with a pooling and servicing agreement is challenging enough. With a prospectus, however, the lawyer is further limited by the SEC's "plain English" rules requiring that information be presented in a clear, concise, and understandable manner.[193] Drafting the disclosure in plain English increases the possibility of inconsistency between the depiction and the waterfall. But using the legalese of the waterfall would be inconsistent with the plain English requirement and make the disclosure more opaque to the lay readership of prospectuses.

In practice, the depictions of the waterfall in the prospectus have in fact departed from the actual waterfall prescribed in the pooling and servicing agreement. Both the American Bar Association's Federal Regulation of

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> accurate. Transaction operative documents contain extensive provision for possibilities that seldom or never arise in practice. If all of these contingencies are included in the disclosure, waterfall computer program users would have to make many assumptions about the future state of pool assets that create them. Since the effect on the magnitude of distributions [is] small except for structures with highly leveraged features, the contingencies should be disregarded as second- or third-order effects. A model derives its usefulness from abstraction and its ability to demonstrate results under a manageable number of assumptions.

Letter from Richard Careaga, Principal, The Beached Consultancy, to Elizabeth M. Murphy, Sec'y, U.S. Sec. & Exch. Comm'n 1–2 (July 8, 2010), *available at* http://www.sec.gov/comments/s7-08-10/s70810-41.pdf.

191. *See* Deutsch Letter, *supra* note 184, at 9 (acknowledging that "investors are concerned with the possibility of a discrepancy between the waterfall computer program and the provisions of the transaction documents or the description in the prospectus").

192. *Id.*

193. 17 C.F.R. § 230.421(d)(2) (2010).

Securities Committee and its Committee on Securitization and Structured Finance have conceded that "waterfalls described in the disclosure documents have occasionally differed from, and conflicted with, the waterfalls in the contractual documents."[194] Given that the true reality of the contractual documents in turn can diverge from the effective reality of the waterfall, it follows that the prospectus depictions can diverge from both the true reality and effective reality. These two kinds of slippages involve an interesting dialectic: some counsel have apparently refrained from addressing an ambiguity in the pooling and servicing agreement in order to avoid possibly rendering the prospectus depiction inconsistent.[195] The prospectus depiction takes on a life of its own.

Irrespective of any divergence between the prospectus depiction and reality itself, the inevitable lack of granularity in the narrative description of the waterfall and other supplemental information in the prospectus raises issues similar to the depiction issues associated with pool assets. The situation is perhaps more manifest here; at its core, the waterfall is a mathematical concept and maps onto hard cash and other concrete matters with a numerical component. But the limitations of the prospectus depictions would make it difficult, if not impossible, for the investor to actually map the prospectus depictions to hard cash under various states of the world.

d. Slippages and the Mapping of the Prospectus Depiction of Reality and the True Reality to Actual Cash Flows.—In theory, the investor need not rely on the intermediary's prospectus depictions of waterfalls. Unlike the situation with pool assets, Regulation AB provisions respecting waterfalls do depart from the intermediary depiction model in one material way. Regulation AB requires the issuer to file as exhibits the governing documents of the issuing entity, including the pooling and servicing agreement.[196] Thus, an investor could, if he wished, see with his own eyes the true reality of the contractual provisions, and thus, overcome the limitations of the intermediary's prospectus depiction of the waterfall.

As discussed earlier, the true reality of the contractual provisions may, in fact, be less pertinent to the actual cash flows generated by the effective reality of the issuer's waterfall computer program.[197] Also, as discussed, the contractual provisions may well be so ambiguous or badly drafted as to preclude reverse engineering of the model.[198]

194. Rubin & Tucker Letter, *supra* note 185, at 59.

195. *See id.* at 50 n.61 (explaining that "some issuers' counsel have been reluctant to make changes to the waterfall as it appears in the transaction documents, even where the change would make the rule more precise, so as to avoid the . . . need to subsequently construe how the rule should work, because it then might be considered to be inconsistent with the prospectus").

196. Asset-Backed Securities, Securities Act Release No. 8518, Exchange Act Release No. 50,905, 70 Fed. Reg. 1506, 1604 (Jan. 7, 2005).

197. *See supra* Subsection IV(A)(3)(b).

198. *See supra* Subsection IV(A)(3)(a).

Beyond such fundamental conceptual matters, there are practical hurdles. Converting the contractual language would be expensive and difficult. An investor would either have to hire formidable legal and financial talent to plow through the (often highly complex) contractual provisions, or retain the services of a third party who tries to engage in that task on behalf of multiple clients.

In sum, the intermediary depiction issues as to waterfalls run well beyond the granularity, issuer discretion, and comparability problems associated with depictions of pool assets. And while Regulation AB does depart from an exclusive reliance on an intermediary depiction model as to the waterfall, it does so in a way that does not provide especially important information to investors. Regulation AB does require the provision of true reality to investors by requiring the pooling and servicing agreement to be filed, but does not require the provision of the effective reality, the computer waterfall, which is more important.

B. Moving Beyond the Intermediary Depiction Model: Disintermediation and the "Pure Information" Model

> Mrs. Teasdale (played by Margaret Dumont): Your Excellency, I thought you'd left!
>
> Chicolini (played by Chico Marx): Oh no, I no leave.
>
> Mrs. Teasdale: But I saw you with my own eyes!
>
> Chicolini: Well, who you gonna believe, me or your own eyes?[199]

1. The Disintermediation of Information and the "Pure Information" Model.—We have seen that the intermediary depiction model, as used in the context of ABS, poses serious conceptual and practical challenges. Technological innovation may permit an alternative model. In particular, computer and Internet technologies, now or fairly soon, may give investors the ability to see for themselves—to download onto their computers—the pool assets and the waterfalls, rather than being forced to rely exclusively on an intermediary's depictions thereof.

That is, it may be possible for investors to access the true reality of each asset in the portfolio (in the sense of having direct access to, and having the ability to manipulate, highly granular data about each of the assets that make up the pool) and the effective reality of the waterfall computer program (in the sense of having direct access to, and the ability to manipulate, the actual waterfall computer program). With this new approach, there is a "disintermediation" of information: the intermediary does not stand between the investor and the objective reality of pool assets or the waterfall,

199. DUCK SOUP (Paramount Pictures 1933).

recounting to the investor what the intermediary sees. Instead, with the intermediary stepping out of the way, investors are able to "see"—to download onto their computers—the objective reality. Such relatively "pure information" as to objective reality can be richer, more granular, and more accurate than the intermediary's depictions of that reality.

Moreover, the mandated information comes in "raw" form, unadorned by intermediary characterization. The information the investor receives will thus be unburdened by bias and certain other problems associated with intermediary depictions.

More broadly, thanks to continuing computer and Internet advances, it is conceivable that even objective realities far more complex than those associated with ABS are or will soon be susceptible to, in effect, being transmitted and downloaded with full, multi-gigabyte richness and granularity. The volume of Internet traffic grew from 20 terabytes a month in 1994 to 2,000 terabytes in 1995 to 2 petabytes in 1996;[200] and between 1996 and 2011, Internet backbone traffic jumped more than 2,000-fold.[201]

In *The Republic*, Plato describes, in his Allegory of the Cave, a situation in which prisoners are chained in a cave from childhood.[202] They can see only a wall for their entire lives. A fire burning behind the prisoners casts shadows onto the wall from wood and stone animal figurines that are carried by workers walking by. The prisoners believe the shadows they see are all that is real in the world, and praise as clever whichever of their number can successfully divine the next shadow to be cast on the wall.

In fact, of course, there exists a world outside of the cave where the animals represented by the depictions carried by the workers exist. If released from the cave and into the sunlight, the former prisoners would be able to see the actual animals for themselves. The gap between the actual animals and the shadows cast on the cave walls is likely so great that at first, the former prisoner would not even recognize the animals.

In the ABS and other issuer contexts, investors have had to rely solely on the shadows cast by the depictions of reality crafted by the issuers. With computer and Internet advances, they may need not do so any longer.

We turn now to specifics in the context of ABS pool assets and waterfalls.

a. Pool Assets.—ABS issuers typically have substantial amounts of relatively pure information about their pool assets, most of which is not depicted to investors. In particular, an ABS issuer is required to disclose

200. *See* JAMES GLEICK, THE INFORMATION: A HISTORY, A THEORY, A FLOOD 422 (2011).

201. *Minnesota Internet Traffic Studies (MINTS)*, UNIV. OF MINN., http://www.dtc.umn.edu/mints/home.php.

202. PLATO, THE REPUBLIC bk. VII ¶¶ 514–15, at 241–42 (H.D.P. Lee trans., Penguin Classics 2003) (c. 375 B.C.E.).

only certain information, and only at the aggregated level. In fact, ABS issuers usually have highly detailed, computerized information as to a wide array of data fields, each at the level of the individual assets that make up the pool.[203] Such fulsome asset-level information comes far closer to the reality of the characteristics of the pool assets than do current intermediary depictions—which would be useful to investors seeking to do their own analysis and avoid heavy reliance on credit ratings. However, such loan-level data has never been (and is still not) required by the SEC, and, as a general matter, the public availability of asset-level information has been limited.[204]

It is possible to conceive of requiring issuers to provide investors with access to such information. In the wake of the GFC, pressures for change emerged among regulators, legislators, and the industry itself. In 2007, the Federal Deposit Insurance Corporation urged the public disclosure of loan-level data not only to help investors fully assess the risk and value of ABS, but also to help bank regulators.[205] In 2009, the Treasury Department urged that issuers of ABS be required to disclose loan-level data to investors and credit ratings agencies both at inception and over the life of the transaction.[206] In April 2010, the SEC proposed substantial revisions to Regulation AB that, if adopted, would require disclosure of loan-level data.[207] In July 2010, Dodd-Frank was enacted; pursuant to Section 942(b), the SEC is required to adopt regulations instructing ABS issuers to disclose loan-level information "if it is necessary for investors to independently perform due diligence."[208] The industry itself moved in this direction. In early 2008, the American Securitization Forum (ASF), the primary trade association for the ABS industry, launched its Project on Residential Securitization Transparency and Reporting (Project RESTART), an industry-developed initiative to, among other things, help rebuild investor confidence in ABS.[209] In July 2009, the ASF released a disclosure package of loan-level information to be provided by issuers prior to the sale of private-label residential mortgage-backed security (RMBS) transactions and a reporting package of loan-level

203. Asset-Backed Securities, Securities Act Release No. 9117, Exchange Act Release No. 61,858, 75 Fed. Reg. 23,328, 23,328 (Apr. 7, 2010).

204. *Id.* at 23,355.

205. *Supervisory Insights: Enhancing Transparency in the Structured Finance Market*, FED. DEPOSIT INS. CORP., http://www.fdic.gov/regulations/examinations/supervisory/insights/sisum08/article01_transparency.html (last updated Dec. 7, 2007).

206. DEP'T OF THE TREASURY, FINANCIAL REGULATORY REFORM: A NEW FOUNDATION 45 (2009), *available at* http://www.treasury.gov/initiatives/Documents/FinalReport_web.pdf.

207. Asset-Backed Securities, 75 Fed. Reg. at 23,356.

208. Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, Pub. L. No. 111-203, § 942(b), 124 Stat. 1376, 1897 (codified at 15 U.S.C. § 77g (Supp. IV 2011)).

209. Comment Letter from the Am. Securitization Forum to the U.S. Sec. & Exch. Comm'n 39, Attachment III (Aug. 2, 2010).

information to be updated on a monthly basis by RMBS servicers throughout the life of an RMBS transaction.[210]

For illustrative purposes, I use the pending SEC proposal as a point of departure, though I emphasize that I am not necessarily endorsing (or rejecting) the proposal. Under the SEC proposal, specific fields of information pertinent to each loan or asset in the asset pool would generally be required, both at the time of the initial offering and on an ongoing basis.[211] (This does not make sense for ABS with pool assets consisting of credit card receivables, where as many as twenty to forty-five million accounts may be involved and special provisions apply.[212]) As to each loan, many data points would be required. For instance, there are data points for the geographic location of the obligor or the collateralized property (down to the metropolitan or micropolitan statistical areas), the obligor's employment status, and the obligor's approximate credit score, income, and debt amounts.[213] Other data points include such matters as the origination date, the asset maturity date, the number of days the obligor is delinquent, the number of payments the obligor is past due, and whether the asset was an exception to defined or standardized underwriting criteria.[214]

In addition, there are data fields required for particular asset classes, including residential mortgages, auto loans and leases, and floorplans.[215] For residential mortgages, for instance, there would be 151 additional data points.[216]

In order for this information to be easily accessible and manipulable by investors, the SEC proposed that the information be filed on EDGAR in a machine-readable language called XML (eXtensible Markup Language).[217] This way, users of the data would be able to download the loan-level information directly into spreadsheets and databases, analyze it using off-the-

210. AM. SECURITIZATION FORUM PROJECT RESTART, ASF RMBS DISCLOSURE AND REPORTING PACKAGES 15–16 (2009), *available at* http://www.americansecuritization.com/uploadedFiles/ASF_Project_RESTART_Final_Release_7_15_09.pdf.

211. *See* Asset-Backed Securities, 75 Fed. Reg. at 23,361 (proposing 137 fields of information for RMBS). In July 2011, the SEC reproposed the rules initially proposed in April 2010. Re-proposal of Shelf Eligibility Conditions for Asset-Backed Securities, Securities Act Release No. 9244, Exchange Act Release No. 64,968, 76 Fed. Reg. 47,948 (July 26, 2011). The reproposal was designed to, among other things, align the rulemaking initiative with the provisions of Dodd-Frank. The reproposal left the pool assets provisions of the initial proposal (discussed in this Section) substantially untouched. However, the waterfall provisions of the initial proposal (referred to in Section III(B)(1) *supra*) would be reproposed separately.

212. *See generally* Re-Proposal of Shelf Eligibility Conditions for Asset-Backed Securities, 76 Fed. Reg. at 47,948 (detailing proposed new disclosure requirements for pools and noting that these disclosure requirements would not apply to ABS backed by credit card receivables because of the abundance of accounts in such a pool).

213. Asset-Backed Securities, 75 Fed. Reg. at 23,357.

214. *Id.* at 23,359.

215. *Id.* at 23,357.

216. *Id.* at 23,368–69.

217. *Id.* at 23,355. As to EDGAR, see *supra* note 92.

shelf commercial software, or use it within their own models.[218] Moreover, information provided must follow standardized definitions of material loan, obligor, and collateral characteristics, thus facilitating the comparability of information across different asset-backed securities.[219]

The lure of requiring direct investor access to pool assets is as follows. If this change actually makes cost–benefit sense, actually occurs, and actually works as intended—a series of "ifs"—I would suggest that investors would, in effect, have access to relatively pure information. Investors could have most of the information that the issuer has about each loan, uncluttered by issuer characterizations. They could download the information directly into their spreadsheets and databases, and could analyze or use it within their own models.

The investor could essentially see with his own eyes the reality that the intermediary had previously only described to him.

b. Waterfalls.—The SEC also proposed that a programming language representation of the ABS waterfall be made available to actual or potential investors.[220] Currently, the ABS issuer or underwriter has no obligation to share the computer model.[221]

Specifically, most ABS issuers would be required to file a computer program that gives effect to the waterfall provisions of the transaction.[222] The program would be filed on EDGAR in the form of downloadable source code and written in an open source-interpreted programming language called "Python."[223] The proposal's intent was that an investor would thus be able to download the source code for the waterfall computer program and run the program on his own computer.[224]

Importantly, the waterfall computer program would be required to allow use of asset-level data.[225] By facilitating the ability to run simulations of expected cash flows under different prepayment, loss, and other assumptions, that asset-level data would help investors conduct thorough investment analyses of ABS. The filing of the programming language representation of the waterfall would also provide information in a form that can be readily used for computerized valuations of ABS.

If such proposed waterfall provisions actually prove practical and are adopted, the result would, in the terminology of this Article, require that the "effective reality" of waterfalls be provided to investors. At least in theory,

218. *Id.* at 23,374.
219. *Id.* at 23,384.
220. *Id.* at 23,378.
221. *See id.* ("Currently investors only receive a textual description of this information.").
222. *Id.*
223. *Id.*
224. *Id.*
225. *Id.*

this kind of pure information would reduce the informational asymmetry between sponsors and investors and, by enhancing the ability of investors to conduct independent analyses, reduce the need for investor reliance on credit ratings.

2. The Simplification of Reality Strategy, Standardization, and the Intermediary Depiction Model and the Pure Information Model as the Opposite Ends of a Spectrum.—For ease of exposition, I have discussed the regulatory approaches to information in a binary way. Either the intermediary depicts reality (i.e., tells a story about what the real world is like) or the intermediary provides reality itself (i.e., gives pure information about the real world). As to any given subject matter, the SEC could require the use of either model, or where appropriate, both models.

However, these two models are probably better characterized as the opposite ends of a spectrum of regulatory possibilities. Consider one of the essential problems with using the intermediary depiction model: it can be insufficient when the reality is too complex.[226] The solution this Article has been focusing on is to avoid depictions altogether, and to require the intermediary to provide access to the reality itself.

But another alternative would be the "simplification" of reality. If reality itself were simpler, it would generally be easier to depict. In a physical sense, Kazimir Malevich's painting, *White on White*, would be far easier to describe accurately, fully, and succinctly than Hieronymus Bosch's triptych, *The Garden of Earthly Delights*.

In the context of a financial product, the most direct approach to the simplification of reality would be for governments to encourage or even mandate that the product's economic characteristics be made simpler. There certainly is empirical evidence to suggest that financial product complexity can be used to exploit investors.[227] And, more broadly, some observers have been skeptical about the social value of financial innovations generally: whether tongue-in-cheek or not, former Federal Reserve Board Chairman Paul Volcker has stated that the ATM was the only financial innovation he could think of that has improved society.[228] On the other hand, many believe that there are social and private benefits to financial innovation, including complex financial innovations.[229] Whatever the overall balance of private

226. *See supra* Subpart IV(A).

227. *See, e.g.*, Brian J. Henderson & Neil D. Pearson, *The Dark Side of Financial Innovation: A Case Study of the Pricing of a Retail Financial Product*, 100 J. FIN. ECON. 227, 228 (2011) (concluding that retail investors pay, on average, an 8% premium over fair market value for certain complex financial products).

228. Alan Murray, *Paul Volcker: Think More Boldly*, WALL ST. J., Dec. 14, 2009, at R7.

229. *See, e.g.*, Laurent Calvet et al., *Financial Innovation, Market Participation, and Asset Prices*, 39 J. FIN. & QUANTITATIVE ANALYSIS 431, 431–32 (2004) (arguing that derivatives allow investors to better manage risk, reducing market premiums); Darrell Duffie & Henry T. C. Hu, *Competing for a Share of Global Derivatives Markets: Trends and Policy Choices for the United*

and social benefits and costs to financial innovation, and of simplicity in the economic characteristics of financial products, such a drastic simplification approach is unlikely to get traction with respect to wholesale market products like ABS. Such an approach is even proving controversial with respect to consumer-oriented financial products, as the tensions over the newly established Consumer Financial Protection Bureau suggest.

An alternative, less drastic approach to simplification of reality would not involve changing a product's core economic characteristics but instead focus on the standardization of the vocabulary and contractual provisions pertaining to the product. The standardization of vocabulary and contractual provisions touches on both informational models. In terms of the depiction of reality, it makes storytelling easier. Whether used by members of the criminal underworld, professional dice gamblers, or pickpockets,[230] the use of a common argot could offer succinct, accurate ways of communicating complex ideas. The same holds true with respect to the vocabulary of individual words and entire contractual provisions by participants in derivatives markets[231] and in the ABS market.[232] The person using the specialized vocabulary or a widely accepted model contractual provision can have some confidence that, at a minimum, another member of the same professional tribe understands precisely what is being said. Transaction costs are reduced, and something closer to pure information is thereby provided.

Indeed, the development of commonly understood vocabulary and contract provisions can prove a source of comparative advantage for the tribe. Observers have, for instance, contrasted the far greater level of such

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States 7–8 (Stanford University Working Paper No. 50 and University of Texas Law and Econ. Research Paper No. 145) (June 3, 2008), *available at* http://ssrn.com/abstract=1140869 (describing the benefits that the derivatives market provides, including stimulating economic growth and jobs by allowing firms to more easily allocate risk).

230. DAVID W. MAURER, LANGUAGE OF THE UNDERWORLD 37–48, 173–94, 234–56 (1981).

231. *See, e.g.*, Sean M. Flanagan, *The Rise of a Trade Association: Group Interactions Within the International Swaps and Derivatives Association*, 6 HARV. NEGOT. L. REV. 211, 229 (2001) ("The initial goal—and one of the key accomplishments of [International Swaps and Derivatives Association (ISDA)]—has been the development, drafting, and promulgation of standard form documentation for the OTC derivatives industry."); Hu, *Misunderstood Derivatives*, *supra* note 7, at 1510 (evaluating the role of ISDA in producing standardized language and master forms and ISDA's role as a kind of research and development co-op); Randall S. Kroszner, *Can the Financial Markets Privately Regulate Risk?: The Development of Derivatives Clearinghouses and Recent Over-the-Counter Innovations*, 31 J. MONEY, CREDIT & BANKING 596, 596 (1999) (exploring innovations in contractual design and governance for financial institutions that have allowed risk-control benefits in the derivatives markets); *cf.* Paul Harding, *ISDA's Ugly Duckling: The 2002 ISDA Master Agreement*, DERIVATIVES WK., Sept. 6, 2004, at 6–7 (describing the ISDA's promulgation of the 2002 Master Agreement and the resulting difficulties in harmonizing with previous agreements).

232. *See, e.g.*, Letter from Am. Securitization Forum to the Sec. & Exch. Comm'n, *supra* note 209, at Attachment III (opining that "one of the drivers of future success of the RMBS market will be an increase in the standardization of the agreements governing transactions").

standardization in the derivatives industry relative to that in the insurance industry in terms of competitive advantage.[233]

Of course, standardization of terms and contractual provisions may not always be good from a social perspective.[234] Trade associations may develop and promote model contractual provisions that are not necessarily consistent with the public interest.

Consider, for instance, a few of the potential social benefits and costs of the longstanding efforts of the International Swaps and Derivative Association (ISDA) to promote standardization of terms and contractual provisions in the OTC derivatives industry. I have elsewhere analyzed how such ISDA efforts have helped to overcome certain informational failures flowing from the "inappropriability" of financial R&D, doing so by serving, in effect, as a privately funded R&D consortium.[235] Although ISDA is a trade association, not an independent research institution, it has performed the valuable social function of increasing each market participant's understanding of the legal risks associated with derivatives transactions, and reducing such risks.

I have also suggested that the widespread use of ISDA forms can cause problems from a social perspective in ways relating to complexity and systemic risk,[236] themes important to this Article. The ISDA forms, precisely because they are relatively easy to use and commonly understood, have made for very convenient, low-cost "building blocks" for complex financial innovations. Rather than wasting time and resources on legal documentation, the focus of derivatives dealers' efforts could center on developing new wrinkles of an economic nature. In reducing the costs of introducing a new financial product, a greater flow of new, and likely ever more economically complex innovations may result. While enhancing the flow of new products can bring social benefits, increased complexity will also arise.

The very success in ISDA's standardization efforts can reduce global systemic risk in some ways, but contribute to it in others. As to the latter, consider, for instance, the implications if the same language is used in so many individual contracts entered into throughout the world. A single "bad" judicial decision, say "misinterpreting" a particular provision, could quickly

233. *Legal News: The Importance of Understanding Each Other in the Financial Markets*, REACTIONS (Aug. 1, 2001), http://www.reactionsnet.com/Article/2150516/Legal-News-The-importance-of-understanding-each-other-in-the-financial-markets.html.

234. *See, e.g.*, Mark R. Patterson, *Standardization of Standard-Form Contracts: Competition and Contract Implications*, 52 WM. & MARY L. REV. 327, 328 (2010) (addressing the issue of contract standardization); Joseph M. Perillo, *Neutral Standardizing of Contracts*, 28 PACE L. REV. 179, 181 (2008) (noting that standardization is not always a product of collaborative organizational decisions and that standards may sometimes be set by the strongest adversaries in the market).

235. Hu, *Misunderstood Derivatives*, *supra* note 7, at 1510

236. I analyzed these and other ISDA-related issues as part of my address at The Hague in October 2010, cited in the acknowledgement.

have ramifications worldwide. In this hypothetical, the "interconnectedness" flowing from contractual standardization, likely contributes to global systemic risk.

On balance, however, efforts to standardize of terms and contractual provisions generally makes sense from both a private and social perspective. Government certainly has a role with respect to industry-led efforts, as do such private standards-setting organizations as the International Organization for Standardization.

Government itself may play a direct role, as can be illustrated in the derivatives area. The Dodd-Frank mandates requiring the reporting of many swap transactions will likely enhance standardization.[237] Similarly, Dodd-Frank's new mandatory clearing provisions,[238] and corresponding developments overseas,[239] necessarily contemplate far greater standardization of vocabulary and contractual provisions. The Office of Financial Research newly created under Dodd-Frank can play a role not only as to derivatives and other individual financial products, but also at the level of banks and other business organizations—the level to which we now turn.[240]

C. "True" and "Functional" Misunderstandings, and Extensions of Pure Information-Type Models

Thus far, this Article has used the intermediary depiction/pure information analytical framework in the context of disclosures at the financial product level: e.g., disclosures to investors in ABS. I turn now to more succinctly applying such an analytical framework to disclosures at the corporation level. In particular, I focus primarily on the informational needs of investors in what are perhaps the most "depiction-difficult" corporations: major money center banks, entities that are often heavily involved in derivatives and other financial innovations.[241] I discuss how the intermediary depiction approach is failing at such banks, and the potential of pure information-type approaches (such as what can be referred to as a "common

237. Reporting of Security-Based Swap Transaction Data, Exchange Act Release No. 63,094, 75 Fed. Reg. 64,643, 64,651 (Oct. 20, 2010).

238. Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, Pub. L. No. 111-203, § 805, 124 Stat. 1376, 1809–10 (codified at 12 U.S.C. 5464 (Supp. IV 2011)).

239. *See, e.g.*, Gerard Hertig, *Trading and Clearing Reforms in the EU: A Story of Interest Groups with Magnified Voice*, 23 J. BANKING L. & BANKING 329 (2011).

240. I have long urged the creation of this type of public informational clearinghouse with data collection and analytical responsibilities; see, for example, Hu, *Misunderstood Derivatives*, *supra* note 7, at 1503–08; *Over-the-Counter Derivatives: Modernizing Oversight to Increase Transparency and Reduce Risks: Hearing Before the Subcomm. on Sec., Ins., & Inv. of the S. Comm. on Banking, Hous., & Urban Affairs*, 111th Cong. 9–10 (2009) (statement of Henry T. C. Hu, Allan Shivers Chair in the Law of Banking and Finance, University of Texas School of Law); Henry T. C. Hu, *Systemic Risk and Financial Innovation: Towards a "Unified" Approach*, *in* QUANTIFYING SYSTEMIC RISK (Joseph G. Haubrich & Andrew W. Lo eds., forthcoming 2012) [hereinafter Hu, *Unified Approach*].

241. Section IV(C)(1) *infra*.

bank models" approach and a "common bank assets" approach).[242] I then touch very lightly on a specific "depiction-difficult" issue that can affect a wide range of corporations: underfunding with respect to multiemployer pension plans.[243] I conclude with an afterword on the just-now-emerging credit derivatives-associated situation at JPMorgan Chase.[244]

1. Extensions to "Depiction-Difficult" Corporations: Major Banks.

a. The Depiction Tools Roadblock, the True and Functional Misunderstanding Roadblock, and the Limits of (Completely) Pure Information in the Major Bank Context.—Financial-services firms, especially the major banks critical to world capital markets, offer extraordinarily lengthy reports to shareholders. The 2011 annual reports of JPMorgan Chase & Co., The Goldman Sachs Group, Inc., and Credit Suisse Group AG run 316, 224, and 395 pages, respectively—and that is with extensive use of microscopic fonts.[245] This is against a backdrop of increasingly stringent financial disclosure requirements applicable to all corporations: in the 17-year period through 2011, financial-reporting standards setters have issued more than 200 new documents directed at this goal.[246] With respect to a single Regulation S-K Item—the "Management's Discussion and Analysis of Financial Condition and Results of Operations" (MD&A)—the SEC has issued at least 15 formal releases, reports, "Dear CFO" letters, or other written guidance over a 25-year span.[247] For bank holding companies, there is an additional layer of SEC disclosure requirements, set out in "Industry Guide 3," applicable to their registration statements under the Securities Act of 1933 and their Form 10-Ks and other disclosures under the Securities

242. Section IV(C)(3) *infra*.

243. Section IV(C)(2) *infra*.

244. Section IV(C)(3) *infra*.

245. JPMORGAN CHASE & CO., 2011 ANNUAL REPORT (2012); THE GOLDMAN SACHS GROUP, INC., 2011 ANNUAL REPORT (2012); CREDIT SUISSE GROUP AG, ANNUAL REPORT 2011 (2012).

246. KPMG FIN. EXECS. RESEARCH FOUND., DISCLOSURE OVERLOAD AND COMPLEXITY: HIDDEN IN PLAIN SIGHT 2 (2011), *available at* http://www.kpmg.com/US/en/IssuesAndInsights/ArticlesPublications/Documents/disclosure-overload-complexity.pdf.

247. *See* DEBEVOISE & PLIMPTON LLP, FUNDING, LIQUIDITY AND SHORT-TERM BORROWINGS: TIME TO REVISIT MD&A DISCLOSURE Attachment A (2010), *available at* http://www.debevoise.com/newseventspubs/publications/detail.aspx?id=a7294980-5bc2-4c87-a249-0cababe9bd2a (listing the SEC releases that contain guidance relevant to the new MD&A disclosure requirement). In the United States, the current SEC risk-related disclosure requirements reside largely in Regulation S-K's Management Discussion and Analysis (MD&A) item (Item 303) and Quantitative and Qualitative Disclosures About Market Risk item (Item 305). Regulation S-K, 17 C.F.R. §§ 229.303, 229.305 (2011). The MDA, perhaps the most important disclosure item in the annual Form 10-K, provides critical information about the risk exposures of the corporation, including information about liquidity, capital resources, and off-balance-sheet matters. *Id.* at §§ 229.303(a)(1)–(2), (4). However, the information required by the MD&A item is largely qualitative in nature. *See generally id.* at § 229.303.

Exchange Act of 1934.[248] Incentive structures faced by key bank employees will affect, among other things, risk taking and risk exposures. Thus, compensation disclosure requirements (in the case of financial institutions, soon to become especially fulsome because of a Dodd-Frank mandate) are also helpful for understanding bank risk profiles.[249]

Yet, something is sorely amiss with the intermediary depiction model when it comes to banks. Despite these extensive disclosures, investors are concerned that they do not understand banks and bank risk profiles. Some important money managers largely shun investing in major banks because, among other things, they believe that current reporting makes it hard for them to evaluate bank assets and how they will fare under different economic scenarios.[250] Investors find that the disclosures as to the complex risks financial services firms are exposed to are, in the words of KPMG, "very hard" to evaluate.[251] The lack of transparency is widely believed to be one of the major reasons why financial-sector firms appear to trade at lower price-earnings multiples than other companies.[252]

The are two basic roadblocks to good intermediary depictions from such money center banks. The first roadblock—the roadblock this Article primarily focused on in connection with its ABS analysis—centers on the

248. U.S. SEC. & EXCH. COMM'N, INDUSTRY GUIDES 6–13 (2012) (the pertinent industry guide under the Securities Act of 1933); *id.* at 37 (the pertinent industry guide under the Securities Exchange Act of 1934).

249. For an early, perhaps the first, scholarly article to show that compensation structures at financial services firms would lead to excessive risk taking and other decision-making errors, see Hu, *Misunderstood Derivatives*, *supra* note 7. *Cf.* PATRICK BOLTON ET AL., GOVERNANCE, EXECUTIVE COMPENSATION, AND EXCESSIVE RISK IN THE FINANCIAL SERVICES INDUSTRY 4–5 (2010), *available at* http://issuu.com/bernsteincenter/docs/may2010 (stating that "[w]hen Hu made these points in 1993, they were hardly mainstream. Now they arguably define the ground on which the debate takes place."). For more recent discussions of this issue after the GFC, see, for example, *Over-the-Counter Derivatives: Modernizing Oversight to Increase Transparency and Reduce Risks: Hearing Before the Subcomm. on Sec., Ins., & Inv. of the S. Comm. on Banking, Hous., & Urban Affairs*, 111th Cong. 9–10 (2009) (statement of Henry T. C. Hu, Allan Shivers Chair in the Law of Banking and Finance, University of Texas School of Law); Lucian A. Bebchuk & Holger Spamann, *Regulating Bankers' Pay*, 98 GEO. L.J. 247, 269–72 (2010). Dodd-Frank requires specific disclosures regarding compensation at financial institutions that may induce excessive risk taking. Pub. L. No. 111-203, § 956(a), 124 Stat. 1376, 1905 (2010) (codified at 12 U.S.C. § 5641(a) (Supp. 2010)). The SEC, the Federal Reserve Board, and other agencies have recently issued a proposed rule that would implement this Dodd-Frank requirement. Incentive-Based Compensation Arrangements, Exchange Act Release No. 64,140, 76 Fed. Reg. 21,170 (proposed Apr. 14, 2011) (to be codified in scattered sections of 12 and 17 C.F.R.).

250. *See* Charles Stein, *Bank Stocks Shunned by Money Managers over Derivatives*, BLOOMBERG (May 3, 2011), http://www.bloomberg.com/news/2011-05-04/bank-stocks-too-fancy-for-money-managers-turned-off-by-use-of-derivatives.html ("Banks, in the view of some of today's best-performing money managers, are too fancy—their businesses and finances too complicated to understand even as regulators have tried to make them more transparent. . . . The fund managers said they are frustrated by complex balance sheets stuffed with derivatives that make it hard to evaluate bank assets and how they will fare under different economic scenarios.").

251. KPMG, FINANCIAL INSTITUTION RISK DISCLOSURE BEST PRACTICE SURVEY 2008, at 5 (2008).

252. *Id.*

depiction tools: it is difficult to capture a highly complex objective reality with very rudimentary English language and accounting, visual, and other tools on which depictions must primarily rely. This situation is not helped when the disclosure requirements themselves are also very rudimentary. In 1993, I began suggesting that there were problems with the corporate depictions being offered and being required.[253] Relatively little truly useful public disclosure was required: one stock analyst hired a squad of bankers, accountants, and foreign currency analysts to help him analyze the currency derivatives trading of Dell Computer.[254] More generally, I argued that corporate disclosures regarding risk-management activities were inadequate, and that there was a need for far more granular specifications of corporations' risk-management philosophies.[255] I stated that "investors have to engage in a good deal of guesswork as to what a corporation is up to; they are often simply left to infer the corporation's willingness to take risks."[256]

Although new depiction tools directed at measuring risk such as "Value at Risk" (VaR) have emerged, and the risk numbers reported using such new depiction tools have value to investors, there have been serious problems.[257] This Article will shortly turn to the GFC-era surveys finding that even with such modern risk depiction tools, risk-related disclosures of major banks are too often of limited usefulness. (Subsection V(C)(1)(a).) The Article will discuss the theory behind VaR and the limitations of current VaR disclosures in connection with justifying its proposal for a "common bank models" approach. (Subsection V(C)(1)(b)(1).) Finally, the Article will look at the specific problems JPMorgan is currently having with its VaR calculations. (Section V(C)(3).)

With money center banks involved in complex financial products, there can sometimes be a second, more fundamental set of roadblocks to good depictions: even a well-intentioned intermediary may not truly understand, or may not function as if it understands, the risks it actually has. That is, if a bank did not truly or functionally understand its risk exposure, a necessary predicate for a good depiction would be absent. In 1993, I suggested that, too often, even "sophisticated" financial institutions will not truly understand

253. Hu, *Misunderstood Derivatives*, *supra* note 7, at1494.

254. *Id.* at 1494.

255. Henry T. C. Hu, *Behind the Corporate Hedge: Information and the Limits of "Shareholder Wealth Maximization,"* 9 J. APPLIED CORP. FIN. 39, 51 (1996) [hereinafter Hu, *Behind the Corporate Hedge*]. The foregoing is a finance-oriented version of Henry T. C. Hu, *Hedging Expectations: "Derivative Reality" and the Law and Finance of the Corporate Objective*, 73 TEXAS L. REV. 985 (1995).

256. Hu, *Behind the Corporate Hedge*, *supra* note 255, at 51.

257. *Cf.* Hu, *Behind the Corporate Hedge*, *supra* note 255, at 51 (stating that [t]here is only so much that can be divined from the notional amounts, fair market values, and [the Value-at-Risk numbers] being reported.").

or will not function as if they understand their own risk exposures relating to complex financial innovations.[258]

This second, "misunderstanding" roadblock—not focused on in the Article's analysis of ABS—can stem from two sets of factors, one relating to the complexities of financial innovation and the other relating to the complexities of the intermediary itself. Let us call the misunderstandings flowing directly from the first set of complexities "true misunderstandings" and those flowing from the complexities of the intermediary (such as a large bank) itself "functional misunderstandings."

In terms of true misunderstandings, such as those flowing directly from the complexities of financial innovation-related factors, I discussed how, for instance, the process of financial innovation may be undermined by cognitive biases (e.g., ignoring low probability, catastrophic events in derivatives modeling); the peculiarities of financial "science" (e.g., departures from traditional scientific norms such as "universalism"), and the inability of banks to fully capture the benefits of their financial research and development (e.g., this "inappropriability" resulting in the failure to invest enough to fully understand the characteristics of their complex products).

In terms of functional misunderstandings, such as those flowing from the complexities of the intermediary itself, I discussed, for instance, certain principal–agent problems internal to a bank. I showed how errors in bank decision-making could arise from the highly asymmetric incentive structures found in the derivatives world, coupled with such factors as senior managers who may not be as numerate as their quant traders and the hidden and long-term nature of some derivatives risks. In such circumstances, an ethically challenged trader may be tempted to engage in excessive risk-taking, taking advantage of the bank's myopia with respect to hidden, long-term risks. That particular trader may understand the true risk characteristics of his complex trading strategies. However, the bank as an organization is functioning as if it does not understand the true risks. After all, if the bank as an organization were not myopic and did understand all the true risk–return characteristics of those strategies, those strategies would not have been allowed to have been undertaken on its behalf in the first place.

These functional misunderstandings may not flow from principal–agent problems at all. In large, complex organizations spanning the globe, such as major money center banks, one can easily imagine the "stove piping" or "siloing" of information. One or more individuals at one unit, perhaps in some foreign city, may understand the objective reality, but stove piping

258. Hu, *Misunderstood Derivatives*, *supra* note 7, at 1476–95. For an application of the 1993 article to certain aspects of the GFC, see *Over-the-Counter Derivatives: Modernizing Oversight to Increase Transparency and Reduce Risks: Hearing Before the Subcomm. on Sec., Ins., & Inv. of the S. Comm. on Banking, Hous., & Urban Affairs*, 111th Cong. 1 (2009) (statement of Henry T. C. Hu, Allan Shivers Chair in the Law of Banking and Finance, University of Texas School of Law).

problems may result in headquarters not understanding the objective reality. This stove piping could simply result from the challenges posed by the size and complexity of the organization, rather than any sort of attempt to hide information from headquarters.

During the GFC, there was ample evidence of financial institutions misunderstanding their own risk exposures. Many of the models used by financial institutions with respect to individual financial products, as well as with respect to the institutions themselves, failed during the GFC.[259] I have elsewhere discussed some GFC examples and how they might be explained by some of the foregoing factors and will not do so here.[260]

As to the state of GFC-era financial institution risk disclosures, credit ratings agencies and regulators have largely focused on depiction-crafting problems and have not considered the more fundamental problem of lack of intermediary understanding. In early 2006, shortly before the GFC, Moody's Investor Services reviewed the public risk disclosures of 18 major banks and securities firms.[261] Moody's concluded as follows:

> 1. Disclosures tend to be limited to measures, such as Value-at-Risk (or VaR), which give an incomplete picture of risk and use mostly boilerplate language (for example explaining in very general terms what market risk is).
>
> 2. Contextual and qualitative elements necessary to understand the real magnitude of exposures and risks typically lack depth.
>
> 3. There is no standardized format among the firms that we have surveyed: risk disclosures are uneven in size and quality, and they are scattered across annual reports.

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259. Basel III, the new international global framework for the regulation of banks, relies far less than Basel II on the internal models developed by the banks themselves, partly because of problems with the banks' modeling. The core elements of the Basel III framework were adopted by the Basel Committee in late 2010 and revised in June 2011. *See generally* BASEL COMM. ON BANKING SUPERVISION, BANK FOR INT'L SETTLEMENTS, BASEL III: A GLOBAL REGULATORY FRAMEWORK FOR MORE RESILIENT BANKS AND BANKING SYSTEMS (2011), *available at* http://www.bis.org/publ/bcbs189.pdf (describing the Basel III framework). As to problems with financial institutions' models, see, for example, SHEARMAN & STERLING LLP, THE NEW BASEL III FRAMEWORK: IMPLICATIONS FOR BANKING ORGANIZATIONS 11 (2011), *available at* http://www.shearman.com/publications/Detail.aspx?publication=f4e80b99-f0a1-4e3a-90f0-3bf21c7d0ce0 (describing how the Basel Committee found that models did not accurately consider mark-to-market losses occasioned by the deterioration of creditworthiness, short of default). For a description of the shift in reliance on internal models from Basel II to Basel III, see, for example, Hervé Hannoun, Deputy Gen. Manager, Bank for Int'l Settlements, The Basel III Capital Framework: A Decisive Breakthrough, Address at the BoJ-BIS High Level Seminar on Financial Regulatory Reform: Implications for Asia and the Pacific 4–7 (Nov. 22, 2010), *available at* http://www.bis.org/speeches/sp101125a.pdf.

260. *See* Statement of Henry T. C. Hu, *supra* note 249, at 7–10 (discussing factors contributing to derivatives-related decision-making errors, including cognitive bias in the derivatives modeling process).

261. MOODY'S INVESTOR SERVICES, SPECIAL COMMENT—RISK DISCLOSURES OF BANKS AND SECURITIES FIRMS (2006).

> 4. Finally, risk disclosures basically lack the minimum reliability requirements for relevant and consistent comparisons across firms.[262]

With the onset of the GFC in October 2007, the Group of Seven Ministers and Central Bank Governors asked the Financial Stability Forum (FSF) to analyze the causes of the market turmoil and provide recommendations.[263] In April 2008, the FSF concluded that one of the major causes was weakness in public disclosures by financial institutions.[264] It stated:

> Public disclosures that were required of financial institutions did not always make clear the type and magnitude of risks associated with their on- and off-balance sheet exposures. There were also shortcomings in the other information firms provided about market and credit risk exposures, particularly as these related to structured products. Where information was disclosed, it was often not done in an easily accessible or usable way.[265]

In 2009, the International Monetary Fund stated that, even as to on-balance-sheet risk exposures, including those of bank trading books, the lack of granularity and consistency in disclosures contributed to misunderstandings on the part of investors and regulators.[266] In 2011, the CFA Institute conducted a study of credit, liquidity, market, and hedging activities in risk disclosures across financial and nonfinancial institutions subject to the International Accounting Standards Board's IFRS 7.[267] The CFA Institute concluded that users had a low level of satisfaction with the disclosures.[268] Users found qualitative disclosures to be "uninformative" and stated that they had "low confidence in [the] reliability of quantitative disclosures."[269]

In short, even within the context of an intermediary depiction model, much can be done to improve the financial institution disclosures, especially regarding risk matters. In contrast to what one might normally expect with respect to disclosure matters generally, it is the bank regulators, in the United States and abroad, that are at the forefront of this effort and not the SEC.[270]

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262. *Id.* at 1.

263. FIN. STABILITY FORUM, REPORT OF THE FINANCIAL STABILITY FORUM ON ENHANCING MARKET AND INSTITUTIONAL RESILIENCE 1 (2008).

264. *Id.* at 8.

265. *Id.*

266. INT'L MONETARY FUND, LESSONS OF THE FINANCIAL CRISIS FOR FUTURE REGULATION OF FINANCIAL INSTITUTIONS AND MARKETS AND FOR LIQUIDITY MANAGEMENT 15–16 (Feb. 4, 2009).

267. 1 CFA INST., USER PERSPECTIVES ON FINANCIAL INSTRUMENT RISK DISCLOSURES UNDER INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS) 1 (2011).

268. *Id.*

269. *Id.*

270. *See, e.g.*, Press Release, Fin. Stability Bd., Improving Financial Institution Risk Disclosures and Next Steps (Mar. 20, 2012) (describing the ways in which bank regulators agreed to improve disclosures).

This Article has discussed the potential benefits of moving beyond the intermediary depiction model at the financial product level; doing so at the business entity level may be helpful as well. With certain very simple business entities—such as exchange-traded funds (ETFs)—a pure information model is already in place with respect to assets. For instance, shares in the SPDR Gold Trust were created to reflect the price of gold bullion (less the Trust's expenses). Listed on the NYSE, and trading the same way that ordinary stocks do, an investor can buy or sell such shares continuously throughout the trading day, with the intent of allowing investors to gain exposure to gold bullion without the transaction costs associated with the purchase, storage, and insurance of physical gold.[271] The Trust indicates with whom it stores its gold and in which city the vault is located; at the end of every working day, the Trust posts on its website a list of all of the gold bars held.[272] The list available for download on May 15, 2012 was 1,830 pages long, and gave information about each gold bar it held, including its bar number, name of the refiner, gross weight, fine weight, and bar assay.[273] This is not a mere depiction of reality; this is effectively reality itself that is being conveyed.

With a business entity, however, using a straightforward, completely pure information model in the same way that one may be used in connection with ABS or ETFs is both impractical and unwise. For instance, consider the pure information that might be provided about the loan assets of an ABS. Even with different flavors of a single type of financial product, the informational requirements vary.[274] That is, what should be required when the ABS is backed by several thousand auto loans is radically different from what should be required when the ABS is backed by millions of credit card accounts.

A major money center bank has an extraordinary number and variety of assets on its books.[275] A securities regulator would find it impossible to prescribe the informational elements for each, quite apart from the extraordinary burden on a financial institution from doing so. In addition,

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271. *SPDR Gold Shares*, SPDR (Mar. 31, 2012), https://www.spdrs.com/library-content/public/ETF-GLD_20120331_080152.pdf?ticker=GLD&type=FUND_DOC_FACT_SHEET.

272. *Gold Bar List*, SPDR (May 18, 2012), http://www.spdrgoldshares.com/sites/us/gold_bar_list/.

273. *Client Gold Stock Holdings*, HSBC, http://www.spdrgoldshares.com/assets/dynamic/GLD/file/barlist/Barlist.pdf.

274. *See supra* Part III.

275. It should be noted that bank regulators do find relatively pure information useful for their internal supervisory purposes. *See, e.g.*, Press Release, Office of the Comptroller of the Currency, OCC to Require Data from Large Bank Mortgage Servicers (Feb. 29, 2008), *available at* http://www.occ.gov/news-issuances/news-releases/2008/nr-occ-2008-24.html (detailing a new requirement for large banks to provide "comprehensive mortgage data on a monthly basis"). The Office of Financial Research, discussed at Section IV(B)(2) will no doubt also be gathering, on a confidential basis, much in the way of relatively pure information from banks in order to meet its systemic risk monitoring functions.

there would be substantial losses in proprietary data, both in terms of particular positions the banks may have and in terms of the foundation it could provide to the outside world about how the bank makes valuation and pricing decisions. Moreover, it is unclear how many investors would have either the resources or the incentive to actually make use of the massive amounts of pure information provided.

However, as discussed earlier, a pure information model is one extreme that runs along a spectrum from the intermediary depiction model. Certain measures along that spectrum may generate useful information not captured by intermediary depictions of reality and not tainted by intermediary misunderstandings of reality, but without triggering extraordinary burdens on banks, regulators, and investors.

For instance, I focus on the possibility of two relatively low-cost measures around the middle of the spectrum. I will defer to the discussion of JPMorgan Chase a third measure that would be far more radical and controversial: the simplification of reality.

b. Possible Pure Information-Type Measures in the Major Bank Context.—The first possible measure could generate moderately pure information relating to a bank's assets and risk exposures that would not otherwise be publicly available and, at least indirectly, help alert investors as to possible problems with a bank's models. The second possible measure could generate moderately pure information about characteristics and quality of the models a bank uses—without the bank having even to describe these models, much less share the models themselves with investors.

The essential technology of these two possible measures would be mirror images of each other. The first measure would involve the use of a single set of *models* industry-wide for the specific assets of each bank. The second measure would involve the use of a single set of *hypothetical assets* industry-wide to serve as the inputs for the specific models actually used by each BHC. For ease of exposition, unless essential, I will continue to use the terms "bank" and "bank holding company" (BHC) interchangeably.

(1) The "Common Bank Models" Approach: Moderately Pure Information as to Bank Assets and the Bank's Risk Exposures.

This measure would involve modifying an existing governmental program that, as it currently stands, is primarily oriented to meet the needs of bank regulators and not the needs of investors. The Comprehensive Capital Analysis and Review program (CCAR) began in February 2009, and is run

by the federal banking agencies, led by the Federal Reserve Board.[276] Under CCAR, the Federal Reserve seeks to determine whether major BHCs hold sufficient capital under adverse economic conditions.[277] One aspect of this is a so-called stress test. In the most recent stress test, the Federal Reserve hypothesized, among other things, a deep recession in the United States, with the GDP dropping sharply, unemployment reaching a peak of more than 13%, equity prices falling by half, and house prices declining by an additional 20% from their 2011 levels.[278] Each of the 19 BHCs required to participate in the 2012 stress test was required to provide highly detailed data on its loan and securities portfolios as of September 30, 2011, including "borrower characteristics, collateral characteristics, characteristics of the loans or credit facilities, amounts outstanding and yet to be drawn down (for credit lines), and payment history and credit status."[279] For BHCs with large trading operations, information was required on trading and derivatives positions, private equity holdings, and certain other assets subject to fair-value accounting. Such BHCs were required to estimate the sensitivities of these positions to changes in a wide range of U.S. and global financial market rates and asset prices, and volatilities and correlations of those rates and prices.[280] These BHCs also had to provide information on the estimated sensitivity of their counterparty-related profit or loss to these factors.[281] Each BHC was also required to provide historical and projected revenues and operating and other non-credit-related expenses.[282]

The data were provided by the BHCs themselves, but whether a BHC was deemed to pass the stress test depended on how the BHC fared when all its data were input to a series of models that had largely been developed or used by the Federal Reserve, not those of any individual BHC.[283] Relying on the BHC data as inputs, the Federal Reserve models projected losses, revenues, and expenses for each BHC under the stress test scenario. Using these numbers, the Federal Reserve determined whether each BHC would still meet the four regulatory minimum capital levels (tier 1 common, tier 1 capital, total capital, and tier 1 leverage ratios).[284]

276. Daniel K. Tarullo, Governor, Fed. Reserve Bd., Speech at the Federal Reserve Bank of Chicago Annual Risk Conference: Developing Tools for Dynamic Capital Supervision 3–5 (Apr. 10, 2012).

277. BD. OF GOVERNORS OF FED. RESERVE SYS., COMPREHENSIVE CAPITAL ANALYSIS AND REVIEW 2012: METHODOLOGY AND RESULTS FOR STRESS SCENARIO PROJECTIONS 1 (2012) [hereinafter FED. RESERVE, CCAR 2012].

278. Tarullo, *supra* note 276, at 5.

279. FED. RESERVE, CCAR 2012, *supra* note 277, at 17–18.

280. *Id.* at 18.

281. *Id.*

282. *Id.*

283. *Id.* at 19.

284. *Id.* at 21.

When the results of the stress tests were announced on March 13, 2012, they had a dramatic impact on share prices of individual BHCs, depending on how they fared. The shares of JPMorgan Chase, which passed the stress tests and was thus able to announce it would raise its dividend and buy back stock, jumped 7%.[285] When news emerged that Citigroup had not passed, its shares fell 3.5%.[286]

The public sees only the capital adequacy results flowing from the Federal Reserve's models, not the models themselves.[287] The Federal Reserve is concerned that giving access to the models would allow banks to game the system and perhaps deter banks from developing their own models.[288] The Federal Reserve merely provides descriptions of its models and does not, for instance, disclose various modeling assumptions.[289]

Although the existing CCAR program was established for the needs of bank regulators, not investors, it is clear that the information generated is useful to both. However, if some material changes could be made to the CCAR program—notably, providing full public disclosure of the Federal Reserve's models and requiring the application of mandated Federal Reserve models in normal, non-stress conditions (e.g., a Federal Reserve VaR model)—the enriched version could be materially more useful to investors.

I here discuss how a modified version of the CCAR program could generate moderately pure information otherwise unavailable to investors, weaving in discussion of the needed changes. One might refer to this proposal as the "common bank models" approach.

First, for the first time, the investors would not need to rely almost entirely on the intermediary's depictions of their risk exposures. Even if the investors are sophisticated in risk modeling, the investors would find it difficult to make risk-exposure calculations for the simple reason that the highly granular raw data needed as inputs to their models are not publicly available. Under CCAR, the Federal Reserve does obtain this highly granular data and uses it to generate the loss estimates and stressed capital ratios. Investors now have the "disintermediated" estimates of the bank's risk exposures, estimates largely free of an intermediary's own depictions.

If the CCAR were changed to allow access to the actual Federal Reserve models, the investors would be in a better position to determine the quality of such disintermediated estimates and perhaps even adjust the estimates for

285. Peter Eavis & J.B. Silver-Greenberg, *Most Banks, but Not All, Pass the Fed's Stress Tests*, N.Y. TIMES, Mar. 14, 2012, at B1.

286. Jonathan Cheng & Chris Dieterich, *Nasdaq Plants Its Flag About 3000*, WALL ST. J., Mar. 14, 2012, at C1.

287. Tarullo, *supra* note 276, at 10.

288. Tom Braithwaite & Shahien Nasiripour, *US Banks to Put Stress Tests Case to Fed*, FIN. TIMES (Apr. 27, 2012, 11:54 AM), http://www.ft.com/cms/s/0/b7e32700-9097-11e1-9e2e-00144feab49a.html#axzz1vegyYWAx; Tarullo, *supra* note 276, at 10.

289. FED. RESERVE, CCAR 2012, *supra* note 277, at 44–59.

any perceived deficiencies in those models. If provided with the models, the investor will see all of the assumptions and model specifications. To the extent the investor disagrees with such assumptions and specifications, the investor can either discount or try tweaking the Federal Reserve's estimates. (I am assuming that the detrimental effects of full public disclosure of the Federal Reserve models could be managed, and that the benefits of such disclosure would outweigh the costs.)

At the extreme, the Federal Reserve's methodology may be flatly incorrect, and allowing access to the models themselves would help uncover such problems. There are specific grounds to worry about Federal Reserve fallibility. In its 2012 stress tests, the Federal Reserve acknowledged that it made an error in its stress test of Citigroup, causing it to overstate its estimate of losses on the BHC's mortgages.[290] It had failed to include nearly $40 billion of foreign mortgages in its loss-rate calculation for Citigroup's mortgages. The Federal Reserve ended up having to issue corrections not only for its Citigroup stress test numbers, but also for those of Bank of America, Ally Financial, MetLife, and Wells Fargo.

Second, for the first time, the investor obtains, at least in the diluted form of loss projections in stress scenarios, access to highly granular information about a BHC's loan and securities portfolios and, in the case of BHCs with large trading operations, on trading and derivatives positions, private equity holdings, and certain other assets subject to fair-value accounting. With the highly granular inputs the Federal Reserve obtained for each BHC, the Federal Reserve was able to provide highly granular projections. It found, for instance, Citigroup's estimated losses from its credit card portfolio would be $27 billion in the test scenario, far higher than both Bank of America ($14.5 billion) and JPMorgan Chase ($21.3 billion), even though Citigroup's credit card portfolio was by far the smallest of the three.[291] Seeing the Federal Reserve's stress test results for Citigroup caused analysts to reconsider their views on the true nature of Citigroup's loan portfolios.[292]

If the Federal Reserve modified CCAR to allow disclosure of its models, analysts would be able to place the projected losses in the specific context of the assumptions and methodologies. In this way, analysts may be able to better "reverse engineer" the loss results into the raw data the BHC provided to the Federal Reserve. The analysts would be able, in other words,

290. Peter Eavis, *Fed Revises Its Numbers on Stress Test for Citigroup*, N.Y. TIMES, Mar. 17, 2012, at B6.

291. Pallavi Gogoi, *Citi Disappointment on Fed Test Raises Serious Questions*, YAHOO! NEWS (Mar. 15, 2012), http://news.yahoo.com/citi-disappointment-fed-test-raises-questions-203731658.html.

292. *Id.*

to come somewhat closer to the relatively pure information about its assets that the BHC provided to the Federal Reserve and does not publicly disclose.

Third, the common bank models approach could serve to alert investors to problems with the models a bank uses with respect to stressed conditions and the models it uses with respect to normal conditions. Under the existing CCAR, if the risk exposure numbers generated under the Federal Reserve's models for stressed conditions differ radically from any corresponding risk exposure numbers for stressed conditions that are disclosed by a bank, the investor would be put on the alert. A diligent investor could seek to determine whether the Federal Reserve's modeling for stressed conditions is weak or, more troubling, the bank's.

However, the existing CCAR focuses on risk exposures in "stressed" conditions, not those in "normal" conditions. In fact, investors would also be interested in being alerted to possible problems with a bank's risk modeling for normal conditions. One standard way of measuring risk exposures in normal conditions is VaR. Under the proposed common bank models approach, a uniform Federal Reserve methodology for VaRs would be applied in the context of each bank's assets, and the VaR numbers resulting would be publicly disclosed. Radical differences between the VaR numbers for a bank under the Federal Reserve methodology and the VaR numbers for a bank under the bank's own methodology would also serve to alert invertors to possible modeling problems. It would also substantially facilitate cross-bank comparisons as to the banks' "normal conditions" risk exposures. These benefits flow from the current ways in which bank VaRs are disclosed, a matter to which we now turn.

All major financial institutions I am aware of report VaR numbers in their public disclosures.[293] Initially developed at J.P. Morgan, the essential question that VaR seeks to answer is: at a specified level of probability (for example, at a 99% confidence level), what is the biggest amount that we can lose over a period of time (for example, over a one-day horizon)?[294] Under SEC Regulation S-K Item 305 relating to market-risk disclosures, VaR disclosures are intended to express the "potential loss in future earnings, fair values, or cash flows of market risk sensitive instruments over a selected period of time, with a selected likelihood of occurrence, from changes in interest rates, foreign currency exchange rates," and other market fluctuations.[295] Under the SEC rules, each company is permitted to use its

293. *Cf.* Ekaterina E. Emm et al., *Choices and Best Practice in Corporate Risk Management Disclosure*, 19 J. APPLIED CORP. FIN. 82, 87 (2007) (stating that there are a number of advantages of VaR over the two alternatives, "particularly for financial companies or firms with large derivatives portfolios").

294. *See* Henry T. C. Hu, *The New Portfolio Society, SEC Mutual Fund Disclosure, and the Public Corporation Model*, 60 BUS. LAW. 1303, 1346 (2005).

295. 17 C.F.R. § 229.305(a)(iii)(A) (2011).

own, idiosyncratic VaR model, not a model that the SEC has specified.[296] The VaR models in the marketplace vary, as do the assumptions used about what historical data to use in the modeling.[297] Moreover, in disclosing variations in the VaR over the reporting period, the company is allowed to choose any of three alternative approaches.[298] Further, the company is not required to provide investors with the specifications of the model. Instead, it need only provide a description of the model, assumptions, and parameters necessary to understand the VaR disclosures.[299]

Under such circumstances, investors would have difficulties comparing reported VaRs across firms. Moreover, because they do not have access to the individual models used by the corporations, but must rely on English-language descriptions of the models, converting the numbers offered by the different firms to a common yardstick is a difficult task. The investors essentially have to take it on faith that the model the corporation uses is a reasonable one.

With the common bank models approach, the identical Federal Reserve VaR models are uniformly applied to all BHCs. Because of the use of the Federal Reserve's, not the intermediary's, methodology, these VaR numbers constitute new, "disintermediated" information, information freed from possible intermediary biases and misunderstandings. This risk exposure information would serve as an indirect check on the quality of the bank's VaR models. And because of the uniformity of methodology, cross-bank comparisons of banks' respective risk exposures in normal conditions are facilitated. This VaR element is missing from the existing CCAR approach: in its eighty-two-page description of its 2012 CCAR methodology, the terms "Value at Risk" and "VaR" do not even appear once.[300]

(2) The "Common Bank Assets" Approach: Moderately Pure Information as to the Bank's Models.

With the common bank models approach just described, it is the mandating of a single set of *models* industry-wide using the specific assets of each BHC that generates otherwise-unavailable information on the assets and the BHC's risk exposures. We can also do essentially the reverse of this. By mandating a single hypothetical portfolio of assets, investors can glean otherwise-unavailable information on the BHC's models. We can refer to this as the "common bank assets" approach.

296. *See* 17 C.F.R. § 229.305(a)(iii) (requiring companies to disclose information about the VaR model used, but not to use a particular model).

297. *See, e.g.*, Emm et al., *supra* note 293, at 86 (identifying three different VaR models that corporations "typically" use).

298. 17 C.F.R. § 229.305(a)(iii)(B)(1).

299. *Id.* § 229.305(a)(iii)(C).

300. *See* FED. RESERVE, CCAR 2012, *supra* note 277.

Although his focus was on helping the public better interpret reported capital ratios rather than providing information on bank models, we can use as a starting point a "benchmark portfolio" idea sketched by Vikram Pandit, the CEO of Citigroup, in a *Financial Times* op-ed in January 2012.[301] In relevant part, the op-ed suggested that current requirements for the disclosure of the capital ratios of financial institutions do little to help investors assess risk, in part because the institution does not publicly disclose its underlying assets.[302] In order to properly compare capital ratios, investors would need to better understand how banks actually undertake risk measurements.[303] To do so, Pandit suggested that regulators should create a benchmark portfolio and require all institutions to measure against that one portfolio. This hypothetical portfolio would be a collection of real assets that would stand in for the kinds of assets that most financial institutions actually hold, and the hypothetical portfolio would be publicly disclosed.[304] Banks would be required to generate, for that benchmark portfolio, such numbers as VaR and stress-test results.[305]

Such a step would not require the bank to provide the actual models it uses with respect to calculations of VaR and stress testing, as a (completely) pure information model would. However, by requiring all institutions to regularly apply their models to a common, universally known portfolio and disclose their results, each institution is giving a sense of how the models actually behave in a variety of contexts.

Such regular reporting of, for instance, VaR and stress-testing numbers under this "common bank assets" approach would also give investors a better sense of the quality of the bank's modeling, something that is difficult to gauge under the current intermediary depiction approach.[306] Over time, a bank's periodic reporting of numbers would provide a historical record of the quality of each bank's risk modeling; there is, in effect, a natural experiment in the back-testing of each bank's risk modeling.

Cross-bank comparisons of bank models are possible. The VaR and stress test numbers generated will differ from bank to bank, and such differences would allow for inferences as to each bank's models.

Notice that this common bank assets approach would not involve any depiction of reality related to risk in the traditional sense. That is, the measure would not contemplate any disclosure of the true risk exposure of the bank; the benchmark portfolio is completely hypothetical.

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301. Vikram Pandit, Op-Ed., *Apples v Apples—A New Way to Measure Risk*, FIN. TIMES, Jan. 10, 2012, 8:39 PM, http://www.ft.com/intl/cms/s/0/90bb724a-3afc-11e1-b7ba-00144feabdc0.html#axzz1rqPD0aPg.

302. *Id.*

303. *Id.*

304. *Id.*

305. *Id.*

306. *See supra* Part III.

Instead, the measure provides an appropriately muffled look at—moderately pure information on—the models the bank has. This is useful information about each bank's models not available under the current disclosure regime. And the burdens for regulators, banks, and investors should be light. Regulators would not have to develop complex rules; their task would be limited to coming up with a suitable benchmark portfolio, or an array of suitable benchmark portfolios. Different benchmark portfolios could be designed to emphasize the teasing out of specific kinds of risks; a benchmark portfolio that emphasizes how a bank's risk modeling handles funding/liquidity risks may be different from a benchmark portfolio seeking to address credit risk or market risk issues. Banks could simply apply existing modeling technology to a specified portfolio rather than develop some new technology. Moreover, they would not have to provide proprietary models or technology to outsiders.

2. Extensions to "Depiction-Difficult" Corporate Matters: Underfunding of Multiemployer Pension Plans.—A pure information-type approach may be helpful not only with respect to entire corporations in depiction-difficult industries, such as the financial services industry, but also with respect to depiction-difficult matters that might affect corporations in all industries.

For decades, despite repeated efforts by standards setters, the financial reporting for defined-benefit plans has proven contentious and difficult for investors to interpret.[307] In late 2011, the Chairman of the Financial Accounting Standards Board (FASB) stated that pensions are "the number one thing" investors have been asking the board to start working on again.[308] Financial academics have found that the stock market is highly inefficient in the valuation of firms with severely underfunded pension plans.[309]

There is recent evidence that pure information can be useful in addressing such depiction difficulties. A natural experiment showed how pure information can be useful to investors who had been relying on the depicted pension information.

Historically, a corporation's exposure to multiemployer pension plans was highly opaque.[310] Under GAAP, the only disclosure that a contributing

307. C. Terry Grant et al., *FASB's Quick Fix for Pension Accounting Is Only First Step*, 63 FIN. ANALYSTS J. 21, 21 (2007).

308. Emily Chasan, *Investors Press FASB to Revisit Pension Accounting*, WALL ST. J. CFO REP. (Nov. 14, 2011), http://blogs.wsj.com/cfo/2011/11/14/investors-press-fasb-to-revisit-pension-accounting/.

309. *See* Francesco Franzoni & José M. Marín, *Pension Plan Funding and Stock Market Efficiency*, 61 J. FIN. 921, 953 (2006) (finding "significant evidence" of stock market overvaluation of companies with severely underfunded DB pension plans).

310. DAVID ZION ET AL., CRAWLING OUT OF THE SHADOWS: SHINING A LIGHT ON MULTIEMPLOYER PENSION PLANS 2 (2012); *FASB Updates Multiemployer Plan Disclosure*

employer had to provide was largely limited to the historical contributions the employer made to the plan. It did not, for instance, have to disclose its possible liability to an underfunded multiemployer plan if an employer should stop making contributions. In some cases, the withdrawal liability could be substantially higher than the employer's periodic contributions. Thus, relying on intermediary depictions, investors would not know the size of this off-balance-sheet liability.

As a theoretical matter, an alternate source of information may offer investors some guidance. Every year, employee benefit plans subject to ERISA must file highly detailed information about the characteristics and operations of the plans with, among others, the Department of Labor on Form 5500.[311] Relatively pure information was available on such matters as plan assets, pension obligations, and contributions to the plan.[312] Form 5500 is a public document. However, these Form 5500 filings were on a multiemployer-plan-by-multiemployer-plan basis. Since a company may have workers participating in many different multiemployer plans, it was impossible to determine the potential liability of a company as to underfunded multiemployer plans as a whole.

In September 2011, with the happenstance of a new FASB rule change relating to multiemployer plans, a creative and assiduous team of Credit Suisse analysts were actually able to tap the relatively pure information available in the Form 5500s in a way that would capture the overall liability of 367 companies in the Standard & Poor's 500.[313]

Credit Suisse's use of the Form 5500 information had an immediate impact on the market, suggesting the value of such information. Credit Suisse found underfunding in Safeway's multiemployer pension plan, estimated at a surprising $7 billion pre-tax.[314] The day this was disclosed, Safeway's stock was the biggest drag on the Standard & Poor's 500, falling 3%. Credit Suisse cut its target price for Safeway shares by nearly 25%, from $26 to $20.

Requirements: Estimate of Withdrawal Liability Not Required, MCGUIRE WOODS (Sept. 28, 2011), http://mcguirewoods.com/news-resources/item.asp?item=6158.

311. DEP'T OF THE TREASURY ET AL., 2011 INSTRUCTIONS FOR FORM 5500—ANNUAL RETURN/REPORT OF EMPLOYEE BENEFIT PLAN (2011), *available at* http://www.dol.gov/ebsa/pdf/2011-5500inst.pdf.

312. ZION ET AL., *supra* note 310, at 2.

313. *Id.* The FASB's change was adopted in Accounting Standards Update No. 2011-09. FIN. ACCOUNTING STANDARDS BD., ACCOUNTING STANDARDS UPDATE NO. 2011-09: COMPENSATION—RETIREMENT BENEFITS—MULTIEMPLOYER PLANS (SUBTOPIC 715-80) (2011).

314. MIDNIGHT TRADER, ANALYST ACTIONS: SAFEWAY DOWNGRADED, TP LOWERED AT CREDIT SUISSE AS LARGE PENSION LIABILITY UNCOVERED 1 (2012); Christopher Lynn, *Stocks Rallied on Ben Bernanke Comments*, TRADERSHUDDLE (Mar. 26, 2012), http://www.tradershuddle.com/20120326414982/Stocks/stocks-rallied-on-ben-bernanke-comments.html.

3. Afterword: A Preliminary Application to the Unfolding JPMorgan Chase Chief Investment Office Derivatives Situation.—In mid-May 2012, as this Article was going through final editing, a derivatives-related situation involving JPMorgan Chase & Co. (JPM) and its Chief Investment Office started coming to light. Because of the importance of the situation and its relevance to key themes in this Article, I have added this afterword. The limited availability of verifiable facts at the time of writing and the Article's publications deadline preclude a definitive application of the analytical framework. As a preliminary matter, it appears that the situation illustrates the existence of both of the pertinent roadblocks to intermediary depictions: an intermediary's failure to understand (or act as if he understands) the true reality and the limitations of rudimentary depiction tools. I also examine the potential of three pure information-type models in this JPM context: the common bank models approach, the common bank assets approach, and the simplification of reality approach.

a. Failures of Intermediary Depiction: A "Tempest in a Teapot" and the Chief Investment Office's VaRs.—The earliest public suggestion that something might be amiss about JPM's derivatives trading came on the evening of April 5, 2012, when *Bloomberg* and the *Wall Street Journal* ran stories about a London-based trader at JPM's Chief Investment Office having amassed credit derivatives positions so large that he was disrupting prices in the $10 trillion market.[315] The stories, apparently triggered by information provided on a no-name basis by traders at hedge funds and rival banks, reported that the traders believed that Bruno Michel Iksil had been selling so much protection on credit derivatives linked to an index of the credit quality of 125 that unusually wide price swings and aberrationally low prices resulted. Sensing a bargain, and anticipating that the "London whale" would eventually have to liquidate some of his holdings, the traders took the other side of such transactions. The net "notional" amount in the index—the "CDX IG 9"—jumped from $92.6 billion at year-end to $144.6 billion on March 30. The initial *Wall Street Journal* story reported, however, that "[o]ne person familiar with the matter said the bank has run tests that show Mr. Iksil's positions likely will be profitable in any economic or market downturn" and that "people close to the matter" stated that Jamie Dimon, JPM's Chief Executive Officer, "is regularly briefed on details of some of the

315. See Joe Weisenthal, *Strange: Multiple Reports Of A JPMorgan Trader With An Epic Position in Credit Default Swaps*, BUS. INSIDER (April 5, 2012), http://articles.businessinsider.com/2012-04-05/wall_street/31293137_1_credit-default-swaps-hedge-fund-traders-new-credit. The two reports were: Stephanie Ruhle et al., *JPMorgan Trader's Positions Said to Distort Credit Indexes*, BLOOMBERG (Apr. 6, 2012, 9:43 AM), http://www.bloomberg.com/news/2012-04-05/jpmorgan-trader-iksil-s-heft-is-said-to-distort-credit-indexes.html; Gregory Zuckerman & Katy Burne, *'London Whale' Rattles Debt Market*, WALL ST. J., Apr. 6, 2012 at A1, *available at* http://online.wsj.com/article/SB10001424052702303299604577326031119412436.html.

group's positions."[316] Ina Drew, the head of the Chief Investment Office and, with compensation of $14 million in 2011, one of JPM's highest-paid executives, declined to comment when contacted by *Bloomberg*.

On April 13, JPM released its earnings for the first quarter of 2012. During the earnings call with analysts, both Dimon and Douglas Braunstein, JPM's Chief Financial Officer, dismissed the significance of media accounts. Braunstein brought up the subject of "the topics in the news around CIO" and stated that:

> We are very comfortable with our positions as they are held today. And I would add that all of those positions are fully transparent to the regulators. They review them, have access to them at any point in time, get the information on those positions on a regular and recurring basis as part of our normalized reporting. And all of those positions are put on pursuant to the risk management at the firm-wide level.[317]

And Dimon, responding to a question from a stock analyst as to the significance of the CIO activities, stated:

> It's a complete tempest in a teapot. Every bank has a major portfolio. In those portfolios, you make investments that you think are wise, that offset your exposures. Obviously, it's a big portfolio. We're a large company and we try to run it. It's sophisticated, well, obviously, a complex thing. But at the end of the day, that's our job, is to invest that portfolio wisely and intelligently to—over a long period of time to earn income and to offset other exposures we have.[318]

This lack of concern over the CIO was reflected in the three documents JPM released in conjunction with the earnings call. Neither the fifteen-page press release nor the twenty-one-page earnings release even referred to the Chief Investment Office.[319] During the earnings call, neither Dimon nor Braunstein, nor any of the stock analysts, brought up the issue of the Chief Investment Office's VaR. The closest JPM came to disclosing risk exposures relating to the CIO appears on three lines on page forty-two of a fifty-one-page "Supplement to First Quarter 2012 Earnings Release."[320]

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316. Zuckerman & Burne, *supra* note 315.

317. *JPMorgan Chase & Co.'s CEO Discusses Q1 2012 Results – Earnings Call Transcript*, SEEKING ALPHA (Apr. 13, 2012), http://seekingalpha.com/article/505581-jpmorgan-chase-co-s-ceo-discusses-q1-2012-results-earnings-call-transcript.

318. *Id.*

319. JPMORGAN CHASE & CO., JPMORGAN CHASE REPORTS FIRST-QUARTER 2012 NET INCOME OF $5.4 BILLION, OR $1.31 PER SHARE (2012), *available at* http://files.shareholder.com/downloads/ONE/1893281334x0x559618/75bac823-bb81-4570-bac4-fa626174e389/JPMC_1Q12_Earnings_Press_Release.pdf; JP MORGAN CHASE & CO., FINANCIAL RESULTS 1Q12 (2012), *available at* http://files.shareholder.com/downloads/ONE/1893281334x0x559619/979e9e75-5046-49b7-b19f-6e362bf367fa/JPMC_1Q12_Earnings_Presentation.pdf.

320. JPMORGAN CHASE & CO., JPMORGAN CHASE & CO., EARNINGS RELEASE FINANCIAL SUPPLEMENT – FIRST QUARTER 2012 (2012), *available at* http://sec.gov/Archives/edgar/

On page forty-two, JPM reports a VaR for its Chief Investment Office at the end of each quarter, beginning with the first quarter of 2011. This VaR, calculated at a 95% confidence level, was stated to "include positions, primarily in debt securities and credit products, used to manage structural risk and other risks, including interest rate, credit and mortgage risks arising from the Firm's ongoing business activities." The CIO's VaR for March 31, 2012 was reported to be $67 million. To put that $67 million in perspective, JPM's total net income and net revenue for the first quarter were $5.4 billion and $26.7 billion, respectively.[321]

Shortly after the earnings call, losses—roughly $100 million or more a day—began showing up on the CIO books.[322] Dimon began asking Drew for daily reports, summarizing positions and analyzing remedies.[323] As the losses kept growing, JPM was working to prepare its quarterly Form 10-Q, set for release on April 27.[324] Dimon decided to postpone the 10-Q: "I have to understand the trades and their impact better."[325] On April 30, dissatisfied with the daily reports' absence of details on the trades themselves, at a meeting on April 30, Dimon stated: "I want to see the positions! . . . Now! I want to see everything!"[326] When Dimon saw the numbers, he "couldn't breathe."[327]

On May 10, 2012, JPM finally filed its Form 10-Q. At a conference call the same day, Dimon began the call by highlighting problems at the CIO and the CIO's VaR that JPM had reported on its April 13 earnings supplement. He stated:

> [W]e had given prior guidance that Corporate—that net income in the Corporate segment—notice it's not the corporation, it's one of the segments—ex Private Equity and litigation would be approximately plus or minus $200 million. This includes the CIO's overall performance.
>
> We currently estimate this number to be minus $800 million after-tax. This change is due to two items, both in CIO this quarter—I'm going to get back to give you pre-tax numbers now—slightly more

data/19617/000119312512161533/d332188dex992.htm [hereinafter JPM 4-13-2012 Earnings Release Supplement].

321. *Id.* at 2.

322. This paragraph is drawn from the *Wall Street Journal*'s account, based on its interviews with numerous JPM executives and officials on Wall Street and in Washington. Monica Langley, *Inside J.P. Morgan's Blunder – CEO Dimon Blessed the Concept Behind Disastrous Trades; 'Blood in the Water,'* WALL ST. J., May 18, 2012, at A1.

323. *Id.*

324. *Id.*

325. *Id.*

326. *Id.*

327. *Id.*

> than $2 billion trading loss on our synthetic credit positions and a $1 billion on securities gain, largely on the sale of credit exposures.
>
> . . . .
>
> We are also amending a disclosure . . . about CIO's VAR, Value-at-Risk. We'd shown average VAR at 67. It will now be 129. In the first quarter, we implemented a new VAR model, which we now deemed inadequate. And we went back to the old one, which had been used for the prior several years, which we deemed to be more adequate. The numbers I just gave are effective March 30th, the first quarter.
>
> . . . .
>
> The portfolio still has a lot of risk and volatility going forward. . . . It could cost us as much as $1 billion or more.[328]

Dimon acknowledged that "grievous" mistakes had been made and that they were "self-inflicted."[329] Dimon refused to provide what he characterized as "fulsome detail" or "to talk about specific risk positions at all." Instead, he merely characterized the transactions as follows:

> Regarding what happened, the synthetic credit portfolio was a strategy to hedge the Firm's overall credit exposure . . . . We're reducing that hedge. But in hindsight, the new strategy was flawed, complex, poorly reviewed, poorly executed and poorly monitored. The portfolio has proven to be riskier, more volatile and less effective than [the] economic hedge than we thought.
>
> The original premise of the synthetic credit exposure was to hedge the company in a stress credit environment. Our largest exposure is credit across all forms of credit. So we do look at the fat tails that would affect this company. That was the original proposition for this portfolio.
>
> In re-hedging the portfolio, I've already said, it was a bad strategy. It was badly executed. It became more complex. It was poorly monitored. . . . I don't want to give you specifics because we've already said we're not going to talk about the actual positions or anything like that.[330]

The Form 10-Q provided little more by way of detail with respect to the change in the reported March 31 VaR numbers, change in the VaR

328. RAW TRANSCRIPT, 10-MAY-2012 JPMORGAN CHASE & CO. (JPM): BUSINESS UPDATE CALL 2–3 (2012), *available at* http://i.mktw.net/_newsimages/pdf/jpm-conference-call.pdf [hereinafter JPM MAY 10 CONFERENCE CALL].

329. *Id.* at 3.

330. *Id.*at 2, 10.

methodology, and the source of CIO problems.[331] (The same day, page forty-two of the originally distributed Supplement to First Quarter 2012 Earnings Release was revised.[332]) It reported its March 31 VaR (at the 95% confidence level) as being 129 million, stating simply that:

> CIO VaR presented above for the period ended March 31, 2012 supersedes the Firm's VaR disclosures included in its Form 8-K filed on April 13, 2012 and was calculated using a methodology consistent with the methodology used to calculate CIO's VaR in 2011, including the first quarter of 2011 reflected above.[333]

Regarding the CIO problems, the 10-Q stated that "[t]he increase in CIO average VaR was due to changes in the synthetic credit portfolio held by CIO as part of its management of structural and other risks arising from the Firm's on-going business activities."[334]

This Article turns now to briefly and preliminarily applying its analytical framework.

b. Sources of Depiction Failure: Too Complex to Depict?

(1) Misunderstood Derivatives: JPM's True Misunderstandings and JPM's Functional Misunderstandings.

Structural factors could cause even the most sophisticated of financial institutions to truly misunderstand or functionally misunderstand the complex financial innovations in which they were involved.[335] JPM is among the most sophisticated financial institutions in the world. In September 2008, at the height of the GFC, *Fortune Magazine* celebrated JPM's "commanding position as 'last bank standing'" and emphasized how Dimon and his "trusted team of talented lieutenants" shared a zeal for "sifting piles of data to spot trouble before it happens and vigilantly control risk, even when that means sacrificing growth and losing market share to

331. JPMorgan Chase & Co., Quarterly Report (Form 10-Q) (March 31, 2012), at 73, *available at* http://www.sec.gov/Archives/edgar/data/19617/000001961712000213/jpm-2012033110q.htm [hereinafter JPM First Quarter 2012 Form 10-Q].

332. JPMORGAN CHASE & CO., EARNINGS RELEASE FINANCIAL SUPPLEMENT: FIRST QUARTER 2012 (Revised May 10, 2012) [hereinafter JPM 5-10-2012 EARNINGS RELEASE SUPPLEMENT], *available at* http://files.shareholder.com/downloads/ONE/1898789271x0x568607/530d9a03-89dd-4123-b57e-094e47a4f842/1Q12_ERF_Supplement_FINAL_5.10.12.pdf.

333. *Id.* at 73.

334. *Id.* at 74.

335. Hu, *Misunderstood Derivatives*, *supra* note 7.

rivals."[336] Dimon and JPM were so respected that they were at the vanguard of the financial services industry to fend off the impact of Dodd-Frank.[337]

JPM appears to have suffered from both true misunderstandings and functional misunderstandings of the objective reality of the derivatives activities it was engaged in.

In terms of true misunderstandings, as a purely technical matter, JPM was mistaken as to at least three issues: first, the core model that JPM used in measuring risk exposures; second, the general methodology for gauging possible risk exposures; and third, its hedging strategy and the portfolio associated with that strategy. In Dimon's words of May 10, the VaR model it had used for the purposes of its April 13 disclosure was "inadequate." Its current VaR model was not only "more adequate," but generated a risk exposure number ($129 million) that was nearly double that under the earlier VaR model ($67 million).[338] In its initial April 6 story, the *Wall Street Journal* reported that the bank's own tests showed Mr. Iksil's positions "likely will be profitable in any economic or market downturn."[339] On May 10, Dimon noted a "more than $2 billion trading loss on our synthetic credit positions" and acknowledged that further losses could amount to "as much as $1 billion or more."[340] In terms of its hedging strategy, Dimon stated the same day that, "in hindsight," its new hedging strategy was "flawed," and that the portfolio associated with that strategy was "riskier, more volatile, and less effective" as an "economic hedge than we thought."[341]

Big-picture human judgments as to the risks associated with the CIO's derivatives activities suffered from true misunderstandings as well. On April 13, Dimon characterized the CIO risks as being a "complete tempest in a teapot." It was otherwise. Ina Drew, JPM's Chief Investment Officer, has resigned, and Bruno Iksil is no longer on the trading desk.[342] Two months after announcing a $15 billion share repurchase program, JPM said it was halting the repurchases as part of a "prudent" approach to capital retention.[343] Calls for stricter regulation of major banks have increased, bolstering advocates of the adoption of a Volcker rule broad enough to prohibit trading

336. Shawn Tully, *Jamie Dimon's Swat Team: How J.P. Morgan's CEO and His Crew Are Helping the Big Bank Beat the Credit Crunch*, CNN MONEY (Sept. 2, 2008, 4:08 PM), http://money.cnn.com/2008/08/29/news/companies/tully_dimon.fortune.

337. Editorial, *JPMorphing*, N.Y. TIMES, May 17, 2012, at A26.

338. JPM MAY 10 CONFERENCE CALL, *supra* note 328, at 2.

339. Zuckerman & Burne, *supra* note 315.

340. *Id.*

341. JPM MAY 10 CONFERENCE CALL, *supra* note 328, at 2.

342. Nelson D. Schwartz & Jessica Silver-Greenberg, *JPMorgan Trading Loss Swells to $3 Billion; As Situation Worsens, Fed Examines the Risks Undertaken by the Bank*, INT'L HERALD TRIB., May 18, 2012, at 16.

343. Nelson D. Schwartz & Ben Protess, *JPMorgan Suspends $15 Billion in Buybacks*, N.Y. TIMES, May 22, 2012, at B1.

of the sort that drove JPM's CIO losses.[344] The CIO debacle is even giving fodder to those who have long questioned even the existence of "too big to fail" banks like JPM.[345] Just in the two-week period between the close of exchange trading on May 10 and on May 25, JPM's stock market capitalization has dropped over $27 billion.[346]

As discussed earlier, the intermediary misunderstanding problem could result from the complexities of the financial innovation as well as from the complexities of the intermediary itself. Let us now look more carefully at both possible sources of misunderstanding.

Consider first the complexities of financial innovation or, more specifically, complexities as to both of the financial innovation's constituent elements: the new products and strategies themselves and the underlying process of financial innovation through which such products and strategies are invented, introduced into the marketplace, and diffused. Dimon explicitly attributed the mistakes in part to the fact that CIO's trading strategy had become "more complex."[347] The 1993 *Misunderstood Derivatives* article talked of how, partly because of the "inappropriability" of the benefits of financial R&D, a bank may not have sufficient incentives to fully understand its own complex innovations.[348] Perhaps this is one of the reasons that an institution as sophisticated as JPM could be more than inconvenienced by complexity. The 1993 article also talked of cognitive biases such as the tendency of humans to ignore low probability catastrophic events, and how this tendency was manifest in the derivatives industry. JPM's assertion that the CIO's activities "likely will be profitable in any economic or market downturn" may be illustrative of this cognitive bias.[349]

The 1993 article also warned of ways that peculiarities of "financial science" could contribute to misunderstandings. It discussed how different financial science was from physics and other traditional sciences, offering as one example how departures from the scientific norm of Mertonian "universalism" could endanger a financial institution dominant in a particular derivative.[350] The sociologist Robert K. Merton's canon of "universalism" centers on the truth of claims being determined through application of impersonal criteria without regard to the source's personal, social, or other

344. Carol E. Lee & Damian Paletta, *White House Steps Up Push to Toughen Rules on Banks*, WALL ST. J., May 17, 2012, at A1.

345. Donna Borak, *Wrestling with Giants: Fed's Fisher Leads Charge to Kill TBTF*, AM. BANKER, May 23, 2012.

346. This was calculated based on the number of shares outstanding as of April 30, 2012 as reported in JPM's latest Form 10-Q, and applied to stock prices of $40.74 (May 10) and $33.50 (May 25).

347. JPM MAY 10 CONFERENCE CALL, *supra* note 328, at 10.

348. Hu, *Misunderstood Derivatives*, *supra* note 7, at 1478–86

349. Zuckerman & Burne, *supra* note 315.

350. Hu, *Misunderstood Derivatives*, *supra* note 7, at 1496–1501.

attributes. Merton stated that "[t]he Haber process cannot be invalidated by a Nuremberg decree nor can an Anglophobe repeal the law of gravitation." The 1993 article suggested that this universalist imperative does not entirely apply to the OTC derivatives market; the identity of the thinker matters and a particularly dangerous situation arises if the thinker happens to be dominant as to a particular financial product:

> If a dealer who dominates the market for a given derivative thinks a particular model is suitable for valuing that derivative, then his identity is relevant. Even if the model is seriously flawed as a theoretical matter, his importance alone makes the model at least temporarily relevant. Moreover, should the dealer decide to withdraw from the market for that derivative, liquidity may dry up and the pure "theoretical" value may be particularly irrelevant. There is no Mertonian universalism here. The impact of this is likely to be especially severe as to the more arcane instruments and products dominated by a few dealers and in chaotic market conditions.[351]

As we have seen, JPM was so dominant over the index-linked credit derivatives that it disrupted market pricing; because of JPM's deep pockets and its continuing sale of credit derivatives protection, its view—no matter how incorrect it may have been as an objective matter—became "at least temporarily relevant." The other moniker for the CIO's "London whale" was "Lord Voldemort," Harry Potter's frightening nemesis.[352] Traders betting that, in their view, JPM would not be able to continue depressing the pertinent credit derivatives prices ultimately made a fortune.[353]

The foregoing structural factors causing misunderstandings center on the complexities associated with new financial products and the underlying process of financial innovation. These were true misunderstandings.

Let us see now how the organizational complexities associated with banks themselves could cause functional misunderstandings. As we have discussed, the 1993 article focused on such matters as within-organization principal–agent problems stemming from highly asymmetric compensation structures found in the derivatives industry and on monitoring difficulties. Our ethically challenged quant may understand the true risks of his derivatives activities, but the organization, in effect, does not. The complexity of the organization itself, including informational asymmetries that can arise within the organization, can cause misunderstanding issues.

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351. *Id.* at 1501.

352. Lyle Brennan, *Boss of Voldemort Trader Who Lost $2bn at JP Morgan Earns $14m a Year as Credit Agencies Give Bank Bleak Outlook*, MAIL ONLINE (May 11, 2012), http://www.dailymail.co.uk/news/article-2142866/JPMorgan-Chase-trader-Bruno-Michel-Iksil-thought-2bn-loss.html.

353. Azam Ahmed, *The Hunch, The Pounce and the Kill*, N.Y. TIMES, May 27, 2012, at BU1. *Cf.* Gregory Zuckerman & Scott Patterson, *J.P. Morgan Struggles to Unwind Huge Bets*, WALL ST. J., May 19, 2012, at A1.

As we have just discussed, functional misunderstandings can also arise when no principal–agent problems are present. Stove piping and siloing of information in large, complex organizations operating in multiple foreign jurisdictions can occur notwithstanding the best of intentions on the part of everyone in the organization.

I emphasize that there is no evidence whatsoever that either Drew, Iksil, or anyone else at JPM acted in any way inappropriately. It does appear that informational asymmetries within a large, complex organization such as JPM may have caused JPM to act in unfortunate ways. Dimon "couldn't breathe" when he finally saw CIO's individual positions he had demanded to see on April 30.[354] There is every reason to believe that at least a few key members of the CIO staff were aware of such individual positions well prior to April 30th. In his May 10 conference call, Dimon acknowledged that JPM's new, flawed hedging strategy was "poorly monitored."[355] The informational asymmetry between the CIO and Dimon that existed prior to April 30 undermined the ability of the organization as a whole to make proper judgments.

To be fair, in any large, complex organization, it is difficult for any CEO to keep track of pertinent matters. Given the number of employees at JPM (about 240,000),[356] Dimon had presumably not heard of the "London whale" and "Voldemort" monikers for Iksil that might have served as red flags. Dimon was aware, however, of the CIO's past success: in 2011, Drew was among the most highly compensated executives at JPM.[357] This may have helped serve to limit the perceived need for granularity in internal risk reporting. Moreover, Drew contracted Lyme disease in 2010, reportedly causing frequent absences during a critical period, when her unit was making riskier bets and causing internal strife that distracted everyone at the CIO. Morning conference calls that Drew had presided over apparently became shouting matches between her deputies in New York and London in 2010 and 2011.[358] Such shouting matches could not have helped reduce internal informational asymmetries.

In sum, was JPM too complex to depict because JPM's derivatives strategies were too complex, or was it too complex to depict because JPM itself had become too complex? In fact, it was both. True misunderstandings as well as functional misunderstandings occurred.

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354. Langley, *supra* note 322.

355. JPM MAY 10 CONFERENCE CALL, *supra* note 328, at 2.

356. *About Us*, JPMORGAN CHASE (2012), http://www.jpmorganchase.com/corporate/About-JPMC/about-us.htm.

357. Ruhle et al., *supra* note 315.

358. Jessica Silver-Greenberg & Nelson D. Schwartz, *Discord at Key JPMorgan Unit Is Blamed in Bank's Huge Loss*, N.Y. TIMES, May 20, 2012, at A1.

We turn now to the other major roadblock to intermediary depictions: the limits of depiction technology.

(2) Depiction Tools: The VaR and Changes in VaR Methodology.

JPM's central depiction of its CIO risk exposures lay in its VaR disclosures. As we have discussed, there are many limits to the usefulness of VaR as a general matter. Neither the SEC nor any banking authority has prescribed precisely what methodology a bank must use in calculating the VaR, and banks vary in obvious ways. For instance, in this JPM context, JPM reports its VaR at a 95% confidence level while Bank of America reports its VaR at a 99% confidence level. Thus, JPM states that with its use of the 95% confidence level in its VaR calculations, it would expect to incur losses greater than that predicted by its VaR estimates about twelve to thirteen times a year.[359] In contrast, with Bank of America Corporation's use of the 99% confidence level, it would expect to incur losses greater than that predicted by its VaR estimates only about two to three times a year.[360] The JPM and BOA VaR numbers are not comparable, and were not intended to be.

More fundamentally, banks do not give descriptions of their VaR methodologies that are granular enough for outsiders to divine.[361] When JPM disclosed on May 10 that the VaR methodology it had been using was "inadequate," and that it had gone back to a previous methodology, it did not disclose what the differences were. The changes were material enough to cause a near doubling in the reported CIO VaR number for March 31, 2012, but outsiders were left guessing as to the methodological changes that would account for this.

Perhaps JPM could not, even if it wished, provide granular-enough depictions of its VaR methodology for important proprietary reasons. Such detailed depictions may offer a window into the critical matter of how JPM analyzes risk.

Whatever the reason, if depictions of VaR methodology can never be granular enough to offer explanations of a near-double difference in reported results, it is clear that the disclosure technology essential to good intermediary depictions is lacking.

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359. JPM First Quarter 2012 Form 10-Q, *supra* note 331, at 73.

360. Bank of America Corp., Quarterly Report (Form 10-Q) (March 31, 2012), *available at* http://www.sec.gov/Archives/edgar/data/70858/000007085812000191/bac-3312012x10q.htm [hereinafter BOA First Quarter 2012 Form 10-Q].

361. For examples of descriptions that JPM and Bank of America do provide, see JPM First Quarter 2012 Form 10-Q, *supra* note 331, at 73; BOA First Quarter 2012 Form 10-Q, *supra* note 360 at 106–07.

c. Applying the Common Bank Models Approach and the Common Bank Assets Approach.—We have thus seen that in the situation involving JPM's CIO, the intermediary depiction model was severely undermined by the failure of the intermediary to understand (and to act as if it understood) its true exposure as well as by the limitations of the depiction technology.

We can briefly outline the potential of two pure information-type strategies in this Subsection IV(C)(3)(c), and then discuss the potential of a third such strategy in Subsection IV(C)(3)(d) immediately following.

Under the common bank models approach, apart from a bank disclosing its VaR numbers based on its own methodology, the bank would be required to disclose VaR numbers using the Federal Reserve's models. The Federal Reserve's VaR models would be fully disclosed to the public. In the JPM CIO situation, a common bank models approach would have contributed to at least three kinds of information useful to investors.

First, any sudden increases in the CIO's Federal Reserve model-based VaR would have alerted investors to potential problems. With the intermediary depiction model that was in place, it was the happenstance of hedge fund and rival bank traders talking with *Bloomberg* and *Wall Street Journal* reporters that caused the problems to be ultimately revealed. This would be roughly akin to relying on fishermen who happened to see battleships on the horizon rather than relying on a radar system.

The alternate VaR numbers would have served as a check on the intermediary misunderstanding the true reality. On April 13, JPM reported a CIO VaR number ($67 million) on March 31, 2012, substantially identical to the corresponding number on December 31, 2011 ($69 million).[362] Nothing under the JPM methodology in place on April 13 would have suggested emerging CIO problems. In contrast, when JPM used a "more adequate" VaR methodology and disclosed the results on May 10, JPM reported drastic increases in the CIO VaR: $129 million at March 31, 2012 versus only $69 million at December 31, 2011.[363] Perhaps the alternate Federal Reserve VaR numbers would have similarly alerted investors.

Second, any large discrepancies between the numbers generated by the "inadequate" JPM VaR model and the specified Federal Reserve model, in absolute size or in terms of trends across time, would have alerted outside investors as to the desirability of checking if JPM had modeling problems. Now it appears that bank regulators, not just JPM, dropped the ball as to the JPM CIO situation: the Office of the Comptroller of the Currency, which oversees the CIO, had roughly seventy people monitoring the bank's trading activities, and the outsize bets failed to raise alarms for the regulator even as

362. JPM 4-13-2012 Earnings Release Supplement, *supra* note 320, at 42.

363. JPM First Quarter 2012 Form 10-Q, *supra* note 331, at 73.

of late April, well after the initial media reports surfaced.[364] However imperfect the models of bankers and regulators (and academics) might be, the presence of an alternate set of VaR numbers may well have been useful.

Under the common bank assets approach, a bank would apply its own models to a hypothetical set of assets. If the federally-specified portfolio of hypothetical assets contained elements that corresponded to the kinds of credit derivatives positions that the CIO held, outside investors would see how JPM models contrasted, if at all, with those of rival banks with respect to such credit derivatives.

In this JPM CIO situation, the contrast that would have appeared would likely have been dramatic. After all, a number of rival banks and others clearly believed that JPM was misvaluing the credit derivatives.

d. Applying the Simplification of Reality Approach: "Too Complex to Depict" and the Question of "Too Complex to Exist."—In contrast to the common bank models approach and the common bank assets approach, a simplification of reality approach would raise extremely difficult substantive questions in the JPM-CIO context. Under the simplification of reality approach, if reality is too complex to depict, then perhaps the reality should be simplified to make the depiction task easier.

Thinking about the possible application of this approach to JPM may contribute to an understanding of the overall benefits and costs of two of the key regulatory themes of recent years, themes that are taking on especial resonance in Washington in the wake of the CIO problems.

One way of simplifying reality in the JPM situation is for JPM to undertake fewer complex activities. Some advocate adopting tough versions of the Volcker rule to limit trading of the sort engaged in by the CIO; some advocate bringing back the Glass-Steagall Act; while others propose even more drastic limitations on what a bank can do. Another way of simplifying reality in the JPM situation is to somehow shrink the size and complexity of banks, without necessarily tying such shrinkage to any particular set of constraints on prohibited activities.

The question arises as to whether JPM is "too complex to depict." If it is, and pure information models do not suffice to fill the gap, might JPM be "too complex to exist"? The substantive changes just discussed may make the depiction task easier but involve a difficult calculus of overall private and social benefits and costs—not just in terms of the impact on major banks themselves, but also in terms of the impact on financial innovation. A careful calculus would be a complicated task indeed.

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364. Zuckerman & Patterson, *supra* note 353. As to the matter of how regulators are generally behind, see Henry T. C. Hu, *Swaps, the Modern Process of Financial Innovation and the Vulnerability of a Regulatory Paradigm*, 138 U. PA. L. REV. 333 (1989) [hereinafter Hu, *Regulatory Paradigm*].

D. The Pure Information Model: A Few of the Challenges and Implications

A pure information model, while attractive, raises challenges to the existing regulatory architecture. It also raises issues that have not had to be addressed with the longstanding intermediary depiction model. I briefly outline just a few of the challenges and issues.[365]

1. Regulatory Expertise and Resources.—This Article has largely focused on disclosure challenges that stem from financial innovation. In order to develop proper regulatory responses to financial innovation, irrespective of whether the responses are in the context of disclosure, bank safety and soundness, systemic risk, or anything else, it is important to understand not only new financial products but also the underlying process through which such products are invented, introduced to the marketplace, and diffused. Moreover, the regulatory approach must be highly eclectic in nature, in terms of academic disciplines and in terms of "local knowledge" of marketplace realities. Thus, the academic disciplines of economics, finance, and law may offer the most important analytical insights as to the products and the process, but other disciplines, such as computer science, mathematics, and psychology, as well as cross-fertilization across disciplines can be extremely beneficial. But academic disciplines, no matter the range and the cross-fertilization, may fail to provide proper directions. The baselines may have become obsolete by reason of marketplace realities. In financial innovation, "local knowledge" of actual marketplace practices and institutions, may shed light on the limitations of academic learning and guide that learning along more promising paths. The optimal approach to addressing the regulatory demands of financial innovation, in other words, is one that is highly inclusive—one that comprehends the underlying innovation process and an eclecticism as to academic and local knowledge. There is a need for this very rich kind of interdisciplinary analysis, what I have elsewhere termed "unified approach" to capital markets regulation.[366]

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365. In this Section, I leave aside two sets of issues. First, just as I leave aside the human limitations associated with understanding intermediary depictions, I leave aside the human limitations on properly assessing and weighing what a person may see for himself. For an interesting discussion of how humans may make mistakes in seeing and weighing reality, see, for example, THOMAS GILOVICH, HOW WE KNOW WHAT ISN'T SO: THE FALLIBILITY OF HUMAN REASON IN EVERYDAY LIFE (1991).

Second, I leave aside the issues of how to put together the optimal portfolio of intermediary depiction and pure information-type models. This Article envisions a combination of an intermediary-depiction model and a pure information-type models as to, for instance, risk exposures of major financial institutions, in Subpart III(B) *infra*. But, in certain situations, using a comprehensive array of different informational models may not be called for on cost–benefit grounds, especially in view of the dangers of informational overload already existing in 300-page shareholder reports.

366. This paragraph is based on Hu, *Unified Approach*, *supra* note 240, which is based in part on the November 2009 keynote address at the *Quantifying Systemic Risk* conference referred to in the acknowledgements.

In the disclosure context, we have seen the need for expertise as to such esoteric matters as ABS pooling of assets and the waterfalls associated with various tranches, VaRs, stress tests, and derivatives modeling, irrespective of whether the SEC disclosure paradigm uses an intermediary depiction approach or a pure information approach. What may be less obvious, however, is the above-described need for local knowledge of marketplace realities. We can see this by considering market participant reactions to the possible changes in Regulation AB. Many of the comment letters stressed that the possible changes reflected the lack of familiarity with practices in the ABS industry.[367] Some believed, for instance, that greater familiarity with actual practices of waterfall programs would suggest that the costs of the SEC's proposed approach would dwarf the benefits, and that the proposed approach may currently be impractical. As to the SEC's choice of the Python language for the waterfall computer program, the ABA comment letter reported that one reaction was, "What *is* Python?"[368] It turned out that Python was a computer language that was "largely unheard of in the structured finance world."[369]

The SEC must have enough of the kinds of human resources consistent with such a unified approach. For nearly four decades, the SEC had operated in large part through four Divisions: Corporation Finance, Enforcement, Investment Management, and Trading and Markets (formerly Market Regulation).[370] The substantial majority of the professional staff at these Divisions are traditional lawyers. In the modern era, the first professional economists did not arrive at the SEC until the chairmanship of Roderick Hills in the mid-1970s.[371] As of August 2009, substantially all of the SEC's experts in economics and finance were in organizational units called the Office of Economic Analysis (OEA) and the Office of Risk Assessment (ORA).

This kind of pattern in human resources may have been suited to the simple capital markets, issues, and tools at the time of the creation of the SEC. Plain vanilla instruments like stocks and bonds dominated. And the essential regulatory goal was one familiar to traditional lawyers: preventing fraud. Moreover, the regulatory tools were fairly obvious: requiring high-quality corporate information and sanctioning material omissions and misrepresentations. Traditional lawyers had every reason to feel at home.

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367. Rubin & Tucker letter, *supra* note 185, at 56–57; Letter from Am. Securitization Forum to the Sec. & Exch. Comm'n, *supra* note 209, at 46–47.

368. Rubin & Tucker letter, *supra* note 185, at 56.

369. Baer Letter, *supra* note 181, at 44.

370. This discussion of the specialized resource needs at the SEC is based in part on Henry T. C. Hu, *Keynote Address: The SEC, Dodd-Frank, and Modern Capital Markets*, 7 N.Y.U. J. L. & BUS. 427, 432–37 (2011) and Hu, *Unified Approach*, *supra* note 240.

371. This is based on two private conversations with Mr. Hills in Washington, D.C. during my service at the SEC.

In modern capital markets, complex new products such as OTC derivatives and ABS have become important, the regulatory goals have become more diverse, and the appropriate regulatory tools have become less obvious. In terms of products, OTC derivatives essentially emerged around 1980.[372] But by mid-year 2011, the market had reached $708 trillion in notional amount terms.[373]

More important than individual types of OTC derivatives or asset-backed securities, a new process of financial innovation emerged. The underlying process of financial innovation—the way in which products were invented, introduced to the marketplace, and diffused—changed. Rooted in part in a revolution in how we think about risk, the process has come to have characteristics normally associated with science-based industries like biotechnology: specialized expertise, formal models, reliance on computers, and the like.[374] As we have seen, the subtle characteristics of the financial innovation process, such as the departures from Mertonian universalism, can have regulatory implications.

This new process even affects classic financial products like stocks and raises unfamiliar issues. As discussed in Section V(A)(2), *infra*, "high frequency trading" now dominates equity trading, and understanding this innovation's possible role in the May 6, 2010 "flash crash" depends on arcane issues having to do with the microstructure of modern equity markets.

The essential regulatory goals now extend well beyond addressing the fraud-type issues familiar to traditional lawyers. As we have seen, the issues of how best to provide information about the risk characteristics of major money center banks do not generally involve fraud, but center on issues pertaining to arcana of particular theoretical models. Notice also that the types of issues central to the traditional intermediary depiction model do not overlap with those central to the pure information model. With both models, the SEC would, of course, have to determine what substantive matters are to be covered. However, with the intermediary depiction model, the government role is heavy and largely of a traditional lawyer variety: ensuring that the depictions are accurate and complete. With a pure information model, however, issues of accuracy and completeness are largely not at issue. After all, the intermediary is not even providing a depiction: without any "statements," how can there be any misrepresentations and omissions? And the accessibility issue in many material respects depends on the computer aspects, such as whether Python is appropriate.

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372. Hu, *Regulatory Paradigm*, *supra* note 364, at 363–64.

373. INT'L SWAPS & DERIVATIVES ASS'N, INC., OTC DERIVATIVES MARKET ANALYSIS: JUNE 30, 2011, at 2 (2011), *available at* http://www2.isda.org/attachment/Mzg2NA==/OTC Derivatives%June%2011%Market%Analysis FINAL.pdf.

374. Hu, *Regulatory Paradigm*, *supra* note 372, at 337–38; Hu, *Misunderstood Derivatives*, *supra* note 7, at 1470–73.

With the onset of the GFC, and especially after the collapse of Lehman Brothers and the near-collapse of the world financial system in September 2008, it became increasingly clear that Congress would act to address the risks associated with complex financial innovations and complex financial institutions. A series of hearings culminated in the enactment of the Dodd-Frank Act in 2010, the most important piece of capital markets legislation since the Depression. In contrast to the federal securities acts of the 1930s, fraud issues and stocks and bonds were not at the core. Instead, the focus was on systemic risk issues, and the derivatives, ABS, and major financial institutions inextricably linked to those issues.

In September 2009, the SEC created the Division of Risk, Strategy, and Financial Innovation (Risk Fin), the first new Division since 1972, and the first since the emergence of the modern derivative.[375] Chairman Mary Schapiro asked me to be Risk Fin's inaugural Director. Since Risk Fin was co-equal with the four longstanding Divisions, existing and potential SEC staff who were not traditional lawyers were offered a real and highly visible seat at the table.

Concurrent with its creation, OEA and ORA became components of Risk Fin, so all of the staff at these two units (including the SEC's Chief Economist) immediately became members of my Risk Fin staff. With Risk Fin's subsequent adoption of an organizational structure consistent with its broad mandate, the OEA and ORA units disappeared, having been fully merged into the Division. Shortly afterward, Risk Fin welcomed all of the financial data processing and analysis (e.g., the computer-based EDGAR program) experts at the SEC's "Office of Interactive Disclosure."

Risk Fin's core purpose is to provide sophisticated, interdisciplinary analysis across the entire spectrum of SEC activities, including policymaking, rulemaking, enforcement, and examinations. As the SEC's "think tank," Risk Fin relies on a variety of academic disciplines, quantitative and nonquantitative approaches, and local knowledge of real-world market institutions, practices, and products to help the agency examine complex matters in a fresh light. Risk Fin hired individuals with corporate governance, financial, quantitative, risk management, scholarly research, and transactional expertise developed at major hedge funds, investment banks, law firms, and universities. These included individuals with advanced academic training in highly quantitative disciplines, such as mathematics. Some of those hired by Risk Fin had both a Ph.D. and deep local knowledge.

The essential notion was to respond to the interdisciplinary nature of the complex capital market issues now confronting the SEC with a Division with

375. Press Release, Sec. & Exch. Comm'n, SEC Announces New Division of Risk, Strategy, and Financial Innovation: Professor Henry Hu Named First Director (Sept. 16, 2009), *available at* http://www.sec.gov/news/press/2009/2009-199.htm; Kara Scannell, *At SEC, Scholar Who Saw It Coming*, WALL ST. J., Jan. 25, 2010, at C1.

interdisciplinary expertise, especially concerning the esoterics of complex risk and financial innovation matters. Outside observers, including *The Economist*, noticed.[376] SEC Chairman Schapiro stated:

> The Division of Risk, Strategy, and Financial Innovation is helping to bore through the silos that for too long have compartmentalized, and thereby limited the impact of our institutional expertise.
>
> It offers a reservoir of talent from a wide range of disciplines that supports initiatives underway throughout the agency.
>
> Already, as you may know, this Division has attracted renowned experts in the economic, legal, and public policy implications of the financial innovations being crafted on Wall Street.
>
> But more important than helping us keep pace with Wall Street, this Division has been working behind the scenes when fresh, interdisciplinary insights are vital to good decision-making. It has parachuted into complex legislative matters demanding immediate specialized expertise.
>
> It has worked with other Divisions and Offices on a wide variety of matters such as credit derivatives-based insider trading litigation, securitization, proxy access rule-making, and life settlements.
>
> This new Division already is proving crucial to the mission of the agency, and will continue to do so.[377]

Although, as Chairman Schapiro has put it, interdisciplinary analysis at the SEC is now no longer a "novelty" and the SEC has been set on a "new path,"[378] the creation of Risk Fin is merely one step in what has been done and what needs to be done. Some other SEC Divisions and Offices have, for instance, developed units with specialized expertise. The SEC has, and always had, some of the most talented traditional lawyers the country has to offer. It is important that, among other things, there also be enough staff with other kinds of backgrounds and skills.

Because of extraordinary budgetary limitations, the SEC is severely understaffed, both in terms of traditional lawyers and in terms of others of a more interdisciplinary ilk. The overall SEC budget would be increased substantially if the SEC were "self-funded"—the fees the SEC collects far

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376. *See, e.g.*, *Fingers in the Dike—What Regulators Should Do Now*, ECONOMIST, Feb. 11, 2010, at 14, 16 (noting Risk Fin's creation and stating that Risk Fin was "packed with heavyweight thinkers"); Alexander Campbell, *Profile: The Fin Man*, RISK, Jan. 2011, at 132 (describing some Risk Fin activities); Scannell, *supra* note 375 (discussing my being recruited to the SEC by Chairman Schapiro, staff I hired, and relationship to my academic research).

377. Mary L. Schapiro, Chairman, U.S. Sec. & Exch. Comm'n, Address at The SEC Speaks in 2010: Looking Ahead and Moving Forward (Feb. 5, 2010), *available at* http://www.sec.gov/news/speech/2010/spch020510mls.htm.

378. Press Release, U.S. Sec. & Exch. Comm'n, Henry T. C. Hu, Inaugural Director of Division of Risk, Strategy and Financial Innovation, to Return to University of Texas (Nov. 16, 2010) (on file with the *Texas Law Review*).

exceed its budget—rather than having to depend on annual Congressional appropriations. Despite vigorous efforts by multiple SEC chairmen, self-funding has proven elusive.[379]

Given this budgetary context, it is inevitable that building an interdisciplinary group large enough to properly deal with today's complex markets and products (and the kinds of demonstrable cost–benefit analyses necessitated by a vigorously assertive D.C. Circuit) will prove difficult. This is despite the SEC's clear commitment to a greater role for interdisciplinary analysis. The SEC's request to Congress for the upcoming 2013 fiscal year contemplates a Risk Fin budget of $35.6 million and 96 FTEs, as compared with Corporation Finance's $158.2 million and 503 FTEs, Enforcement's $512.9 million and 1,355 FTEs, Investment Management's $62.5 million and 184 FTEs, and Trading and Markets' $101.1 million and 310 FTEs.[380]

2. The Innovation Process, Cubbyholes, SEC as Supervisor, and the D.C. Circuit.—The modern process of financial innovation will lead to a continuing flow of new, often highly complex procedures. This process causes a variety of problems in the disclosure context.

As we have seen, the pure information model in an ABS context involves the use of a traditional "cubbyhole" approach used in law and regulation. That is, ABS falling into a specific cubbyhole would be subject to a series of specific regulatory requirements. The loan asset information required of ABS backed by auto loans is different from the information required of ABS backed by credit card receivables, which in turn is different from information required of ABS backed by residential mortgage-backed securities, and so forth.

Several independent reasons suggest that this approach would be unworkable in the long run. First, as I have argued elsewhere, this cubbyhole approach is inadequate to deal with the modern process of financial innovation in many different ways.[381] As with any classification-based system, there will be an incentive to "walk the line," to try to use the rules to one's own advantage. However, the modern process of financial innovation causes a far more fundamental problem—administrative and political realities prevent a more complex classification system, and since the diversity of financial products will grow as financial innovation continues, the system will assign improper regulatory "prices" with increasing frequency. The institutionalization of change, as well as the operation of a

379. *Memo to Congress: It's Time for SEC to Be Self-Funded*, INV. NEWS, May 16, 2011, at 8; *Congress Forges SEC Plan, Snubs Self-Funding Idea*, WALL ST. J., Aug. 17, 1994, at A4.

380. U.S. SEC. & EXCH. COMM'N, IN BRIEF: FY 2013 CONGRESSIONAL JUSTIFICATION 51–56 (2012).

381. *See, e.g.*, Hu, *Regulatory Paradigm*, *supra* note 372, at 394–412 (illustrating such inadequacies using the 1988 Basel Capital Adequacy Accord).

highly dynamic marketplace, will cause serious problems of regulatory obsolescence.

In theory, updating the cubbyholes in response to changing products is the answer. However, the extraordinary informational asymmetry between regulators and market participants can make this unrealistic. Among other things, financial institutions generally may develop an ABS without any governmental clearance.[382]

Second, there is a danger that this type of approach, in the context of continuing financial innovation, would require the SEC to become a different sort of regulatory agency, one inconsistent with its current disclosure role and more in the spirit of a bank regulator. Traditionally, the relationship between the SEC and companies has been one of merely ensuring that the company complied with disclosure requirements, albeit with the important exception of broker–dealers (and, for a period, certain global investment bank conglomerates).[383] There *is* no relationship unless the company has engaged in fraud.

By contrast, assume that an ABS pure information model is implemented. The relationship between ABS issuers and the SEC will have to be a continuing and intensive one. The SEC will need to keep abreast of changing products, and in appropriate cases, come up with new rules. It will also need to keep abreast of changing practices, like when participants elect to use data fields for loan assets different from those prescribed in SEC rules. The only way the SEC can do so is to be in close touch with major ABS participants. This may run headlong into some of the specialized human resource constraints previously discussed.

The relationship will also involve what can be referred to as "Heisenberg effects," after Werner Heisenberg, the physicist who noted that the very act of observation of an atomic particle itself affects the state and

382. *Cf.* Hu, *Misunderstood Derivatives*, *supra* note 7, at 1503–08.

383. For instance, under Rule 15c3-1, the SEC has long required broker–dealers to meet specified net capital levels. 17 C.F.R. § 240.15c3-1 (2011). With the SEC's adoption of the "consolidated supervised entities" (CSE) program, certain global investment bank conglomerates lacking a supervisor under law voluntarily submitted to the SEC net capital and related rules. In September 2008, the CSE program ended amidst controversy. Press Release, Sec. & Exch. Comm'n, Chairman Cox Announces End of Consolidated Supervised Entities Program (Sept. 26, 2008), *available at* http://www.sec.gov/news/press/2008/2008-230.htm. I should like to emphasize that, in some significant ways, the attacks on the CSE program were based on mistaken understandings of the legal regime. *See, e.g.*, Erik R. Sirri, Dir., Div. of Trading and Mkts., U.S. Sec. & Exch. Comm'n, Remarks at the National Economists Club: Securities Markets and Regulatory Reform (Apr. 9, 2009), *available at* http://www.sec.gov/news/speech/2009/spch040909ers.htm; Andrew W. Lo, Reading About the Financial Crisis: A Twenty-One-Book Review (Jan. 9, 2012) (unpublished manuscript), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1949908; Andrew W. Lo & Thomas J. Brennan, *Do Labyrinthine Legal Limits on Leverage Lessen the Likelihood of Losses?: An Analytic Framework*, 90 TEXAS L. REV. 1775 (2012).

properties of that particle.[384] The very act of the SEC specifying what is required for the data fields of various kinds of loan assets will heavily influence what data fields market participants actually use in their decision making.[385] Such Heisenberg effects can be deleterious, especially if the data fields are inappropriate to begin with or, even if appropriate initially, cannot be kept up to date. This can be seen currently with the Basel II Capital Adequacy Accord with respect to how it treats exposure to sovereign debt: for capital adequacy purposes, Greek sovereign debt is deemed to involve zero credit risk while the corporate debt of, say, IBM, is deemed to have material credit risk.[386] Banks keen on reducing how much capital they are required to hold may be diverted away from IBM debt and toward Greek debt.

Moreover, because of such Heisenberg effects, the SEC is moving toward the role of a bank regulator. What the SEC does will directly influence the substantive decisions of private decision makers. This is so even though, in contrast to bank regulators, the SEC may not necessarily have enough specialized industry expertise to undertake such a role.

Third, the process of financial innovation will make it even more difficult for the SEC to defend its rules in the U.S. Court of Appeals for the D.C. Circuit. In recent years, the SEC has repeatedly lost in the D.C. Circuit when its rules have been challenged on administrative law grounds.[387] This has been so even with respect to *Business Roundtable v. SEC*,[388] a case that rejected a rule that the SEC had long understood would be controversial and thus a strong candidate for court challenge. Moreover, *Business Roundtable* involved the relatively simple situation of proxy access and a relatively simple rule as well as reasoned interdisciplinary analysis justifying the rule. Much of the D.C. Circuit's concern focused on matters of cost–benefit economics in rulemaking. Whatever the holding's merits, as a practical matter, the need both for additional SEC staff with the requisite specialized expertise and a process of rulemaking that is more demonstrably interdisciplinary in nature is magnified. One outside observer has suggested that the combination of the threat of court challenges and congressional

384. *See* Paul Busch et al., *Heisenberg's Uncertainty Principle*, 452 PHYSICS REP. 155, 156 (2007) (describing the Heisenberg effect).

385. One of the reasons that the Federal Reserve does not provide its stress test models is that it is concerned that BHCs will simply use the Federal Reserve's models rather than developing their own. Tarullo, *supra* note 276, at 10.

386. *See The Interaction Between Sovereign Debt and Risk Weighting Under the Capital Requirements Directive (CRD) - as an Incentive to Limit Government Exposures*, at 6 (Sept. 2010), *available at* www.europarl.eiropa.eu/dicument/activities/cont/201106/2011067ATT20890/20110607ATT20890EN.pdf (discussing the essentially "risk-free status for certain sovereign debt within the Eurozone" as a "significant weakness of Basel II").

387. *See generally* James D. Cox & Benjamin J.C. Baucom, *The Emperor Has No Clothes: Confronting the D.C. Circuit's Usurpation of SEC Rulemaking Authority*, 90 TEXAS L. REV. 1811 (2012).

388. 647 F.3d 1144 (D.C. Cir. 2011).

power over the SEC's and CFTC's purse strings is an attempt by the derivatives industry to cause regulators to "go easy on derivatives."[389]

With a pure information model vis-à-vis ABS, the subject matter of any rule would be enormously complex. Moreover, we are not talking about justifying a single generation of rules. Because of the process of financial innovation, new kinds of ABS will arise, with a concomitant need for new pure-information specifications. It will be necessary to constantly revise ABS rules. The prospect of having to undergo repeated court challenges is daunting.

V. Departures from the Disclosure Philosophy's Incrementalist Approach

Thus far, this Article has largely focused on how the disclosure philosophy's longstanding implementation strategy needs to metamorphize. We turn now to how the disclosure philosophy itself, in particular its incrementalist component, is already in a process of metamorphosis. The incrementalist approach contemplates that the SEC stay within the realm of information, and focus on trying to ensure a robust informational base. Market prices should be determined in a well-informed market, and government should not seek to artificially manipulate prices upwards or downwards. Implicitly, the SEC should be a neutral bystander as bulls and bears engage. Similarly, the government should not intervene in the bargains struck among market participants, including those between underwriters and issuers.[390]

This incrementalist approach is already in metamorphosis. The departures from the incrementalist approach that have recently occurred are extraordinary in number and nature, even leaving aside entirely the substantive interventions associated with TARP and the derivatives-related provisions of Dodd-Frank. Part V discusses some of the departures outside of these TARP and Dodd-Frank interventions.[391] Perhaps the most striking

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389. Roger Lowenstein, *Derivatives Lobby Has U.S. Regulators on the Run*, BLOOMBERG (Apr. 17, 2012, 6:01 PM), http://www.bloomberg.com/news/2012-04-17/derivatives-lobby-has-u-s-regulators-on-the-run.html.

390. A self-regulatory organization, the Financial Industry Regulatory Authority (FINRA) (and, prior to its creation, the National Association of Securities Dealers) reviews the amount of compensation that underwriters may receive in connection with many underwritings. The review is based on FINRA's Rules of Fair Practice, which require members to comply with "high standards of commercial honor and just and equitable principles of trade." COFFEE & SALE, *supra* note 28, at 245.

391. I leave aside matters involving financial innovations that either constitute, or are first cousins to, the actual or potential departures from incrementalism discussed in this Article such as the following:

> (a) "empty voting" (*See, e.g.*, Concept Release on the U.S. Proxy System, Exchange Act Release No. 62,495, 75 Fed. Reg. 42,982, 43,017–20 (July 22, 2010) (discussing empty voting and possible responses); Kara Scannell, *SEC Probes 'Proxy Plumbing' – Biggest Review in 30 Years Puts Empty Voting and Other Issues Under Scope*, WALL ST. J.

and important of these departures was the SEC's short-selling ban adopted at the height of the GFC, a matter that we will look at in some detail.

I begin by discussing the departures involving deviations from price-neutrality.

A. Departures from Governmental Price-Neutrality

1. Governmental Intervention to Increase Securities Prices: The September 18, 2008 Short-Selling Ban.—At its core, a short sale is the sale of a security that the seller does not own.[392] In order to deliver the security to the purchaser, the short seller will borrow the security, typically from a broker–dealer or an institutional investor.[393] The short seller later closes out the position by buying equivalent securities on the open market and returning the security to the lender.[394] In general, a short seller profits from an unexpected downward price movement.[395]

In the modern era of financial science, it has come to be widely accepted that, in general, the practice of short selling can contribute materially to market efficiency, and thus is broadly supportive of governmental price neutrality. Yet, on September 18, 2008, the SEC

(July 15, 2010);
http://online.wsj.com/article/SB10001424052748703792704575366910882553810.html);
(b) "hidden (morphable) ownership" relating to Section 13(d) disclosure requirements (*See, e.g.*, Beneficial Ownership Reporting Requirements and Security-Based Swaps, Exchange Act Release No. 64,087, 76 Fed. Reg. 15,874 (Mar. 22, 2011) (proposing a rule that Dodd-Frank reforms include swap transactions); CSX Corp. v. Children's Inv. Fund Mgmt. (UK), 562 F. Supp. 2d 511 (S.D.N.Y. 2008), *aff'd in part, vacated in part, and remanded in part*, 654 F.3d 276 (2d Cir. 2011);
(c) "empty creditors" (*See, e.g.*, *Reform of the Over-the-Counter Derivative Market: Limiting Risk and Ensuring Fairnesss: Hearing Before the H. Comm. on Fin. Servs.*, 111th Cong. 19–20 (2009) (statements on empty creditor issues of Maxine Waters, Member of Congress, and Henry T. C. Hu, Director, Division of Risk, Strategy, and Financial Innovation, U.S. Securities and Exchange Commission), *available at* http://www.gpo.gov/fdsys/pkg/CHRG-111hhrg55811/pdf/CHRG-111hhrg55811.pdf;
(d) regulation of certain nonbank financial companies per designation as being a "systematically important nonfinancial company" (*See, e.g.*, Authority To Require Supervision and Regulation of Certain Nonbank Financial Companies, 77 Fed. Reg. 21,637 (Apr. 11, 2012) (to be codified at 12 C.F.R. pt. 1310));
(e) a new requirement that offering documents related to structured products disclose the products' fair value (*See, e.g.*, Andrew Ackerman, *Global Finance: SEC Wants Clearer 'Notes*,' WALL ST. J., Apr. 18, 2012, at C3); and
(f) limitations on issuance of new leveraged and inverse leveraged ETFs (*See, e.g.*, *Market Micro-Structure: An Examination of ETFs: Hearing Before the Subcomm. on Sec., Ins., & Inv. of the S. Comm. on Banking, Hous., & Urban Affairs*, 112th Cong. (2011) (statement of Eileen Rominger, Director, Division of Investment Management, U.S. Securities and Exchange Commission).

392. Short Sales, Exchange Act Release No. 48,709, 68 Fed. Reg. 62,972, 62,973 (Nov. 6, 2003).

393. *Id.*

394. *Id.*

395. *Id.*

temporarily banned all short sales. Moreover, the September 2008 ban and immediately antecedent steps ran counter to a manifest SEC trend, developed with the benefit of social science and bolstered by its own empirical analysis, of moving away from its longstanding hostility to short selling.

This sudden reversal, in apparent disregard of modern financial science and the tenets of the disclosure paradigm's incrementalist approach, was striking. It also raised two sets of questions. One is about the ability of a regulatory agency to remain true to its core tenets, notwithstanding populist and other challenges. The second is about the validity of those core tenets in the face of other possible governmental goals.

The first regulation against short selling was adopted in January of 1610, in the wake of the short selling of Dutch East India Company shares that left shareholders furious over a subsequent 12% drop in the company's share price.[396] Over the subsequent three centuries, disagreements over the impact of short selling on trading prices and appropriate regulatory policy remained unsettled.[397]

This was the situation when, in 1934, the Banking and Currency Committee noted that "[f]ew subjects relating to exchange practices have been characterized by greater differences of opinion than that of short selling."[398] Critics believed that short selling "unsettles the market, forces liquidation, depresses prices, accelerates declines, and has no economic value or justification."[399] President Herbert Hoover believed that the stock market declines were primarily due to the bear raids of short sellers. Proponents of short selling believed it to be a necessary feature of an open market for securities, useful in maintaining an orderly market in times of crisis, and capable of cushioning price declines.

Unable to determine where the truth lay, Congress simply punted the matter to the plenary rulemaking authority of the SEC.[400] Section 10(a) of the Exchange Act made unlawful short selling in registered securities "in contravention of such rules and regulations as the [SEC] may prescribe as necessary or appropriate in the public interest or for the protection of investors."[401]

In 1938, the SEC adopted its core short-selling constraint, the so-called "uptick" rule, a rule that essentially remained unchanged until its elimination

396. Arturo Bris et al., *Efficiency and the Bear: Short Sales and Markets Around the World*, 62 J. FIN. 1029, 1029 (2007).

397. *Id.* at 1030.

398. 7 LOUIS LOSS ET AL., SECURITIES REGULATION 115 (4th ed. 2012).

399. *Id.* at 115 (quoting S. REP. NO. 73-1455, at 50 (1934)).

400. *Id.*

401. Securities Exchange Act of 1934 § 10(a), Pub. L. No. 73-291, 48 Stat. 881, 891 (codified at 15 U.S.C. § 78j(a)(1) (2006)).

in July 2007.[402] The essential notion behind this rule was to allow relatively unrestricted short sales in a rising market but to prevent short selling at successively lower prices.[403] By intervening as shares were dropping, the intent was to prevent "bear raiders" and other short sellers from accelerating a declining market. Specifically, under Rule 10a-1, a subject security may be sold short (A) at a price above the price at which the immediately preceding sale was effected (a "plus" tick) or (B) at the last sale price if it is higher than the last different price (a "zero-plus" tick).[404] This price test for determining whether a short sale would be permitted also came to be commonly described as the "tick test."[405]

With the adoption of Regulation SHO in 2004,[406] the SEC added another short-selling constraint, but one which was far narrower in scope and which involved a variety of non-share-price-related concerns. Regulation SHO was directed at the practice of "naked short selling," a pattern where a short sale occurs without the short seller having borrowed the necessary securities to make delivery, thus potentially resulting in a "failure to deliver" securities to the buyer.[407] The concerns over this practice extended beyond its possible use in schemes to manipulate prices. A failure to deliver could, among other things, cause unanticipated credit exposures to the seller and deprive the buyers of the ability to vote the shares. Under Regulation SHO, broker–dealers would not be permitted to accept a short sale order in any equity security unless the broker–dealer (1) had borrowed the security, or entered into an arrangement to borrow the security, or (2) had reasonable grounds to believe that the security could be borrowed in a timely fashion (i.e., the broker is able to "locate" securities available for borrowing).[408]

In the 1930s, social science could provide few answers as to the value of short selling and constraints on short selling. But well before the GFC, advances in financial theory and sophisticated empirical studies provided abundant evidence that, in fact, short selling generally could contribute to the efficiency of markets and other dimensions of market quality.

In a seminal 1977 paper, Edward Miller hypothesized that, "[i]n a market with little or no short selling the demand for a particular security will come from the minority who hold the most optimistic expectations about

402. Amendments to Regulation SHO, Exchange Act Release No. 61,595, 75 Fed. Reg. 11,232, 11,235–37 (Mar. 10, 2010); LOSS ET AL., *supra* note 398, at 119 (describing the uptick rule).

403. Jonathan R. Macey et al., *Restrictions on Short Sales: An Analysis of the Uptick Rule and Its Role in View of the October 1987 Stock Market Crash*, 74 CORNELL L. REV. 799, 803–04 (1989).

404. Short Sales, Exchange Act Release No. 48,709, 68 Fed. Reg. 62,972 (Nov. 6, 2003).

405. *See, e.g.*, Macey et al., *supra* note 403, at 806 (describing the tick test in detail).

406. Short Sales, Exchange Act Release No. 50,103, 69 Fed. Reg. 48,008 (Aug. 6, 2004).

407. Short Sales, 68 Fed. Reg. at 62,975.

408. Short Sales, 69 Fed. Reg. at 48,014.

it."[409] The result will be the overpricing of shares.[410] In 1987, Douglas Diamond and Robert Verrecchia suggested that, while there may not necessarily be overpricing, short selling will cause the price of shares to adjust more slowly to unfavorable private information.[411] After considering these and other scholarly analyses published through 2006, two observers stated flatly, "[i]t is generally accepted that short-sale constraints affect the efficiency of security prices," with the main conclusion being that the "prices may not incorporate all available information when agents have heterogeneous beliefs but are prevented from revealing their beliefs through trading."[412] Writing in 2007, three academics observed that most of the theoretical research "suggests that short sales constraints have an adverse effect on efficiency" and that "the only question is how much."[413]

The empirical evidence available as of the time of the GFC was largely consistent with such theoretical models: constraining short selling hindered price discovery.[414] For instance, as to Miller's intuition, one study found that in Hong Kong, "short-sales constraints tend[ed] to cause stock overvaluation and that the overvaluation effect is more dramatic for individual stocks for which wider dispersion of investor opinions exists."[415] Confirming Diamond and Verrecchia's suggestion that unfavorable price information is likely to adjust more slowly in the presence of short-sale constraints, researchers have found repeatedly that the introduction of short sales is associated with negative future returns.[416] One 2007 study "analyz[ing] cross-sectional and time-series information from 46 equity markets around the world. . . . [found] some evidence that prices incorporate negative information faster in countries where short sales are allowed and practiced."[417] Another 2007 study found that "increases in shorting demand have economically large and statistically significant negative effects on future stock returns."[418]

Anecdotal evidence also supports the view that short selling can increase efficiency. One especially compelling story relates short seller

409. Edward M. Miller, *Risk, Uncertainty, and Divergence of Opinion*, 32 J. FIN. 1151, 1166 (1977).

410. *Id.*

411. Douglas W. Diamond & Robert E. Verrecchia, *Constraints on Short-Selling and Asset Price Adjustment to Private Information*, 18 J. FIN. ECON. 277, 302–03 (1987).

412. Pedro A. C. Saffi & Kari Sigurdsson, *Price Efficiency and Short Selling*, 24 REV. FIN. STUD. 821, 824–25 (2010).

413. Bris et al., *supra* note 396, at 1034.

414. *See, e.g.*, *id.* ("Empirical evidence on short selling largely supports the theoretical view that constraining it hinders price discovery."); Eric C. Chang et al., *Short-Sales Constraints and Price Discovery: Evidence from the Hong Kong Market*, 62 J. FIN. 2097, 2098 (2007) ("The available empirical evidence largely supports the theoretical view that constraining short sales hinders price discovery.").

415. Chang et al., *supra* note 414, at 2097.

416. Bris et al., *supra* note 396, at 1035.

417. *Id.* at 1029.

418. Lauren Cohen et al., *Supply and Demand Shifts in the Shorting Market*, 62 J. FIN. 2061, 2094 (2007).

James Chanos's role in exposing Enron. In late 2000, while Enron was trading near its all-time high of 90 and stock analysts were almost uniformly bullish, Chanos began shorting it after, among other things, careful dissection of Enron's accounting and "related party" transactions detailed in footnotes.[419] In February 2001, he began publicizing his views and, that month, a *Fortune Magazine* reporter contacted him. The resulting *Fortune* story served to trigger wide interest in troubling issues.[420] In the subsequent December 2001 *Fortune* story published after Enron had gone bankrupt, the reporter stated that, in early 2001, Chanos "said publicly what now seems obvious: No one could explain how Enron actually made money."[421]

The SEC was not only mindful of the emerging social science learning but also contributed to it. SEC questioning of the longstanding federal regulation of short selling began in 1975 and continued with a rulemaking proceeding, but faced with the opposition of industry participants, the SEC decided to retain the uptick rule in 1980.[422] In 1999, the SEC issued a concept release seeking public comment on a comprehensive assessment of the uptick rule.[423] The SEC stated that, although short selling can be used as a tool for manipulation:

> Short selling provides the market with at least two important benefits: market liquidity and pricing efficiency. Market liquidity is generally provided through short selling by market professionals, such as market makers (including specialists) and block positioners, who offset temporary imbalances in the buying and selling interest for securities. Short sales effected in the market add to the selling interest of stock available to purchasers and reduce the risk that the price paid by investors is artificially high because of a temporary contraction of selling interest. Short sellers covering their sales also may add to the buying interest of stock available to sellers.
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> Short selling also can contribute to the pricing efficiency of the equities markets. Efficient markets require that prices fully reflect all buy and sell interest. When a short seller speculates or hedges against

419. Jonathan R. Laing, *The Bear That Roared: How Short-Seller Jim Chanos Helped Expose Enron*, BARRON'S, Jan. 28, 2002, at 18.

420. Bethany McLean, Fortune, *Is Enron Overpriced?*, CNNMONEY (Jan. 19, 2006), http://money.cnn.com/2006/01/13/news/companies/enronoriginal_fortune/index.htm (reprinting the original March 5, 2001 story in Fortune magazine).

421. Bethany McLean, Fortune, *Why Enron Went Bust*, CNNMONEY (Dec. 24, 2001), http://money.cnn.com/magazines/fortune/fortune_archive/2001/12/24/315319/index.htm.

422. *See* Short Sales of Securities, Exchange Act Release No. 13,091, 41 Fed. Reg. 56,530 (Dec. 28, 1976) (commencing an investigatory and rulemaking proceeding on the practice of short sales); Short Sales of Securities, Exchange Act Release No. 11,276, 54 Fed. Reg. 12,522 (Mar. 19, 1975) (proposing changes to the short-sale rules); Short Sales of Securities, Exchange Act Release No. 17,347, 45 Fed. Reg. 80,834 (Nov. 28, 1980) (withdrawing "proposed temporary rules which would have suspended to varying degrees the operation of the 'tick' test provisions of a rule that governs sales").

423. Short Sales, Exchange Act Release No. 42,037, 64 Fed. Reg. 57,996 (Oct. 28, 1999).

> a downward movement in a security, his transaction is a mirror image of the person who purchases the security based upon speculation that the security's price will rise or to hedge against such an increase. Both the purchaser and the short seller hope to profit, or hedge against loss, by buying the security at one price and selling at a higher price. The strategies primarily differ in the sequence of transactions. Market participants who believe a stock is overvalued may engage in short sales in an attempt to profit from a perceived divergence of prices from true economic values. Such short sellers add to stock pricing efficiency because their transactions inform the market of their evaluation of future stock price performance. This evaluation is reflected in the resulting market price of the security
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> . . . .
>
> Arbitrageurs also contribute to pricing efficiency by utilizing short sales to profit from price disparities between a stock and a derivative security, such as a convertible security or an option on that stock. For example, an arbitrageur may purchase a convertible security and sell the underlying stock short to profit from a current price differential between two economically similar positions.[424]

In 2003, on reviewing the comment letters submitted in response to the concept release and after considering the operation of the existing short-selling rules, the SEC decided to retain the rule in modified form. More importantly for our purposes, the SEC suspended, on a pilot basis, the trading restrictions of the uptick rule for short sales in certain securities so that they could determine the continuing value of price tests.[425] In July 2004, the SEC issued an order for a pilot program (Pilot) exempting a third of the stocks in the Russell 3000 Index from all price restrictions.[426] In the order, the SEC stated that the Pilot would enable the SEC to obtain empirical data on the impact of short-sale price tests on market quality by analyzing differences between the Pilot stocks and the control group (i.e., the rest of the Russell 3000 Index).[427] In a publicly released report dated February 6, 2007, the (former) OEA found that short-selling price restrictions "constitute an economically relevant constraint on short selling" and that removing such restrictions for the pilot stocks "on balance has not had a deleterious impact on market quality or liquidity."[428] In addition, the SEC encouraged outside

424. Short Sales, Exchange Act Release No. 48,709, 68 Fed. Reg. 62,972, 62,972 & n.22 (Nov. 6, 2003).

425. Short Sales, Exchange Act Release No. 50,103, 69 Fed. Reg. 48,008, 48,009 & n.22 (Aug. 6, 2004).

426. Order Suspending the Operation of Short Sale Price Provisions for Designated Securities and Time Periods, Exchange Act Release No. 50,104, 69 Fed. Reg. 48,032, 48,032 (Aug. 6, 2004).

427. *Id.*

428. OFFICE OF ECON. ANALYSIS, SEC. & EXCH. COMM'N, ECONOMIC ANALYSIS OF THE SHORT SALE PRICE RESTRICTIONS UNDER THE REGULATION SHO PILOT 56 (Feb. 6, 2007), *available at* http://www.sec.gov/news/studies/2007/regshopilot020607.pdf. The functions of the

researchers to examine the Pilot data and held a public roundtable that focused on the empirical evidence learned from the Pilot data. Generally, the empirical evidence from the OEA, outside researchers, and the roundtable supported removal of short-sale price-test restrictions at that time.[429]

Throughout the modern era, the SEC's approach was to move increasingly to lessen the effect of the uptick rule, including through no-action letters that rendered the uptick rule less effective.[430] Following a "careful, deliberative rulemaking process, carried out in multiple stages," in July 2007, the SEC eliminated all short-sale price-test restrictions.[431]

With the onset of the GFC, matters moved rapidly, in the entirely opposite direction, often without the usual public "notice and comment."[432] Between July 2008 and April 2009, the SEC took more than fifteen regulatory actions on short selling, eleven of which came within the span of two months. Instead of following the usual public notice and comment process for rulemaking, many of the rules were adopted using emergency orders and rulemaking authority in which rules came into force without any prior opportunity for public comment.

Most importantly, relying on its Section 12(k)(2) authority, on September 18, 2008, the SEC issued an emergency order banning all short sales in the securities of "financial" firms.[433] Not only was there no opportunity for public comment, but the order also went into immediate effect. On September 21, the SEC effectively allowed the exchanges to determine if a firm was "financial."[434] Nearly 1,000 firms were so deemed, a category interpreted so expansively that it included CVS Caremark, Ford, General Motors, and International Business Machines.[435]

(former) Office of Economic Analysis and the (former) Office of Risk Assessment, and additional functions that were never carried out by either office, were assumed by the Division of Risk, Strategy, and Financial Innovation, as discussed at Section IV(c)(1).

429. *Id.*; Amendments to Regulation SHO, Exchange Act Release No. 59,748, 74 Fed. Reg. 18,042, 18,045 (Apr. 20, 2009).

430. *See, e.g.*, LOSS ET AL., *supra* note 398, at 130 (referring to SEC uptick actions as a "crazy quilt pattern of regulation [that] was not logical" and suggesting that the authors did not foresee much continued SEC support for the uptick rule); Erik R. Sirri, *Regulatory Politics and Short Selling*, 71 U. PITT. L. REV. 517, 523 (2010) (enumerating the many exemptions to the uptick rule granted by the SEC through no-action letters).

431. Amendments to Regulation SHO, 74 Fed. Reg. at 18,042.

432. Sirri, *supra* note 430, at 519, 531.

433. Emergency Order Pursuant to Section 12(k)(2) of the Securities Exchange Act of 1934 Taking Temporary Action to Respond to Market Developments, Exchange Act Release No. 58,592, 73 Fed. Reg. 55,169 (Sept. 18, 2008).

434. *See* Amendment to Emergency Order Pursuant to Section 12(k)(2) of the Securities Exchange Act of 1934 Taking Temporary Action to Respond to Market Developments, Exchange Act Release No. 58,611, 73 Fed. Reg. 55,556, 55,556 (Sept. 21, 2008) (amending the order to not apply to "market makers").

435. Tom Lauricella et al., *SEC Extends 'Short' Ban as Bailout Advances*, WALL ST. J., Oct. 2, 2008, at C1; Kara Scannell & Serena Ng, *SEC's Ban on Short-Selling Is Casting a Very Wide Net*, WALL ST. J., Sept. 26, 2008, at C1.

This was extraordinary. The last time short selling was banned in the United States was in September 1931[436]—before the SEC was even created. And the primary justification for the 2008 ban was cast not in terms of the price efficiency of individual stocks, but instead on "investor confidence" in financial markets as a whole. In undertaking the ban, the SEC stated:

> Given the importance of confidence in our financial markets as a whole, we have become concerned about recent sudden declines in the prices of a wide range of securities. Such price declines can give rise to questions about the underlying financial condition of an issuer, which in turn can create a crisis of confidence, without a fundamental underlying basis. This crisis of confidence can impair the liquidity and ultimate viability of an issuer, with potentially broad market consequences.
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> . . . .
>
> As a result of these recent developments, the Commission has concluded that there continues to exist the potential of sudden and excessive fluctuations of securities prices generally and disruption in the functioning of the securities markets that could threaten fair and orderly markets.[437]

In contrast to the previous SEC focus on issues of the quality of an individual stock's price and the impact of short-selling constraints, here the focus was on investor confidence in our markets as a whole—something the absence of which the SEC seemed to directly map to "declines in the prices of a wide range of securities." In congressional testimony the week following adoption of the ban, then-SEC Chairman Christopher Cox stated that, in a climate where the downward spiral of a stock is based on fear and not on normal information, "we want to make sure that decisions in the market are going to be made in a way that protects the overall market and investors in it."[438] Similarly, in referring to short-selling actions taken by the SEC in the 2007–2009 period, the SEC noted in 2010 that:

> Since [the February 2007 abolition of the uptick rule], there has been significant market turmoil. Concurrent with the development of the subprime mortgage crisis and credit crisis in 2007, market volatility, including steep price declines, particularly in the stocks of certain financial services companies, increased markedly in the U.S. and in every major stock market around the world (including markets that

436. Ekkehart Boehmer et al., Shackling Short Sellers: The 2008 Shorting Ban 4 (Dec. 23, 2011) (unpublished manuscript), *available at* http://ssrn.com/abstract=1412844.

437. Emergency Order Pursuant to Section 12(K)(2) of the Securities Exchange Act of 1934 Taking Temporary Action to Respond to Market Developments, 73 Fed. Reg. at 55,170.

438. *Turmoil in U.S. Credit Markets: Recent Actions Regarding Government-Sponsored Entities, Investment Banks, and Other Financial Institutions: Hearing Before the S. Comm. on Banking, Hous., & Urban Affairs*, 110th Cong. 53 (2008) (statement of Christopher Cox, Chairman, U.S. Sec. & Exch. Comm'n).

> continued to operate under short sale price test restrictions). As market conditions continued to worsen, investor confidence eroded, and the Commission received many requests from the public to consider imposing restrictions with respect to short selling, based in part on the belief that such action would help restore investor confidence.[439]

This was diametrically opposed to the core tenets of the disclosure philosophy. "Investor confidence," broadly defined, is certainly important to capital formation and the functioning of markets, and thus is generally consistent with the disclosure paradigm. In the context of the immediate short-sale constraints, it appears, however, the phrase could be roughly translated as "higher prices," especially as to financial institutions.

The ban was also, according to then-Chairman Cox in an interview with the *Washington Post* at the end of December 2008, the "biggest mistake" of his tenure.[440] Cox publicly acknowledged for the first time that this ban was not productive. Cox said he had been under intense pressure from Treasury Secretary Henry Paulson and Federal Reserve Chairman Ben Bernanke to take this action, and did so only reluctantly.[441] Cox stated that they "were of the view that if we did not act and act at that instant, these financial institutions could fail as a result and there would be nothing left to save."[442] In Chairman Cox's congressional testimony the week after the ban, Cox emphasized that the ban was "highly unusual and a very difficult one for the [SEC]," and that "[i]t was taken with the support of and in coordination with" Paulson and Bernanke.[443] Third-party reports are broadly consistent with the notion that the Treasury Secretary had put intense pressure on an SEC Chairman reluctant to deviate from a free-market philosophy.[444]

Congress also put pressure on the SEC, although it is unclear what effect this had. Two days prior to the SEC ban on short selling financial stocks, Senators Hillary Clinton and Charles Schumer had called for such a ban because such a "step [would] help restore a measure of stability to our financial markets."[445] Earlier the same month, Senator John McCain, then running for the Presidency, blasted the SEC's elimination of the uptick rule

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439. Amendments to Regulation SHO, Exchange Act Release No. 61,595, 75 Fed. Reg. 11,232, 11,232 (Mar. 10, 2010) (footnotes omitted).

440. Amit R. Paley & David S. Hilzenrath, *SEC Chair Defends His Restraint During Financial Crisis*, WASH. POST, Dec. 24, 2008, at A4.

441. *Id.*

442. *Id.*

443. *Turmoil in U.S. Credit Markets*, *supra* note 438, at 52.

444. *See, e.g.*, ANDREW ROSS SORKIN, TOO BIG TO FAIL 421–22, 426 (2009) (recounting the efforts of senior managers at Morgan Stanley and Blackstone Group to convince Treasury Secretary Paulson to make a short-selling ban happen).

445. *SEC Puts Halt on Short Selling Stocks*, CBS MONEYWATCH (Feb. 11, 2009, 2:18 PM), http://www.cbsnews.com/2100-500395_162-4459686.html.

and said that he would fire Chairman Cox because he had "betrayed the public's trust."[446]

The events of mid-September 2008 were extraordinary, and those concerned with the SEC's departure from its core regulatory principles should take some solace from the fact that the situation will not often repeat itself (concededly, this statement may illustrate the triumph of hope over experience) and in this extraordinary situation, departure could be better justified.[447] On September 15, Lehman Brothers Holdings, the fourth-largest U.S. investment bank, filed for Chapter 11 bankruptcy.[448] On September 16, the Federal Reserve stepped in with an $85 billion loan to keep American International Group afloat.[449] The same day, there was a run on the Reserve Primary Fund, a large money market fund that held large amounts of Lehman paper, causing a run on other money market funds.[450] On September 19, Treasury Secretary Paulson proposed TARP, giving the Treasury Department authority to, among other things, spend $700 billion to purchase subprime mortgage assets.[451] The previous day, Federal Reserve Chairman Bernanke had met privately with congressional leadership to lobby for the bill and stated, "I can tell you from history that if we don't act in a big way, you can expect another great depression, and this time it is going to be far, far worse."[452] The TARP bill was rejected by Congress ten days later.

Perhaps matters were at a tipping point for our society and what would be *perceived* as bold, decisive action was necessary to prevent a death spiral in financial markets, irrespective of whether the action actually turned out to be successful and regardless of the harmful side effects of the action. In a private conversation with Treasury Secretary Paulson shortly before the ban, Steve Schwartzman of the Blackstone Group stated that "the system's going to collapse in the next few days" and advised:

> You have to approach what you're doing from the perspective of being a sheriff in a western town where things are out of control . . . and you have to do the equivalent of just walking onto Main Street

446. *McCain's Scapegoat*, WALL ST. J. (Sept. 19, 2008), http://online.wsj.com/article/SB122178318884054675.html.

447. Rodge Cohen, an important participant in the resolution of GFC-related matters, writes in this Symposium issue of how close we came to "total financial collapse" in the fall of 2008. He states that "[a] total catastrophe was avoided only through massive government assistance" "as well as a very large measure of luck." H. Rodgin Cohen, *Preventing the Fire Next Time: Too Big To Fail*, 90 TEXAS L. REV. 1717, 1717 (2012).

448. For an account of the events of mid-September 2008, see, for example, Frederic S. Mishkin, *Over the Cliff: From the Subprime to the Global Financial Crisis*, 25 J. ECON. PERSP. 49, 49–50 (2011).

449. *Id.* at 54.

450. *Id.*

451. *Id.*

452. SORKIN, *supra* note 444, at 443.

> and shooting your gun up in the air a few times to establish that you're in charge because right now no one is in charge!
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> . . . .
>
> *[T]he first thing you could do is stop short-selling of financial institutions—forget whether it's effective in removing the pressure, although it might be.* What will be accomplished is that you will scare the participants in the market, and they will recognize that things are going to change and they can't continue to invest in the exact same way, and that will force people to pause.[453]

Moreover, in this situation, continuing declines in the *trading* price of shares could lead to significant declines in the true, *intrinsic value* of the shares and undermine the real economy.[454] Bank runs, even if completely ungrounded, could cause well-run banks to collapse, ruin bank shareholders, and harm the economy at large. A stock market crash, even if completely ungrounded, would also impact the intrinsic value of substantially all shares and hurt the real economy. In September 2008, the equivalent of a bank run or a stock-market crash could be said to have been occurring. Scholarly research suggests that short sellers would have an especial incentive to manipulate a company's shares if the company would suffer real effects.[455] The CEOs of Lehman and Morgan Stanley genuinely believed that short sellers were engaging in manipulation of their shares,[456] and the possibility of this kind of short-selling behavior cannot be dismissed. In such a situation, governmental intervention as to trading prices could be better justified.

However, the apparent structural conflicts evident in the 2008 short-selling ban remain in place today, as do conceptual issues relating to the disclosure paradigm, including the appropriateness of further departures in the area of short selling. It would not be fair to simply characterize the Federal Reserve and Treasury Department as suffering from a myopic interest in short-term financial stability, or suffering from excessive aversion to risk.

For one thing, the goals of the Federal Reserve and the Treasury Department are different from the traditional goals of the SEC. The Federal Reserve and Treasury Department have as primary goals the financial stability of markets and the soundness of financial-services firms, especially

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453. *Id.* at 426 (emphasis added).

454. As to distinctions between the trading price of shares and the intrinsic value of shares, and how such distinctions can complicate conceptions of the "shareholder wealth maximization" objective of corporate managers, see, for example, Hu, *supra* note 255, at 1000–10; Henry T. C. Hu & Jay Lawrence Westbrook, *Abolition of the Corporate Duty to Creditors*, 107 COLUM. L. REV. 1321, 1354–60 (2007).

455. *See generally, e.g.*, Itay Goldstein & Alexander Guembel, *Manipulation and the Allocational Role of Prices*, 75 REV. ECON. STUD. 133 (2008) (examining the phenomenon of short sales and finding that speculators have a greater opportunity to profit when short sales of a company's stock will substantially impact that company's projects and operations).

456. SORKIN, *supra* note 444, at 14–15, 422–23.

in the short term. The SEC's primary goal is more long-term and diffuse in nature: ensuring efficient, fully-informed financial markets driven by decision makers in the private sphere. The dynamic nature of such markets may well cause short-term pain, but that may be the price one has to pay for efficient markets and efficient allocation of resources.

In some ways, the differences between the Federal Reserve and Treasury Department on the one hand and the SEC on the other reflect differences in agency objectives familiar to regulators worldwide. For instance, the "twin peaks" approach to the structure of financial regulation, most prominently associated with the Netherlands, recognizes this. Under the twin peaks approach, there is a separation of regulatory functions between two regulators, one that focuses on safety and soundness supervision and another that focuses on conduct of business.[457] It would thus be unfair to simply suggest that in September 2008 those interested in obvious short-term succor prevailed over those interested in the more diffuse long-term, but important, benefits of a well-functioning market.

The Treasury Department and the Federal Reserve tend to be the primary governmental actors in economic matters and, moreover, are far more powerful than the SEC. Their bargaining power relative to the SEC may be leveraged by the SEC's dependence on appropriations from Congress. Matters of short-term stability and soundness are more concrete and, especially in times of crisis, far more emphatic than the subtle logic associated with unruly but efficient markets.

The creation of the Financial Stability Oversight Council (FSOC) under the Dodd-Frank Act may further limit the impact of the SEC on the ultimate regulatory results, particularly in periods of stress. With ten voting members, including the Treasury Secretary as Chairperson and the Federal Reserve Board Chairman and SEC Chairman, one of the three primary purposes of the FSOC is to "respond to emerging threats to the stability of the U.S. financial system."[458] As a statutory matter, the SEC Chairman must explicitly consider stability issues.[459] The "Working Group on Financial Markets," which the FSOC supplants, was not so uniquely focused on avoidance of risk: its focus was on making recommendations for "enhancing the integrity, efficiency, orderliness, and competitiveness of . . . financial markets and maintaining investor confidence."[460]

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457. *See, e.g.*, GRP. OF THIRTY, THE STRUCTURE OF FINANCIAL SUPERVISION: APPROACHES AND CHALLENGES IN A GLOBAL MARKETPLACE 24, 197–204 (2008); Jeroen Kremers & Dirk Schoenmaker, *Twin Peaks: Experiences in the Netherlands* 2 (LSE Fin. Mkts. Grp. Paper Series, Special Paper 196, 2010).

458. Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, Pub. L. No. 111-203, §§ 111(b)(1)(A)–(J), 112(a)(1)(C), 124 Stat. 1376, 1392–94, 1395 (codified at 12 U.S.C. §§ 5321, 5322 (Supp. IV 2011)).

459. *Id.* § 112(a)(2)(C) (codified at 12 U.S.C. § 5322 (Supp. IV 2011)).

460. Exec. Order No. 12,631, 53 Fed. Reg. 9,421 (Mar. 18, 1988).

The debate over whether governments should, in the future, undertake actions as drastic as the 2008 ban would need to be informed by the actual impact of the ban and the justifications used for the ban. Empirical studies by academics have been decidedly skeptical. Boehmer, Jones, and Zheng concluded that "it is not at all clear" that the ban "achieved its unstated goal of artificially raising prices on financial stocks"; moreover, what "is clear" is that "market quality was severely compromised."[461] Looking at New York Stock Exchange transaction records, Bailey and Zheng found that "short sales did not contribute substantially to stock price declines" during the GFC and concluded that "constraining short-selling is unwarranted."[462] Looking at a global dataset from 2005 to 2008, Saffi and Sigurdsson concluded that the imposition of constraints reduced price efficiency and did not achieve the desired objective of stabilizing prices.[463] Similarly, in analyzing the effects of short-selling bans and constraints around the world in the period 2008–2009, Beber and Pagano concluded that such regulatory interventions were detrimental to market liquidity and slowed price discovery.[464] Moreover, interventions also failed to support prices, except possibly for U.S. financial stocks; however, there is a possibility that the near-concurrent TARP announcements, rather than the short-selling ban, may explain this apparent U.S. anomaly.[465]

Both prior and subsequent to the September 2008 ban, the SEC has taken a vast array of far more nuanced and measured steps with respect to short selling. The September 2008 emergency order adopting a wholesale ban on nearly 1,000 stocks was all of five pages, bereft of economic analysis, and did not benefit from a notice-and-comment process.[466] In February 2010, the SEC adopted a new, very tightly limited short-sale-related circuit breaker after an extended notice-and-comment procedure that began in April 2009 and yielded over 4,300 unique comment letters.[467] The adopting release ran ninety-four pages as printed in the *Federal Register* (in a font size that only the carrot-eating Bugs Bunny would be able to read) and 638 pages as originally released by the SEC.[468] Relying heavily on scholarly economic

461. Boehmer et al., *supra* note 436, at 26.

462. Warren Bailey & Lin Zheng, Banks, Bears, and the Financial Crisis 1 (Sept. 20, 2011) (unpublished manuscript), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1695062.

463. Saffi & Sigurdsson, *supra* note 412, at 849.

464. Alessandro Beber & Marco Pagano, *Short-Selling Bans Around the World: Evidence from the 2007-2009 Crisis*, J. FIN. (forthcoming), *available at* http://www.afajof.org/afa/forthcoming/7887.pdf.

465. *Id.* at 31.

466. Emergency Order Pursuant to Section 12(K)(2) of the Securities Exchange Act of 1934 Taking Temporary Actions to Respond to Market Developments, Exchange Act Release No. 58,592, 73 Fed. Reg. 55,169, 55,169–74 (Sept. 18, 2008).

467. Amendments to Regulation SHO, Exchange Act Release No. 61,595, 75 Fed. Reg. 11,232, 11,244 (Feb. 26, 2010).

468. *Id.*

research and using a concept of "investor confidence" far more subtle (and justifiable) than the blanket "higher prices" notion at the heart of the 2008 emergency order,[469] the analysis benefited from the luxury of time, and was more considered.

I explicitly leave aside discussing the merits of this and the many other steps more nuanced than the September 2008 ban. Any such evaluations are beyond the scope of this Article. I do suggest that many of the themes central to the September 2008 ban could affect all federal attempts at price interventions, including any related to short selling.

I also suggest that, by reason of explicit statutory provisions, this area will remain quite active for the SEC. The Dodd-Frank Act requires Risk Fin to conduct a study on the state of short selling in the national securities exchanges and over-the-counter markets.[470] Moreover, Dodd-Frank required Risk Fin to determine the feasibility of reporting published short-sale positions and the feasibility of another short-sale-related pilot program. Perhaps the focus Dodd-Frank has thus placed on Risk Fin, the Division responsible for sophisticated, interdisciplinary analysis across the full range of SEC activities, will contribute to due consideration of the economic virtues of the disclosure paradigm and market efficiency.

The extent to which market efficiency may, in truly rare cases, need to be sacrificed to other public policy goals, such as financial stability, and the manner in which such efficiency should be sacrificed on such occasions are challenging issues. They, as well as the general issues of the independence of the SEC and the political economy of SEC decision making, are beyond the scope of this Article.[471]

2. Governmental Interventions to Clear Gaps Between Trading Prices and Intrinsic Value: The Flash Crash, the Fragility of the Microstructure of the Modern Equity Market, and Correlation Bubbles.—Governmental interventions in short selling are price unidirectional in nature and, at least in the case of the September 2008 intervention, largely relate to stock market prices as a whole. Share prices are too low, whether because of short sellers engaged in manipulative activities or otherwise, and the government steps in to try to cause prices to increase. This response to short selling has been going on for four centuries.

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469. *Id.* at 11,234 n.16.

470. Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, Pub. L. No. 111-203, § 417(a), 124 Stat. 1376, 1579 (2010).

471. Even Justice Stephen Breyer has weighed in on SEC independence and criteria that may suggest agency independence. *See* Free Enter. Fund v. Pub. Co. Accounting Oversight Bd., 130 S. Ct. 3138, 3183 (2010) (Breyer, J., dissenting) (discussing the relation between the protection of SEC Commissioners from removal and agency independence); *id.* at 3215 app.6 (setting out six criteria that may suggest agency independence). As to the political economy of SEC decision making, see, for example, John C. Coates IV, *Private vs. Political Choice of Securities Regulation: A Political Cost/Benefit Analysis*, 41 VA. J. INT'L L. 531 (2001).

This Article argues that a new kind of government intervention may be occurring, one that is not price unidirectional and does not involve "pump and dump" or other fraudulent schemes. And this new kind of intervention is in large part caused by the apparent effects of drastic, computer- and financial innovation-driven changes in the microstructure of secondary trading in equities. The "flash crash" of May 6, 2010, and the possible role of "high frequency trading" (HFT) therein, and other aspects of the modern equity market are causing the government to consider strategies to address unquestionably manifest gaps between the trading price and the intrinsic value of the shares of specific companies, independent of the concerns over the movements of the stock market as a whole (such as a stock market crash). This is price *bidirectional*: the government is concerned if the price of a particular stock is way too high, as well as if it is way too low.

Some background about this highly technical area and the striking price movements during the May 6, 2010 flash crash may be helpful.[472] The secondary market for equities has changed dramatically over the past several decades.[473] In 1975, when Congress directed the SEC to facilitate the establishment of a national-market system to link together the multiple individual markets that trade securities, trading was dominated by exchanges with manual trading floors. Today, the market is dominated by automated trading.[474] Moreover, trading volume is now dispersed—fragmented—among many highly automated trading centers that compete for order flow. By October 2009, the NYSE executed only 25.1% of the consolidated share volume in its listed stocks.[475] HFT, a term referring loosely to professional traders acting in a proprietary capacity that engage in strategies generating a large number of trades on a daily basis, may account for at least 50% of equity trading.[476]

In January 2010, the SEC issued a concept release on its comprehensive review of equity market structure.[477] The SEC had been looking at, among other things, HFT matters. For instance, at Risk Fin's invitation, Sal Arnuk and Joseph Saluzzi, two Wall Street professionals, spoke on HFT the previous November.[478]

Critics of EMH often point to the October 1987 crash, when the Dow Jones Industrial Average fell 22.7% in one day in the absence of significant

472. For the basis of part of this analysis, see also Henry T. C. Hu, *Efficient Markets and the Law: A Predictable Past and an Uncertain Future*, 4 ANN. REV. FIN. ECON. (forthcoming Dec. 2012).

473. Concept Release on Equity Market Structure, Exchange Act Release No. 61,358, 75 Fed. Reg. 3594 (Jan. 14, 2010).

474. *Id.*

475. *Id.* at 3595.

476. *Id.* at 3606.

477. *Id.* at 3594.

478. JIM MCTAGUE, CRAPSHOOT INVESTING: HOW TECH-SAVVY TRADERS AND CLUELESS REGULATORS TURNED THE STOCK MARKET INTO A CASINO 98 (2011).

outside news. EMH adherents could respond that EMH requires only that prices reflect the aggregate expectation of economic value.[479]

The flash crash of May 6, 2010 was a far more extreme situation than the October 1987 crash and involved some prices that were way too high as well as way too low. The flash crash is even more difficult to reconcile with EMH. Market microstructure—"plumbing"—contributed to bizarre mispricings. The limits to arbitrage as a correcting mechanism turned out to be severe, regarding both individual shares and the arbitrage mechanisms of ETFs intended to keep ETF trading prices close to the value of their underlying assets.

On May 6, prices were declining broadly in orderly fashion until about 2:41 PM.[480] Between 2:41 PM and 2:45:28 PM—4 minutes or so—trading volume spiked and the broad markets plummeted 5–6%.[481] Then, roughly simultaneous with broad recovery—from 2:45 PM to about 3:00 PM—many individual securities traded at unfathomable prices.[482] At 2:47:15 PM, Proctor & Gamble's shares traded 36% lower than its 2:40 PM price.[483] Accenture fell from $30 to one penny in 7 seconds.[484] Sotheby's jumped to about $100,000.[485] Between 2:40 PM and 3:00 PM, over 20,000 trades across more than 300 securities were executed at prices 60% or more away from 2:40 PM prices.[486] Ironically, just hours before, a Federal Reserve economist had presented a paper at Risk Fin arguing that high-frequency traders in the currency markets reduce market volatility.[487]

Nothing happened in the real world in those 20 minutes. From an EMH standpoint, a bit of solace comes from the fact that some market participants, on seeing prices collapse, assumed that some cataclysmic event unknown to them had occurred.[488]

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479. *See* Andrew Ang et al., *The Efficient Market Theory and Evidence: Implications for Active Investment Management*, 5 FOUND. & TRENDS FIN. 157, 159 (2010) ("In simple terms, the efficient market theory asserts that, at all times, the price of a security reflects all *available* information about its fundamental value.") (emphasis added).

480. U.S. COMMODITY FUTURES TRADING COMM'N & U.S. SEC. & EXCH. COMM'N, PRELIMINARY FINDINGS REGARDING THE MARKET EVENTS OF MAY 6, 2010, at 18 (2010) [hereinafter PRELIMINARY CFTC-SEC FLASH CRASH STUDY], *available at* http://www.sec.gov/sec-cftc-prelimreport.pdf; *see also* U.S. COMMODITY FUTURES TRADING COMM'N & U.S. SEC. & EXCH. COMM'N, FINDINGS REGARDING THE MARKET EVENTS OF MAY 6, 2010, at 33 (2010) [hereinafter FINAL CFTC-SEC FLASH CRASH STUDY], *available at* http://www.sec.gov/news/studies/2010/marketevents-report.pdf (exhibiting a line graph showing steady declines in the minimum executed price of S&P 500 shares until around 2:41 PM, when the price suddenly plummets).

481. FINAL CFTC-SEC FLASH CRASH STUDY, *supra* note 480, at 9.

482. *Id.*

483. *Id.* at 84.

484. *Id.* at 83.

485. PRELIMINARY CFTC-SEC FLASH CRASH STUDY, *supra* note 480, at 54.

486. FINAL CFTC-SEC FLASH CRASH STUDY, *supra* note 480, at 1.

487. MCTAGUE, *supra* note 478, at 98.

488. FINAL CFTC-SEC FLASH CRASH STUDY, *supra* note 480, at 4–5.

The narratives or explanations center on market microstructure. The CFTC-SEC staff's narrative focuses on the actions of a trader at a single mutual fund complex at 2:32 PM.[489] He initiated a sell program to sell 75,000 E-Mini S&P 500 futures contracts via an automated execution algorithm. The nature of the algorithm and the particular circumstances precipitated a liquidity crisis in individual stocks and in the E-Mini, one of the most actively traded index instruments in the electronics futures and equity markets.

That a single trader's single sale decision may have caused a near collapse is deeply troubling. Nothing suggests that this could not happen again.

Outsiders reject this CFTC–SEC narrative. For instance, Ananth Madhavan, a respected Wall Street professional, disputes this account.[490] His analysis focuses on a fragmented market structure and the changing nature of liquidity provision. He believes that policies to reduce fragmentation, and addressing its underlying causes, are essential.[491] David Easley and his academic colleagues focus on liquidity and suggest that during the pertinent period, order flow was becoming increasingly "toxic" for market makers ("toxic" in the sense of expected loss from trading with better-informed counterparties).[492] In a world of high-frequency traders, providing liquidity introduces new risks for market makers.

The SEC has taken some steps to respond. For instance, it has approved rules requiring the exchanges and FINRA to pause trading in certain individual securities on large price moves and approved rules clarifying when trades would be "broken." In September 2011, the SEC announced the possibility of new market-wide circuit breaker rules that would replace the circuit breakers originally adopted after the 1987 crash.[493]

More data would be useful in charting the future course. In May 2010, the SEC proposed the creation of a multi-billion-dollar "consolidated audit trail," a plan that would ultimately result in a comprehensive, real-time data

489. *Id.* at 2–6.

490. Ananth Madhavan, *Exchange-Traded Funds, Market Structure and the Flash Crash* 20 (Jan. 13, 2012) (unpublished manuscript), *available at* http://ssrn.com/abstract=1932925 ("This paper highlights the role of equity market structure and the changing nature of liquidity provision in exacerbating the impact of an external liquidity shock, without taking a view as to its catalyst.").

491. *Id.* at 20–23.

492. David Easley et al., *The Microstructure of the "Flash Crash": Flow Toxicity, Liquidity Crashes, and the Probability of Informed Trading*, 37 J. PORTFOLIO MGMT. 118, 122–24 (2011).

493. As to skepticism about market-wide circuit breakers, see, for example, Michael A. Goldstein & Kenneth A. Kavajecz, *Trading Strategies During Circuit Breakers and Extreme Market Movements*, 7 J. FIN. MKTS. 301, 301 (2004) ("Our results have implications for the viability of [Electronic Communication Networks] and electronic limit order books during turbulent periods as well as regulation aimed at maintaining the orderly working of markets during crisis periods.").

depository for orders and executions for many products.[494] In July 2011, the SEC adopted a "large trader reporting" system that would collect trading data from banks, hedge funds, and other major traders.[495]

The extent to which huge gaps between trading price and intrinsic value occur appears to be far more prevalent than in the past, and than what common understanding would suggest. Sudden spikes or falls in share prices, as happened with the shares of Apple Computer on March 23, 2012, occurred at least 265 times over the previous twelve months—more than one for every day of trading.[496] Also note that on March 23, inexplicable trading price movements in the shares of BATS Global Markets on the first day of its initial public offering (IPO)—on its own stock exchange—caused the humiliating result of it having to cancel its IPO.[497] The same week, a Credit Suisse-managed exchange-traded note (ETN) designed to track stock market volatility suddenly dropped by 60% even though stock market volatility was little changed.[498]

In March 2012, public reports surfaced that the SEC was probing both HFT and Credit Suisse ETN matters.[499] Trading in a related class of products, ETFs, was especially disrupted during the flash crash, and as of October 2011, the SEC staff noted that it was investigating further.[500]

There is a possibility that the microstructure of modern equity markets may have become more fragile, even apart from its susceptibility to flash crashes. On May 18, 2012, Facebook went public in the third-largest initial public offering (IPO) in U.S. history, offering shares at a total price of over $16 billion, nearly ten times that of Google's IPO in 2004.[501] After order processing issues prior to the start of trading at about 11:30 AM, Nasdaq's

494. Consolidated Audit Trail, Exchange Act Release No. 62,174, 75 Fed. Reg. 32,556 (June 8, 2010) (to be codified at 17 C.F.R. pt. 242).

495. Large Trader Reporting, Exchange Act Release No. 64,976, 76 Fed. Reg. 46,960 (Aug. 3, 2011) (to be codified at 17 C.F.R. pt. 240, 249).

496. Nathaniel Popper, *BATS Flaw Not So Rare, Data Shows*, N.Y. TIMES, Mar. 29, 2012, at B1.

497. *Id.* at B6.

498. Kaitlyn Kiernan, *ETN Falls Under State Scrutiny*, WALL ST. J., Mar. 30, 2012, at C4. For a discussion of the larger impact of this, see, for example, Ajay Makan & Izabella Kaminska, *ETF Rush Muddies the Waters on Volatility*, FIN. TIMES, Mar. 30, 2012, at 22.

499. *See, e.g.*, Kiernan, *supra* note 498, at C4 (reporting on SEC probe of Credit Suisse ETN matter); Scott Patterson & Jean Eaglesham, *SEC Probes Rapid Trading*, WALL ST. J., Mar. 23, 2012, at A1 (reporting on SEC probe of HFT).

500. *See Market Micro-Structure: An Examination of ETFs: Hearing Before the Subcomm. on Sec., Ins., & Inv. of the S. Comm. on Banking, Hous., & Urban Affairs*, 112th Cong. 10–12 (2011) (statement of Eileen Rominger, Dir., Div. of Inv. Mgmt., U.S. Sec. & Exch. Comm'n) (discussing the SEC's investigations into ETF trading and future initiatives).

501. Tomio Geron, *Facebook Prices Third-Largest IPO Ever, Valued at $104 Billion*, FORBES (May 17, 2012, 4:13 PM), http://www.forbes.com/sites/tomiogeron/2012/05/17/facebook-prices-ipo-at-38-per-share.

electronic systems failed to confirm trades and order cancellations.[502] After the stock initially headed to a high of $45, the stock began to plunge towards its public offering price of $38. Lead underwriter Morgan Stanley purchased stock to stabilize the price while some other underwriters—unsure whether their orders had been processed or not—backed away from trading or actually decided to sell shares. Market makers did not know what they and their clients owned, and at what price: one market maker said it was "in effect flying blind."[503] Investors were not sure if their orders had been filled, causing some to cancel. Once the Nasdaq computers got up to speed at around 2:00 PM, many buyers and sellers were surprised by their actual positions.

The Facebook situation did not involve exotic financial products and, based on information as this Article goes to press, was not complicated by fancy trading strategies such as HFT. Morgan Stanley and Facebook believe that problems with Nasdaq's computer systems are among the reasons the stock has dropped in the week since the IPO.[504] Other reasons may have played a role as well, including the possibility that the public offering price was way too high to begin with; one observer has suggested, for example, that Facebook shares were worth only $13.80 a share.[505] Irrespective of whether Nasdaq's problems had an impact or whether the public offering price was too high, the failure in trade executions has significance. One major market maker who thought it had a net short position but found to its horror that it had a net long position characterized the execution debacle as "the worst performance by an exchange on an IPO, ever."[506] Such execution problems, in and of themselves, may have affected investor confidence and willingness to participate in equity markets. The SEC and other regulators are reportedly looking at how the IPO was handled.[507]

The foregoing has focused on issues having to do with the fragility of the microstructure of modern equity trading and its possible impact on stock prices and investor participation in equity markets. There is a related set of

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502. Rodrigo Campos & John McCrank, *Minute By Minute, Nasdaq Chaos Engulfed Facebook IPO*, REUTERS (May 26, 2012, 2:32 PM), http://www.reuters.com/article/2012/05/26/us-facebook-problems-idUSBRE84P00Y20120526. The account about Facebook in this Article is necessarily a preliminary one and relies primarily on Campos & McCrank, *supra*; Antony Currie, *Nasdaq Howler Can't Explain Facebook Flop for Long*, SLATE (May 21, 2012, 7:00 PM), http://www.slate.com/blogs/breakingviews/2012/05/21/nasdaq_howler_can_t_explain_facebook_flop_for_long_.html; Serena Saitto et al., *Playing the Facebook Blame Game*, BLOOMBERG BUSINESSWEEK (May 23, 2012), http://www.businessweek.com/printer/articles/27276-playing-the-facebook-blame-game.

503. Campos & McCrank, *supra* note 502.

504. Saitto et al., *supra* note 502.

505. Mark Hulbert, *Facebook's Stock Should Trade for $13.80*, MARKETWATCH (May 25, 2012), http://articles.marketwatch.com/2012-05-25/commentary/31839771_1_facebook-shares-stock-today-professor-ritter.

506. Currie, *supra* note 502.

507. Campos & McCrank, *supra* note 502.

issues that is far less dramatic but which at least a few observers are beginning to believe may be related to HFTs and ETFs. This is the matter of what is sometimes referred to as the "correlation bubble."

The movements of individual stocks have become increasingly correlated over the past twenty years and, as of August 2011, are correlated at levels exceeding those even seen in the wake of the 1987 stock market crash.[508] The familiar "risk on"–"risk off" characterizations found in daily market commentary is in some ways reflective of this. Some observers suspect that such high correlations do not reflect the fundamentals of companies becoming more closely aligned, but instead the presence of HFT and ETFs. Most notably, the global derivatives team at J.P. Morgan Securities has released research expressing concern over what it refers to as the correlation bubble and the possible relationship to the modern microstructure.[509]

If so, the microstructure of modern equity markets may be causing systematic gaps between the intrinsic value and trading prices. This and related matters deserve careful scrutiny.[510] Stay tuned.

B. Non-Price-Related Governmental Departures from Incrementalist Approach.

As we have discussed, Louis Brandeis specifically argued for disclosure as the proper remedy for problems associated with the relationship between underwriters and investors, rejecting more substantive interventions by the federal government. Even leaving aside its derivatives-related provisions, Dodd-Frank took a radically different approach in two major respects, referred to colloquially as the "risk retention rule" and the "Goldman rule." I discuss these statutory provisions briefly.

1. Risk Retention.—A variety of mechanisms has developed in the marketplace over the years to help mitigate informational asymmetries and misalignments of interest associated with securitization.[511] For instance, with overcollateralization, the securitizer backs a deal with a par value greater than the value of the liabilities sold to investors; in the event of default, the overcollateralization is available to support the contractual payments to

508. Felix Salmon, *Why the Correlation Bubble Isn't Going to Burst*, REUTERS (Aug. 19, 2011, 2:36 PM), http://blogs.reuters.com/felix-salmon/2011/08/19/why-the-correlation-bubble-isnt-going-to-burst/.

509. MARKO KOLANOVIC ET AL., WHY WE HAVE A CORRELATION BUBBLE (2010), *available at* http://www.cboe.com/Institutional/JPMDerivativesThemesCorrelation.pdf; MARKO KOLANOVIC ET AL., RISE OF CROSS-ASSET CORRELATIONS (2011), *available at* http://www.cboe.com/Institutional/JPMCrossAssetCorrelations.pdf.

510. *See, e.g.*, *America's Dodgy Financial Plumbing: Too Big a Fail Count*, ECONOMIST, June 4, 2011, at 83–84 (discussing the financial risks posed by failed trades, especially in markets where such failures have not yet been penalized).

511. RISK RETENTION REPORT, *supra* note 116, at 41.

investors. With third-party guarantees, the insurers providing protection for the pertinent tranches of the securitization would (at least in theory) have the incentive to monitor the quality of underlying loans. With certain representation and warranty provisions, the originator is, in principle, required to refund at par value of the loan, should the loan violate the originator's representations or warranties about its features or default within a specified time. With conditional cash flows, certain cash reserves are released to junior tranches or the originator if the delinquency rates are below predefined trigger levels; in theory, this would give the originator the incentive to deliver lower-risk loans to the pool, in the hopes of meeting the triggers and thereby receiving the conditional cash flows.

Among the mechanisms that emerged in the marketplace, one that took on special regulatory significance in the wake of the GFC was the retention of credit risk by the originator or securitizer. By retaining credit risk by holding some portion of the securities issued to investors (and thus having "skin in the game"), the hope was that the originators and securitizers would have stronger incentives to, among other things, adhere to prudent underwriting. One type of retention involved a "vertical" slice of the ABS transaction: the originator or securitizer would retain a portion of each tranche of securities. In this situation, the originator or securitizer's exposure would be symmetric with the varying degrees of exposure associated with each tranche. The other type of retention involved a "horizontal" slice of the ABS transaction: the originator or securitizer would retain credit risk by retaining the subordinate piece of the security. Because credit risk is especially high for this type of security, even retaining a small part of it would expose the originator or securitizer to significant credit risk.[512]

All of the foregoing mechanisms emerged in the marketplace—and the particular mechanisms used in any given ABS transaction, as well as the particular financial terms of those mechanisms, such as the extent of overcollateralization or of risk retention, were determined in the marketplace.

The Dodd-Frank Act intervened, embracing risk retention and prescribing the key financial term in Section 941(b): a general minimum of 5% retention.[513] The drafters of Dodd-Frank were especially concerned with two incentive alignment issues.[514] First, under the "originate to distribute" model, because loans were made to be sold into securitization pools, lenders did not expect to bear the credit risk of borrower default.[515] Second, investors found it impossible to assess the risks of the underlying assets, especially when those assets were resecuritized into complex instruments like

512. *Id.* at 43.

513. *See* S. REP. NO. 111-176, at 128–31 (2010) (describing the requirements of Section 941 related to risk retention).

514. *Id.* at 128–29.

515. *Id.* at 128.

collateralized debt obligations (CDOs) and CDOs squared.[516] By forcing securitizers to retain a material amount of risk, their economic interests would be aligned with the interests of investors, and securitizers would thus have a strong incentive to monitor the quality of the assets.[517] The drafters also contemplated that "in all cases the amount of risk retained should be material, in order to create meaningful incentives for sound and sustainable securitization practices," but gave regulators the flexibility to deviate from the general 5% retention level.[518]

Section 941(b)[519] thus requires that the federal banking agencies and the SEC (and, in the case of the securitization of any residential mortgage asset, together with Housing and Urban Development and the Federal Housing Finance Authority) jointly prescribe regulations that would mandate a specified amount of risk retention in most ABS transactions.[520] More specifically, such regulations must (a) require a securitizer to generally retain not less than 5% of the credit risk of any asset being securitized (with the exception of certain residential mortgages); and (b) prohibit a securitizer from directly or indirectly hedging or otherwise transferring the mandated risk retention (although the risk may be shared between the securitizer and the originator).[521]

In March 2011, the pertinent federal agencies proposed rules that would implement Section 941(b).[522] With regard to most ABS offerings, including private offerings exempt from Securities Act registration, the sponsors could satisfy the risk retention requirement in a variety of ways. Those include:

> (a) the retention of a 5% vertical slice of each class of ABS interests;
>
> (b) the retention of a 5% horizontal first-loss slice—that is, a portion of the equity or subordinate debt tranche; or
>
> (c) an "L-shaped" retention, with one-half of the 5% retained interest in the form of a vertical slice, and the other half held as a first-loss slice.[523]

The proposal prohibits the sponsor from transferring any interest or assets it is required to retain to any person other than a consolidated affiliate, and prohibits the sponsor and any consolidated affiliate from hedging the

516. *Id.*
517. *Id.* at 130–31.
518. *Id.*
519. Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, Pub. L. No. 111-203, § 941(b), 124 Stat. 1376, 1891–96 (2010) (codified at 15 U.S.C. § 77z-2a (Supp. IV 2011)).
520. *Id.*
521. *Id.*
522. Credit Risk Retention, Exchange Act Release No. 64,148, 76 Fed. Reg. 23,861, 24,090 (Apr. 29, 2011); Press Release, Bd. of Governors of the Fed. Reserve Sys. et al., Agencies Seek Comment on Risk Retention Proposal (Mar. 31, 2011), *available at* http://www.federalreserve.gov/newsevents/press/bcreg/20110331a.htm.
523. Credit Risk Retention, 76 Fed. Reg. at 24,100.

associated credit risk.[524] This prohibition on hedging would not, however, prevent the sponsor from hedging general interest-rate risk, currency-exchange-rate risk, or overall market-risk movements.[525]

From a policy perspective, Section 941(b) is a federal attempt to design a financial product that is largely oriented to institutional investors. Even when exempt from Securities Act registration, the sponsors and investors would not be allowed to enter into an ABS transaction that failed to use this particular mechanism for mitigating informational asymmetries and misalignments of interest associated with those sponsoring ABS issuances.[526] This goes well beyond the kind of disclosure approach contemplated by Brandeis as being sufficient to protect *retail* investors from corresponding informational asymmetries and misalignments associated with those sponsoring traditional stock issuances.[527]

Perhaps such a radical step is justified, but little academic underpinning for such a step exists. As Treasury Secretary Geithner admitted, "the academic literature on risk retention with respect to asset-backed securitization is limited" and available information is "insufficiently robust to allow for a quantitative comparable analysis for proactively adjusting mortgage origination requirements."[528]

Such foundational concerns extend as well to the statutory specification of a general 5% retention. The fact that Europeans had decided on 5% seemed the primary justification.[529] Moreover, since regulators are directed to deviate from the baseline as necessary, the statute has placed regulators in an uncomfortable position that reeks of central planning. Effectively, regulators are asked to come up with the appropriate risk retention "price" for a vast array of different ABS products, with vastly different incentive structures, misalignments, and performance histories. The kinds of problems associated with the use of cubbyholes in the financial innovation context discussed in Section IV(D)(2) apply here. Indeed, both regulators themselves and industry commenters have focused on various deficiencies of this general cubbyhole variety.[530]

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524. *Id.* at 24,116.

525. *Id.*

526. *Id.* at 24,098.

527. *See* BRANDEIS, *supra* note 20, at 102–08 (advocating the disclosure of bankers' commissions from issuing securities and the listing of all participants in an underwriting in order to address the fact that investors rely completely on the bankers' judgment of the quality of a security and that the bankers' payment is not aligned with the risk they assume).

528. MACROECONOMIC EFFECTS, *supra* note 117, at 6.

529. *Id.* at 15–16.

530. *See* RISK RETENTION REPORT, *supra* note 116, at 70–71 (noting that a 5% risk-retention requirement might not meet the threshold for significance, depending on the asset involved); MORRISON & FOERSTER, IMPACT OF DODD-FRANK'S RISK RETENTION ON CLOS: REGULATORY AGENCIES' FAILURE TO ACCOUNT FOR CRUCIAL DIFFERENCES AMONG ASSET CLASSES HAS POTENTIAL TO STUNT CLO MARKET, CAUSING REAL HARM TO COMMERCIAL LENDING MARKETS

2. The Goldman Rule.—Historically, the relationship between the underwriter and investors has been at arm's length, a transactional one. In contrast to states that engaged in merit regulation, the federal disclosure philosophy did not contemplate the underwriter having any responsibility for the attractiveness of the price or other aspects of the securities being offered. The underwriter was only constrained by reputational concerns and negotiations with the issuer. Moreover, once the securities were sold, the underwriter could engage in whatever activities he wished, including shorting the securities. There were no continuing obligations running between the underwriter and the investor that arose from the sales transaction.

Section 621 of the Dodd-Frank Act changes this in radical ways. Effectively, an investor, by purchasing an asset-backed security, will not only receive the security itself, but will also receive a one-year guarantee that the underwriter will not engage in any activities deemed to present a material conflict of interest.[531] This is a mandatory tie-in, and financial products shorn of such an agreement will not be permitted.

Section 621 prohibits securitization participants from entering into "any transaction that would involve or result in any material conflict of interest with respect to any investor in a transaction arising out of such activity."[532] It sought to "prohibit underwriters, sponsors, and others who assemble asset-backed securities, from packaging and selling those securities and profiting from those securities' failures."[533] The sponsors of Section 621 highlighted as an example of such a conflict the time that Goldman Sachs allegedly "assembled asset-backed securities, sold those securities to clients, bet against them, and then profited from the failures."[534]

In September 2011, the SEC issued a proposed rule that would implement Section 27B.[535] Proposed Rule 127B would involve transactions involving ABS, including both public and private offerings.[536] Underwriters and sponsors of an asset-backed security would generally be precluded, for a period of one year after the first closing of sale, from "engag[ing] in any transaction that would involve or result in any material conflict of interest

(2011) (describing the failure of the risk retention requirement to differentiate among asset types, including collateralized loan obligations that already include a risk retention component).

531. Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, Pub. L. No. 111-203, § 621(a), 124 Stat. 1376, 1631–32 (2010) (codified at 15 U.S.C. § 77z-2a (Supp. IV 2011)).

532. *Id.*

533. 156 CONG. REC. S5,899 (daily ed. July 15, 2010) (statement of Sen. Levin).

534. Letter from Senators Jeffrey Merkley & Carl Levin to Ben Bernanke, Chairman, Fed. Reserve Bd. et al. (Aug. 3, 2010), *available at* http://www.sec.gov/comments/df-title-vi/conflicts-of-interest/conflictsofinterest-2.pdf; Letter from Senators Jeffrey Merkley & Carl Levin to Elizabeth M. Murphy, Sec'y, Sec. & Exch. Comm'n (Jan. 12, 2012) (on file with the author).

535. Prohibition Against Conflicts of Interest in Certain Securitizations, Exchange Act Release No. 65,355, 76 Fed. Reg. 60,320 (Sept. 28, 2011).

536. *Id.*

with respect to any investor in a transaction arising out of such activity."[537] Such a "material conflict of interest" would be deemed to exist if both parts of a two-part test were met.[538] First, the securitization participant must have what one could loosely call a "negative economic interest" in the asset pool or the asset-backed security, such as a situation where the participant would benefit from the adverse performance of the asset pool, the loss of principal or monetary default on the ABS, or a decline in the market value of the asset-backed security.[539] (Nor could the participant game this by allowing a third party to benefit from an analogous transaction.[540]) Second, there must be a substantial likelihood that a reasonable investor would consider this conflict important to its investment decision, including a decision whether to retain the security.[541] However, the prohibition would not apply to risk-mitigating activities in connection with positions or holdings arising out of the underwriting of ABS, if the activities are designed to reduce the specific risks associated with those positions or holdings.[542] The hedge should not be significantly greater than the actual exposure.[543]

The ambiguity of such a test, and the cumulative effect of prohibitions as the underwriter engages in more and more ABS transactions, could materially limit the ability of the underwriter to undertake short positions on ABS. This would not only hobble the traditional ability of financial institutions to engage in proprietary trading, but undermine price discovery.

Consider an example, provided by the SEC, of a transaction that would trigger the first prong of the material conflict of interest test: an ABS underwriter purchases CDS protection on the securities offered in the relevant ABS three months after the first closing date of its sale.[544] This transaction would be deemed to involve a material conflict of interest because the securitization participant would profit from the adverse performance of the ABS.[545]

Presumably, any purchase of such CDS protection would be prohibited. As the underwriter engages in successive transactions over the course of the year, the underwriter is effectively prohibited from expressing negative views on an increasingly wide range of assets. Successive generations of ABS investors can effectively preclude the underwriter from an increasingly wide range of trading, even non-ABS transactions.

537. Dodd-Frank Act § 621 (codified at 15 U.S.C. § 77z-2a (Supp. IV 2011)).
538. Prohibition Against Conflicts of Interest in Certain Securitizations, 76 Fed. Reg. at 60,329.
539. *Id.*
540. *Id.*
541. *Id.*
542. *Id.* at 60,333.
543. *Id.* at 60,334.
544. *Id.* at 60,337.
545. *Id.*

VI. Conclusion

The SEC disclosure paradigm emerged in a simpler time, relied on a simple conception of information and implementation strategy, and was directed at simple goals. The modern process of financial innovation has resulted in financial strategies and other products, as well as major financial institutions, that are far more complex than in the past.

The increased, and increasing, complexity of the real world has direct consequences for the simple model of information at the core of the disclosure paradigm. This Article suggests that the paradigm has always largely relied on what can be conceived of as an intermediary depiction model. An intermediary—such as a corporation issuing shares—views objective reality and then crafts a depiction of the reality to be communicated to investors. The paradigm treated such intermediary depictions as constituting, if not equivalent to, information.

At least two preconditions are essential to the efficacy of the intermediary depiction model, applicable even with the most well-intentioned of intermediaries. First, the intermediary must both truly and functionally understand the objective reality to be depicted. Second, the tools of depiction—such as the English language, accounting terminology, visual displays of quantitative information, and modern risk measurement tools—must be adequate for the task.

In fact, in many circumstances involving innovations in financial theory and practice, one, and sometimes both, of these preconditions are not met. The intermediary may not truly understand the objective reality to be depicted, such as the true risk–return characteristics of innovative financial products or of entire business enterprises involved in such products. Sometimes the financial innovations themselves are so complex as to cause true misunderstanding of the objective reality by both the quants who develop and use such products as well as by the senior management of major financial institutions. But even if one or more individuals at the organization truly understands the objective reality, that is not sufficient. That is, whether or not any principal–agent problems exist within a large, complex organization, the intermediary could function as if it did not understand the objective reality. Based on early evidence, the JPM credit derivatives situation appears to reflect both true and functional misunderstandings.

The other precondition to an effective intermediary depiction model, that the depiction tools be adequate for the task, also may not be met in respect of certain financial innovations and financial institutions. This Article shows, for example, how current depiction tools cannot capture the risk–return characteristics of ABS. Even such a seemingly elemental issue as the meaning of "objective reality" turns out to be surprisingly complex. Similar depiction problems afflict the disclosures of major financial institutions. Even with annual reports of more than 300 pages, many

sophisticated investors believe they do not know enough to own shares of such companies. Indeed, some banks may be not only "too big to fail," but "too complex to depict."

If financial innovation has helped create complexities that bedevil the longstanding disclosure regime, technological innovation may offer a potential solution. If certain important conditions can be met, the disintermediation of information could be both desirable and technologically possible. There need not always be an intermediary standing between an investor and the real world, trying to tell the investor what the real world looks like. With advances in computer and Internet technologies, it may sometimes be possible to allow investors to "see" (download) what is effectively the real world itself in all its grandeur and detail. Such pure information can be far richer, clearer, and more granular than information that can be gleaned from intermediary depictions. Moreover, because of the disintermediation, the information conveyed is free from the taint of possible biases or misunderstandings on the part of the intermediary.

But relying solely on a pure information model would make little sense. The intermediary is likely in the best position to understand the objective reality. He would generally be best able to divine, from the massive amounts of data, the chaos that constitutes reality, the features that are truly relevant. The depiction offered by an intermediary who is skilled, diligent, and honest can play a vital role in saving investor time and furthering investor appreciation of the objective reality.

This Article shows the potential of going beyond the longstanding intermediary depiction model with respect to ABS and major money center banks. The intermediary depiction model and pure information model represent opposite ends of a spectrum of information strategies. A variety of measures along the spectrum could work in tandem with the intermediary depiction model to better enable investors to triangulate the truth. A more eclectic conception of "information" would help the disclosure paradigm achieve its goals.

This more eclectic conception of information, while needed, is inconsistent in a number of key ways with the longstanding regulatory architecture associated with the disclosure paradigm. Consider, for instance, a few of the human resource implications. With the intermediary depiction model, enforcement matters are hugely important. And such matters revolve around issues ideally suited for traditional lawyers: Did the disclosure have material misstatements or omissions? Did the intermediary have the necessary bad intent in making such disclosures? In contrast, with the pure information model, there are essentially no fraud issues to speak of. If there are no intermediary depictions, there are no "statements," much less misstatements or omissions. More generally, in order to meet the disclosure and other regulatory challenges posed by financial innovation, it is essential that there not only be enough talented traditional lawyers at the SEC, but that

there also be enough talented personnel with other skills and backgrounds. A vigorously interdisciplinary approach, enhanced by "local knowledge" of market realities, is essential to the formulation of public policy in respect of modern capital markets.

The SEC disclosure paradigm was directed at simple goals—the improvement of corporate governance and promotion of efficiency in the real and paper economies—and its incrementalist component presumed that a robust informational foundation would be sufficient to accomplish such goals. This Article outlines the frequency and severity of departures from such goals and such incrementalism. Financial innovation again appears in a contributing role. Thus, high frequency trading and the newly automated nature of secondary trading in equity markets likely contributed to the May 2010 "flash crash." The GFC has also played a role, as was most evident with respect to the September 2008 SEC short-selling ban. With changes adopted under the Dodd-Frank Act, including the creation of FSOC, the challenges to SEC independence and the SEC's central goals will become even more serious.

The SEC disclosure paradigm is facing challenges as never before. In particular, the "intermediary depiction" model, conceptualized by the Article as having always been at the core of the paradigm, is failing in the face of complex realities engendered by financial innovation. Financial innovation-related informational failures, at the level of products and at the level of institutions, are continuing to contribute to the on-going crisis. The disclosure paradigm must change so as to comprehend both the intermediary depiction model and a "pure information" model, as well as the full spectrum of possibilities between these extremes. Concomitant changes to the longstanding regulatory architecture would be helpful. The paradigm's disclosure philosophy is also being challenged, in particular as to the philosophy's incrementalist component. All departures from the incrementalist approach should occur only after careful analysis and be grounded on justifiable, overarching principles. However, any departures involving sacrificing the paradigm's simple and compelling goals of promoting corporate governance and efficiency in the interests of such matters as short-term financial stability deserve the utmost scrutiny, and should only occur in truly rare situations.

To remain vital, the SEC disclosure paradigm must be able to encompass in a meaningful and systematic way the vast complexities of modern markets and institutions. A fundamental and comprehensive rethinking is essential.