

# Washington University Law Review

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Volume 81

Issue 2 *After the Sarbanes-Oxley Act: The Future of the Mandatory Disclosure System*

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January 2003

## Blinded by the Light: Information Overload and Its Consequences for Securities Regulation

Troy A. Paredes

*Washington University School of Law*

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### Recommended Citation

Troy A. Paredes, *Blinded by the Light: Information Overload and Its Consequences for Securities Regulation*, 81 WASH. U. L. Q. 417 (2003).

Available at: [https://openscholarship.wustl.edu/law\\_lawreview/vol81/iss2/7](https://openscholarship.wustl.edu/law_lawreview/vol81/iss2/7)

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# **BLINDED BY THE LIGHT: INFORMATION OVERLOAD AND ITS CONSEQUENCES FOR SECURITIES REGULATION**

**TROY A. PAREDES\***

“Then too, there is the recurrent theme throughout [the federal securities laws] of disclosure, again disclosure, and still more disclosure. Substantive regulation has its limits. But ‘the truth shall make you free.’”

1 LOUIS LOSS & JOEL SELIGMAN, *SECURITIES REGULATION* 29 (3d ed. rev. 1998)

“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.”

LOUIS D. BRANDEIS, *OTHER PEOPLE’S MONEY AND HOW THE BANKERS USE IT* 92 (1914)

## I. INTRODUCTION

Perhaps the most hotly-contested debate in the history of securities regulation has been over the need for mandatory disclosure. Scholars in the field of securities regulation have argued both sides of the debate for years. But as a matter of positive law, the debate has been settled for decades, with mandatory disclosure winning the day. A demanding system of mandatory disclosure, which has become more demanding in the aftermath of the Sarbanes-Oxley Act of 2002,<sup>1</sup> makes up the core of the federal securities

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\* Associate Professor of Law, Washington University School of Law. Special thanks are owed to Alan Beller, Chris Bracey, Kathy Brickey, Randy Calvert, Steve Choi, Jim Cox, Merritt Fox, Chris Guthrie, Chris Hanaway, Dan Keating, Scott Kieff, Ron King, Kim Krawiec, Bob Lawless, Jonathan Macey, Frank Partnoy, Nancy Pechloff, Ed Rock, Hillary Sale, Steve Schwarcz, Joel Seligman, and Peter Wiedenbeck for very helpful discussions and comments during the writing of this Article. Special thanks are owed to John Bachmann and Jim Cheek for being my symposium commentators. I would also like to thank Melissa Cover, Keith Edelstein, Joe Guerrini, and Mahesh Joshi (all Washington University School of Law class of 2003) for their great research assistance. All remaining mistakes, of course, are mine.

1. Sarbanes-Oxley Act of 2002, Pub. L. No. 107-204, 116 Stat. 745 (2002) [hereinafter Sarbanes-Oxley Act].

laws. The federal securities laws require companies to make extensive disclosures in annual reports, quarterly reports, current reports, proxy statements, and other filings with the Securities and Exchange Commission. Disclosure is designed to solve the informational asymmetries that exist between companies and investors. The logic is that by arming investors with information, mandatory disclosure promotes informed investor decision making, capital market integrity, and capital market efficiency. Once they are empowered with information, the argument goes, investors can protect themselves against corporate abuses and mismanagement, and there is no need for the government to engage in more substantive securities regulation—merit review in the parlance.

Securities regulation is motivated, in large part, by the assumption that more information is better than less. Perhaps this is no surprise since the SEC's chief regulatory tool is to require companies to disclose more. If the SEC did not call for more disclosure in the wake of corporate scandal and fraud, as it has done following recent events at Enron, WorldCom, Tyco, Adelphia, and elsewhere, it would be able to do relatively little, other than sit on the sidelines and let other regulators and policy makers take the lead. Indeed, today, companies are required to disclose more information than ever, and the SEC continues to adopt new disclosure requirements.

Two things are needed for the federal securities laws, or any disclosure-based regulatory regime, to be effective. The first is straightforward: information has to be disclosed. The second is equally straightforward, but often overlooked. That is, the users of the information—for example, investors, securities analysts, brokers, and money managers—need to use the disclosed information effectively. The federal securities laws primarily focus on the former—mandating disclosure. Relatively little attention is paid to how the information is used—namely, how investors and securities market professionals search and process information and make decisions based on the information the federal securities laws make available. In short, if the users do not process information effectively, it is not clear what good mandating disclosure does.

The federal securities laws generally assume that investors and other securities market participants are perfectly rational, from which it follows that more disclosure is always better than less. However, investors and other market participants are not perfectly rational.<sup>2</sup> Herbert Simon was among the

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2. To be clear at the outset, in referring to “investors” throughout this Article, I am referring not only to individual (*i.e.*, “retail”) investors, but to professional traders and institutional investors, as well as the analysts, brokers, and other securities market professionals who make up securities markets. However, since the professionals are particularly important to capital market efficiency and

first to point out that people are boundedly rational,<sup>3</sup> and numerous studies have since supported Simon's claim.<sup>4</sup> Simon recognized that people have limited cognitive abilities to process information.<sup>5</sup> As a result, people tend to economize on cognitive effort when making decisions by adopting heuristics or "short cuts." In Simon's terms, when faced with complicated tasks, people tend to "satisfice" rather than "optimize."<sup>6</sup>

What does this have to do with mandatory disclosure and securities regulation? A task is said to become more complicated as it involves the processing of more and more information—as the task size increases. Studies show that at some point, people become overloaded with information and make worse decisions than if less information were made available to them.<sup>7</sup> The concept of information overload builds on Simon's insight that people satisfice. In particular, studies show that when faced with complicated tasks that involve vast quantities of information, people tend to adopt simplifying decision strategies that require less cognitive effort, but that are less accurate than more complex decision strategies.<sup>8</sup> The net result of having access to more information, combined with using a less accurate decision strategy as the information load increases, is often an inferior decision. In other words, people might make better decisions by bringing a more complex decision strategy to bear on less information than by bringing a simpler decision strategy to bear on more information. Borrowing Brandeis' terminology, in addition to being a disinfectant, sunlight can also be blinding.

To the extent that investors, analysts, and other securities market participants are subject to information overload, the model of mandatory disclosure that says more is better than less is incomplete and may be counterproductive.<sup>9</sup> It is incomplete because it ignores how the disclosed information is used. And it is potentially counterproductive because the provocative implication of information overload is that the federal mandatory disclosure system might be more effective if it were scaled back—that is to say, if less were disclosed, not more.

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the pricing of securities, and since they presumably can search and process information more effectively than individual investors can, I specifically address the extent to which these expert "filters" might be subject to information overload in *infra* Part IV.B.1.

3. See *infra* notes 79-82 and accompanying text.

4. See, e.g., *infra* notes 82, 90, 125-26.

5. See *infra* notes 81-82 and accompanying text.

6. See *infra* notes 83-87 and accompanying text.

7. See *infra* notes 122-23 and accompanying text.

8. See *infra* notes 110-19 and accompanying text.

9. This Article's focus is information overload. There are other aspects of investor psychology and decision making that have implications for securities regulation. See *infra* notes 125-26, 128.

Many questions need to be answered before significantly scaling back disclosure obligations. The most important question is whether or not investors are, in fact, overloaded. Even if individual investors are overloaded, what about the expert “filters” the federal securities laws primarily rely on to search and interpret information? Further, if the SEC were to delete certain disclosure requirements, which ones? Everybody does not use the same information.

The tone of this Article and its policy suggestions are necessarily tentative. The concerns about information overload expressed here are part of a larger trend considering how our growing understanding of investor psychology and behavioral finance might impact securities regulation. Before arguing for major regulatory reform, there is still much to be learned about information overload and about investor psychology and behavioral finance generally.<sup>10</sup> Indeed, I ultimately call for more empirical research to better understand how investors process information and make investment decisions. My goal here is to highlight that information overload is a real concern that should not be ignored.

Whether or not the SEC is, or ever will be, prepared to cut back disclosure requirements meaningfully, the federal securities laws could be improved by accounting for how investors actually process information and make decisions. At the very least, the specter of information overload casts doubt on the long-held belief and policy choice that more disclosure is better than less. I am confident that a more effective disclosure system can be developed once we have a better understanding of how investors, analysts, and others respond to information. This holds not only for information overload, but for other aspects of investor psychology, including the various cognitive biases at the core of behavioral finance.

This Article proceeds as follows. Part II describes the federal mandatory disclosure system, focusing on how disclosure obligations have expanded over the years. Part III discusses the concept of information overload, beginning with bounded rationality and then continuing with a discussion of more modern decision theory. Part IV considers the implications of information overload for securities regulation. After raising the possibility of scaling back mandatory disclosure requirements, I address a number of concerns that a more lax disclosure regime might raise. Next, Part V discusses what regulatory steps, if any, should be taken at this time in response to the risk of information overload. Part V also offers a few

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10. See generally Jennifer Arlen, *Comment: The Future of Behavioral Economic Analysis of Law*, 51 VAND. L. REV. 1765 (1998) [hereinafter Arlen].

thoughts on what information overload means for the efficient capital market hypothesis, a key feature of the mandatory disclosure system. Part VI concludes.

## II. OUR MANDATORY DISCLOSURE SYSTEM

One of the most intense and long-standing debates in securities law is over the need for a federal system of mandatory disclosure.<sup>11</sup> Although the debate has taken on various forms over the years, the key arguments for and against mandatory disclosure can be easily summarized. Critics of mandatory disclosure argue that a company will voluntarily disclose information that investors demand in order to reduce its cost of capital and avoid any discount that the market might apply to the company's stock price if investors think that they have too little information to evaluate the company and its securities properly or, worse yet, if investors think that the company is hiding something.<sup>12</sup> Supporters of mandatory disclosure counter that because information has public good aspects, voluntary disclosure will result in too little disclosure.<sup>13</sup> Further, because investors, securities analysts, brokers, and other securities market professionals do not internalize all the benefits of information they gather and analyze, they will invest too few resources in research and analysis. Mandatory disclosure, in effect, subsidizes research and analysis. At the same time, to the extent investors, securities analysts, and others do search out key information, mandatory disclosure reduces the wasteful transaction costs that result when multiple parties track down the same information. In addition, companies might have an incentive to

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11. The literature on mandatory disclosure is voluminous. Some of the leading works include HENRY G. MANNE, *INSIDER TRADING AND THE STOCK MARKET* (1966); HOMER KRIPKE, *THE SEC AND CORPORATE DISCLOSURE: REGULATION IN SEARCH OF A PURPOSE* (1979) [hereinafter KRIPKE]; George J. Benston, *Required Disclosure and the Stock Market: An Evaluation of the Securities Exchange Act of 1934*, 63 AM. ECON. REV. 132 (1973) [hereinafter Benston]; John C. Coffee, Jr., *Market Failure and the Economic Case for a Mandatory Disclosure System*, 70 VA. L. REV. 717 (1984) [hereinafter Coffee]; Frank H. Easterbrook & Daniel R. Fischel, *Mandatory Disclosure and the Protection of Investors*, 70 VA. L. REV. 669 (1984) [hereinafter Easterbrook & Fischel]; Edmund W. Kitch, *The Theory and Practice of Securities Disclosure*, 61 BROOK. L. REV. 763 (1995) [hereinafter Kitch]; Joel Seligman, *The Historical Need for a Mandatory Corporate Disclosure System*, 9 J. CORP. L. 1 (1983) [hereinafter Seligman, *Historical Need*]; George J. Stigler, *Public Regulation of the Securities Markets*, 37 J. BUS. 117 (1964).

12. Homer Kripke explains it this way: "A disclosure will be supplied voluntarily by issuers interested in the capital markets when there is a consensus among suppliers of capital or other transactors in the capital market that this information is necessary to them for lending and investment decisions. Issuers will supply it because the alternative is to forego access to the capital markets." KRIPKE, *supra* note 11, at 119.

13. See, e.g., Coffee, *supra* note 11, at 723-37; Merritt B. Fox, *Retaining Mandatory Disclosure: Why Issuer Choice Is Not Investor Empowerment*, 85 VA. L. REV. 1335, 1342-68 (1999).

withhold competitively sensitive or proprietary information in order to keep it out of their competitors' hands. Finally, even if companies have an incentive to disclose good news, managers may have an incentive to withhold negative information in the hope that things will turn around for the company or that the market otherwise will not uncover the bad news. The incentive to disclose negative information might be weakest when the issuer or its managers are facing a final period.<sup>14</sup>

As a regulatory matter, the mandatory disclosure debate has been settled for seventy years, since the Securities Act of 1933 was adopted. Our federal securities laws are designed to protect investors and the integrity of capital markets by mandating disclosure that enables informed investor decision making, boosts investor confidence, and reduces agency costs.<sup>15</sup> In developing the federal mandatory disclosure system, Congress has eschewed

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14. See, e.g., Jennifer H. Arlen & William J. Carney, *Vicarious Liability for Fraud on Securities Markets: Theory and Evidence*, 1992 U. ILL. L. REV. 691 (1992); Mitu Gulati, *When Corporate Managers Fear a Good Thing is Coming to an End: The Case of Interim Nondisclosure*, 46 UCLA L. REV. 675, 705-09 (1999).

The most recent iteration of the mandatory disclosure debate is issuer choice, which has a distinct international focus given our increasingly global capital markets. See, e.g., Stephen J. Choi & Andrew T. Guzman, *National Laws, International Money: Regulation in a Global Capital Market*, 65 FORDHAM L. REV. 1855 (1997); Stephen J. Choi & Andrew T. Guzman, *Portable Reciprocity: Rethinking the International Reach of Securities Regulation*, 71 S. CAL. L. REV. 903 (1998); Stephen J. Choi, *Regulating Investors Not Issuers: A Market-Based Proposal*, 88 CAL. L. REV. 279 (2000); Merritt B. Fox, *Securities Disclosure in a Globalizing Market: Who Should Regulate Whom*, 95 MICH. L. REV. 2498 (1997); Merritt B. Fox, *The Securities Globalization Disclosure Debate*, 78 WASH. U. L.Q. 567 (2000); Merritt B. Fox, *The Issuer Choice Debate*, 2 THEORETICAL INQUIRIES L. 563 (2001); Paul G. Mahoney, *The Exchange as Regulator*, 83 VA. L. REV. 1453 (1997) [hereinafter Mahoney]; Roberta Romano, *Empowering Investors: A Market Approach to Securities Regulation*, 107 YALE L.J. 2359 (1998); Roberta Romano, *The Need for Competition in International Securities Regulation*, 2 THEORETICAL INQUIRIES L. 387 (2001). Advocates of issuer choice contend that issuers should have a choice among competing regulatory regimes. Specifically, issuers should be able to choose between the securities law regime of the federal government, any state, or any foreign country. Another possibility is for stock exchanges to have regulatory authority. The basic argument is that investors can evaluate competing regulatory regimes, in addition to an issuer's fundamentals. Not all issuers are the same and not all investors are the same. Different issuers and investors have different preferences for disclosure and enforcement regimes. Regulatory competition will result in more choice among securities law systems, and issuers and investors will segregate themselves as each sees fit. Such a market-based approach to securities regulation is said to empower investors by giving them more investment alternatives. Critics of issuer choice respond on two principal fronts. First, voluntary disclosure, whether in the context of issuer choice or otherwise, leads to suboptimal disclosure of information. Second, regulatory competition in securities law will lead to a "race to the bottom," resulting in ineffective regulatory regimes and inadequate investor protection.

15. See, e.g., Benston, *supra* note 11, at 134, 136-37; Donald C. Langevoort, *Information Technology and the Structure of Securities Regulation*, 98 HARV. L. REV. 747, 763-64 (1985) [hereinafter Langevoort, *Information Technology*]; Marcel Kahan, *Securities Laws and the Social Costs of "Inaccurate" Stock Prices*, 41 DUKE L.J. 977, 987-94 (1992) [hereinafter Kahan]; A.A. Sommer, Jr., *Therapeutic Disclosure*, 4 SEC. REG. L.J. 263, 263-65 (1976) [hereinafter Sommer]; Advisory Committee on Corporate Disclosure, Report to the Securities and Exchange Commission 305 (1977) [hereinafter SEC Advisory Committee Report]; see also *infra* Part IV.B.3.

a regulatory regime in which some arm of the government, such as an expert administrative agency like the Securities and Exchange Commission, makes investment decisions for individuals or otherwise allocates our economy's financial capital, for example by passing judgment on the merits of securities offerings or on companies more broadly.<sup>16</sup> Instead, the disclosure regime of the federal securities laws is designed to disseminate information to investors, who in turn use this information in making investment decisions—both good ones and bad ones.<sup>17</sup>

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16. *Accounting and Investor Protection Issues Raised by Enron and Other Public Companies: Before the Senate Comm. on Banking, Housing and Urban Affairs*, 107th Cong. (Mar. 31, 2003) (written statement of Harvey L. Pitt, Chairman, Securities and Exchange Commission), at <http://www.sec.gov/news/testimony/032102tshlp.htm> (explaining that Congress “rejected a ‘merit-based’ system of regulation”) [hereinafter Pitt, Written Testimony]. For a general discussion of merit review, see 1 LOUIS LOSS & JOEL SELIGMAN, *SECURITIES REGULATION* 114-25 (3d ed. rev. 1998) [hereinafter 1 LOSS & SELIGMAN].

17. The SEC has explained the philosophy of disclosure as follows: “[A] disclosure law would provide the best protection for investors. In other words, if the investor had available to him all the material facts concerning a security, he would then be in a position to make an informed judgment whether or not to buy.” Adoption of Rule 144, Securities Act Release No. 33-5223, 37 Fed. Reg. 591, 592 (Jan. 11, 1972). See also Pitt, Written Testimony, *supra* note 16, at 5 (“We believe it is important to maintain a disclosure-based regulatory system that relies on capital allocation decisions made by market participants.”). Disclosure also facilitates shareholders’ exercise of their franchise under corporation law, as well as of their right to sue directors and officers, such as for breach of fiduciary duty.

Taking this emphasis on disclosure seriously, the Supreme Court, as well as numerous lower courts, has largely limited the reach of the federal securities laws and the SEC’s jurisdiction to disclosure-related matters. Courts have also sought to avoid federalizing corporate law, which has traditionally been left to the states. For example, in *Santa Fe Indus., Inc. v. Green*, 430 U.S. 462 (1977), the Supreme Court held that a fiduciary duty breach, without any deception, misrepresentation, or nondisclosure, does not constitute fraud under Rule 10b-5. Mere instances of corporate mismanagement or fiduciary duty breach are generally outside the reach of the federal securities laws, but are properly left to state corporation law to address. *Id.* at 478 (explaining that the “fundamental purpose” of the federal securities laws is to implement a “philosophy of full disclosure” and that the fairness of the terms of a transaction are “at most a tangential concern”) (citation omitted); see also *Schreiber v. Burlington Northern, Inc.*, 472 U.S. 1 (1985) (holding that “manipulation” under § 14(e) of the Exchange Act requires deception and that § 14(e) does not regulate the substantive fairness of takeover defensive tactics adopted by a target company). Similarly, the Second Circuit held in *Business Roundtable v. S.E.C.*, 905 F.2d 406 (D.C. Cir. 1990), that the SEC did not have the authority to promulgate Rule 19c-4, the “one-share/one-vote” rule, because the rule regulated the allocation of authority among shareholders and was unrelated to disclosure. See Joel Seligman, *Equal Protection in Shareholder Voting Rights: The One Common Share, One Vote Controversy*, 54 GEO. WASH. L. REV. 687 (1986). These cases draw a line between matters of corporate governance and matters of disclosure. Although matters of disclosure generally fall within the scope of the federal securities laws, whereas the substantive regulation of corporate governance is principally left to state corporation law, features of the federal securities law do impact corporate governance. For example, the federal securities laws regulate proxies, shareholder proposals, and tender offer bids. Moreover, disclosure itself can indirectly affect corporate governance. See *infra* notes 211-32 and accompanying text. Further, failure to disclose a fiduciary duty breach may itself constitute fraud under the federal securities laws. See Donald C. Langevoort, *Seeking Sunlight in Santa Fe’s Shadow: The SEC’s Pursuit of Managerial Accountability*, 79 WASH. U. L.Q. 449 (2001). For a general discussion of the extent to



The federal mandatory disclosure regime today cannot be understood without considering the efficient capital market hypothesis (“ECMH”).<sup>18</sup> According to the ECMH, capital markets are efficient in that security prices reflect available information.<sup>19</sup> The federal securities laws promote market efficiency by requiring that information be made available to the market for investment decisions. The ECMH has profoundly influenced financial economics and the recent development and enforcement of the federal securities laws. Some of the more significant securities law developments based on the ECMH include integrated disclosure, shelf registrations under Rule 415 of the Exchange Act, and the fraud-on-the-market theory of reliance under Rule 10b-5 of the Exchange Act.<sup>20</sup>

Companies tell us more today than ever. Merrill Lynch, for example, recently looked at Form 10-K filings for 2001 and reported a “surge” in the size of 2001 10-K filings, as measured in kilobytes.<sup>21</sup> In particular, Merrill Lynch found that the median growth rate in the size of Form 10-Ks from 2000 to 2001 for the sample of companies in its study was 36%.<sup>22</sup> And there is at least anecdotal evidence suggesting, as might be expected, that SEC filings by public companies have continued to grow since.

Increasing disclosure by companies is in part the result of technological advances, such as the Internet, which greatly facilitate the dissemination of

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which the federal securities laws regulate corporate governance, notwithstanding the Supreme Court cases that more narrowly construe the SEC’s authority, see Amir N. Licht, *International Diversity in Securities Regulation: Roadblocks on the Way to Convergence*, 20 CARDOZO L. REV. 227, 245-63 (1998); Robert B. Thompson, *Preemption and Federalism in Corporate Governance: Protecting Shareholder Rights to Vote, Sell, and Sue*, 62 LAW & CONTEMP. PROBS. 215 (1999); Mark J. Roe, *Delaware’s Competition* (Aug. 2003), at [http://papers.ssrn.com/sol3/delivery.cfm/SSRN\\_ID354783\\_code021202630.pdf?abstractid=354783](http://papers.ssrn.com/sol3/delivery.cfm/SSRN_ID354783_code021202630.pdf?abstractid=354783); Robert B. Thompson & Hillary A. Sale, *Securities Fraud as Corporate Governance: Reflections Upon Federalism*, 56 VAND. L. REV. 859 (2003) [hereinafter Thompson & Sale].

18. For more on the ECMH, see *infra* Part V.B.

19. See Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. FIN. 383 (1970) [hereinafter Fama]; Eugene F. Fama, *Efficient Capital Markets II*, 46 J. FIN. 1575 (1991); Ronald J. Gilson & Reinier H. Kraakman, *The Mechanisms of Market Efficiency*, 70 VA. L. REV. 549 (1984) [hereinafter Gilson & Kraakman]. For a more extensive discussion of the ECMH, see *infra* Part V.B.

20. See Donald C. Langevoort, *Theories, Assumptions, and Securities Regulation: Market Efficiency Revisited*, 140 U. PA. L. REV. 851, 872-912 (1992) [hereinafter Langevoort, *Market Efficiency Revisited*] (critiquing ECMH as a basis for such features of securities regulation); Lynn A. Stout, *The Unimportance of Being Efficient: An Economic Analysis of Stock Market Pricing and Securities Regulation*, 87 MICH. L. REV. 613, 619-40, 696-706 (1988) [hereinafter Stout, *Unimportance of Being Efficient*]; Jeffrey N. Gordon & Lewis A. Kornhauser, *Efficient Markets, Costly Information and Securities Research*, 60 N.Y.U. L. REV. 761, 796-824 (1985) [hereinafter Gordon & Kornhauser].

21. Merrill Lynch, TechStrat Barometer, Weekly Wisdom for Technology Investors (Apr. 26, 2002).

22. *Id.*

information to more people more quickly than ever.<sup>23</sup> But it is also the result of expanded disclosure requirements under the federal securities laws. Disclosure obligations have increased over the years. A detailed item-by-item analysis of the evolution of disclosure obligations is beyond this Article's scope, but a few observations are worth making.<sup>24</sup>

The starting point for appreciating how extensive disclosure requirements are is Regulation S-K. Regulation S-K provides for wide-ranging disclosure of both quantitative and qualitative information with respect to such matters as a registrant's business development and prospects, legal proceedings, properties, financial performance, directors and officers, and securities.<sup>25</sup> All told, Regulation S-K provides for the disclosure of approximately fifty items. The instructions to Regulation S-K require very detailed and extensive disclosures in each case.

One of the most important textual disclosures is Management's Discussion and Analysis of Financial Condition and Results of Operations (Item 303, Regulation S-K).<sup>26</sup> The origins of MD&A date back to 1968, although the formal MD&A requirement was not adopted until 1980.<sup>27</sup> MD&A requires a reporting company to discuss its liquidity, capital resources, results of operations, and any other information the registrant believes is necessary to understand its financial condition and results of operations over the previous three years. Until the early 1970s, the SEC generally prohibited registrants from including projections in their filings.<sup>28</sup> MD&A marked a notable shift in this policy. MD&A, for example, requires the disclosure of certain known changes, trends, or uncertainties relating to

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23. For more on the Internet and securities regulation, see JOHN C. COFFEE, JR. & JOEL SELIGMAN, *SECURITIES REGULATION CASES AND MATERIALS* 141-61 (9th ed. 2003); John C. Coffee, Jr., *Brave New World?: The Impact(s) of the Internet on Modern Securities Regulation*, 52 *BUS. LAW.* 1195 (1997); Symposium, *Regulation of Securities and Securities Exchanges in the Age of the Internet*, 5 *N.Y.U. J. LEGIS. & PUB. POL'Y* 1 (2002).

24. For a similar overview of disclosure requirements, see Thompson & Sale, *supra* note 17, at 869-86. Adding to the additional disclosure requirements described below for reporting companies, the SEC recently adopted a rule requiring mutual funds to disclose how they vote their proxies and to make available to shareholders the proxy votes they actually cast. See *Disclosure of Proxy Voting Policies and Proxy Voting Records by Registered Management Investment Companies*, Securities Act Release No. 33-8188, 68 *Fed. Reg.* 6564 (Jan. 31, 2003).

25. Regulation S-K, 17 *C.F.R.* 229.10-229.702 (2003).

26. Item 303 of Regulation S-K, 17 *C.F.R.* § 229.303 (2003); see generally 2 LOUIS LOSS & JOEL SELIGMAN, *SECURITIES REGULATION* 688-98 (3d ed. rev. 1999).

27. Guides for Preparation and Filing of Registration Statements, Securities Act Release No. 33-4936, 33 *Fed. Reg.* 18,617 (Dec. 9, 1968); Notice of Adoption and Amendments to Guide 22 of the Guides for Preparation and Filing of Registration Statements, Securities Act Release No. 33-5520, 39 *Fed. Reg.* 31,894 (Aug. 14, 1974); Amendments to Annual Report Form, Related Forms, Rules, Regulations and Guides, Securities Act Release No. 33-6231, 45 *Fed. Reg.* 63,630 (Sept. 2, 1980).

28. See, e.g., Kitch, *supra* note 11, at 777-78.

the registrant's business and financial condition, such as those that could have a material impact on net sales, revenues, or income from operations. Registrants are also encouraged to disclose other forward-looking information. To this end, Congress adopted a safe harbor under the Securities Act of 1933 and the Securities Exchange Act of 1934 for forward-looking statements as part of the Private Securities Litigation Reform Act of 1995.<sup>29</sup> The shift in SEC emphasis toward textual disclosures has led to a significant increase in disclosure.<sup>30</sup>

Another key disclosure item, which has received a lot of attention recently, is executive compensation. The SEC extensively revised its executive compensation disclosure requirements (Item 402, Regulation S-K) in 1992.<sup>31</sup> Perhaps the most important change calls for much more detailed disclosures regarding non-cash and deferred executive compensation, such as stock options, restricted stock grants, long-term incentive plans, and stock appreciation rights.<sup>32</sup> The board's compensation committee must also disclose its general policies for setting executive compensation, the relationship of corporate performance to executive compensation, and the bases for the CEO's compensation. The regulations further require a registrant's compensation committee to explain any decision to reprice options or stock appreciation rights.<sup>33</sup> Finally, to indicate how well management is (or is not) running the business, a registrant must provide a line graph comparing the registrant's cumulative total shareholder return with market and industry indexes for five years.<sup>34</sup>

The financial media also have a role to play in the mandatory disclosure system. The financial media, at least as they exist today, are a relatively recent phenomenon, but with significant influence. The media, in effect, are a multiplier of information, extending the reach of information disclosed by companies in SEC filings and press releases and adding layers of analysis to the "raw" information.

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29. See Private Securities Litigation Reform Act of 1995, Pub. L. No. 104-67, 109 Stat. 737 (1995) (codified at 15 U.S.C. §§ 77a et seq. (1994 & Supp. I 1995)) (adding Sec. Act § 27A and Sec. Ex. Act. § 21E).

30. See Joel Seligman, *The Obsolescence of Wall Street: A Contextual Approach to the Evolving Structure of Federal Securities Regulation*, 93 MICH. L. REV. 649, 692 (1995) (explaining the "significant expansion in what must be disclosed" under the federal securities laws).

31. Executive Compensation Disclosure, Securities Act Release No. 33-6962, 57 Fed. Reg. 48,125 (Oct. 16, 1992).

32. Item 402(b) of Regulation S-K, 17 C.F.R. § 228.402(b) (2003); Instrs. to Item 402(b), 17 C.F.R. § 228.402; see also Items 402(c), (d), and (e) of Regulation S-K, 17 C.F.R. § 228.402(c)-(e), & Instrs. to Items 402(c), (d), and (e), 17 C.F.R. § 228.402.

33. Item 402(i) of Regulation S-K, 17 C.F.R. § 228.402(i).

34. Item 402(1) of Regulation S-K, 17 C.F.R. § 228.402(1).

Disclosure is the SEC's chief regulatory tool. When the SEC has veered in the past toward more substantive regulation of corporate governance, the courts have often blocked its path.<sup>35</sup> The fact that the regulatory devices available to the SEC in the corporate governance area are limited suggests that disclosure requirements will continue to increase as the SEC responds to new concerns that threaten our capital markets.<sup>36</sup> The SEC's response to Enron, WorldCom, and other recent corporate and accounting scandals is a case in point. Take current reports filed on Form 8-K. The SEC has proposed several new Form 8-K filing requirements, accelerating an already-existing trend toward a system of more continuous disclosure on a "real-time" basis as a way of ensuring the timeliness and accuracy of information provided to investors.<sup>37</sup> For example, the SEC has proposed adding eleven new items that must be filed on Form 8-K<sup>38</sup> and plans to expand current disclosure requirements with respect to the departure, removal, and election of directors and the departure and appointment of new officers.<sup>39</sup> A company would also be required to disclose material changes to its articles of incorporation or bylaws.<sup>40</sup> These proposed rule changes are projected to result in approximately 26,400 more filings per year with a price tag of over \$80,000,000.<sup>41</sup> Finally, the SEC separately has proposed requiring companies to file current reports describing certain insider transactions in company securities and insider loans.<sup>42</sup> This new disclosure requirement is itself expected to result in over 215,000 additional Form 8-K filings each year at an annual cost of over \$89,500,000.<sup>43</sup>

MD&A is another area where disclosures are expanding post-Enron. Many believe that an expanded MD&A can go a long way toward remedying

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35. See *supra* note 17.

36. It is, however, worth noting that a key feature of the SEC's regulatory response in Enron's wake was the Public Accounting Board, which very well might have gone into effect if not rendered irrelevant by the Public Company Accounting Oversight Board provided for in the Sarbanes-Oxley Act.

37. See, e.g., Pitt, Written Testimony, *supra* note 16, at 35 (citing goal of "real-time" disclosure). Importantly, "real-time" disclosure reduces the gap between what management knows and what investors know at any particular moment.

38. Additional Form 8-K Disclosure Requirements and Acceleration of Filing Date, Securities Act Release No. 33-8106, 77 SEC Docket 2579 (June 17, 2002) [hereinafter Release No. 33-8106]. The SEC also proposes moving two items from other Exchange Act reports to Form 8-K: disclosures regarding unregistered sales of equity securities by the registrant and material modifications to the rights of holders of the company's securities. *Id.*

39. Release No. 33-8106, at 21.

40. *Id.* at 24.

41. *Id.* at 36.

42. Form 8-K Disclosure of Certain Management Transactions, Securities Act Release No. 33-8090, 77 SEC Docket 1072 (Apr. 12, 2002).

43. *Id.* at 22.

the shortcomings in our mandatory disclosure regime that contributed to the recent corporate and accounting scandals. To be sure, MD&A has substantially improved the overall quality of disclosure by requiring management to give its take on the company's past performance and future prospects.<sup>44</sup> It is hard to imagine an investor who would prefer not to know management's view of the company, assuming, of course, that management's MD&A disclosures are truthful and accurate. The SEC is presently considering a number of changes to MD&A with the goal of further improving the transparency of financial disclosures, and so far it has proposed expanding disclosure requirements in two areas: (1) accounting estimates a company makes in applying its accounting policies; and (2) the initial adoption of accounting policies that have a material impact on a company's financial presentation.<sup>45</sup> As required by the Sarbanes-Oxley Act, the SEC has already adopted rules calling for more disclosure in MD&A regarding off-balance sheet transactions and certain contractual obligations and contingent liabilities and commitments.<sup>46</sup>

Like the SEC, Congress has recently advocated real-time disclosure.<sup>47</sup> Further, the Sarbanes-Oxley Act enacts a number of new disclosure requirements, implemented in many cases by the SEC rules described above, including new disclosures relating to the following: off-balance sheet transactions;<sup>48</sup> reconciliations of pro-forma financial information with the registrant's financial condition and results of operation;<sup>49</sup> insider stock transactions;<sup>50</sup> internal control systems;<sup>51</sup> codes of ethics for senior financial officers;<sup>52</sup> the audit committee's financial expert;<sup>53</sup> and CEO and CFO certifications of financial statements.<sup>54</sup>

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44. See Concept Release on Management's Discussion and Analysis of Financial Conditions and Operations, Securities Act Release No. 33-6711, 52 Fed. Reg. 13,715, 13,717 (Apr. 17, 1987) (explaining that MD&A gives investors a chance to "look at the company through the eyes of management").

45. Disclosure in Management's Discussion and Analysis About the Application of Critical Accounting Policies, Securities Act Release No. 33-8098, 77 SEC Docket 1631 (May 10, 2002).

46. Disclosure in Management's Discussion and Analysis About Off-Balance Sheet Arrangements and Aggregate Contractual Obligations, Securities Act Release No. 33-8182, 68 Fed. Reg. 5982 (Jan. 28, 2003) [hereinafter Release No. 33-8182].

47. Sarbanes-Oxley Act, *supra* note 1, § 409.

48. *Id.* § 401.

49. *Id.* § 401.

50. *Id.* § 403.

51. *Id.* § 404.

52. *Id.* § 406.

53. *Id.* § 407.

54. *Id.* §§ 302 & 906. For SEC final rules implementing a number of the disclosure requirements mandated by the Sarbanes-Oxley Act, see Conditions for Use of Non-GAAP Financial Measures, Securities Act Release No. 33-8176, 68 Fed. Reg. 4820 (Jan. 22, 2003); Disclosure Required by

Companies will disclose more information if the law requires them to. But even without new disclosure mandates from the SEC or Congress, other forces are at work that will lead to more disclosure, at least in the near term. Two forces in particular come to mind. The first is the risk of liability for failure to disclose, which is to say for fraud. The risk of liability, or at least the perceived risk of liability, has increased since Enron's demise. Not only did the Sarbanes-Oxley Act enact a plethora of new criminal and civil penalties for fraud,<sup>55</sup> but the likelihood of being caught and prosecuted has increased. The Department of Justice and United States Attorneys around the country have been focusing on corporate fraud like never before. The SEC, in addition, has redoubled its efforts to ferret out and prosecute those who violate the federal securities laws,<sup>56</sup> and the SEC's significantly increased budget will help in the effort.<sup>57</sup> Further, state attorneys general, most notably New York Attorney General Eliot Spitzer, have been active to an unprecedented degree in bringing or threatening charges for fraud or corporate corruption against corporate executives, financial firms on Wall Street, and securities market professionals. All of this takes place against a new backdrop of "perp walks," indictments, convictions, and guilty pleas. It is fair to surmise that recent high-profile cases involving executives at Enron, WorldCom, Adelphia, ImClone, and elsewhere have made the risks and consequences of engaging in fraud or other acts of corporate misconduct real to executives and directors around the country. A shift in bias toward disclosure seems to be taking place, especially for companies with nothing to hide. Instead of asking, "Why disclose?," the question may be, "Why not disclose?"<sup>58</sup>

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Sections 406 and 407 of the Sarbanes-Oxley Act of 2002, Securities Act Release No. 33-8177, 68 Fed. Reg. 5110 (Jan. 23, 2003); Insider Trades During Pension Fund Blackout Periods, Exchange Act Release No. 34-47,225, 68 Fed. Reg. 4338 (Jan. 22, 2003); Certification of Disclosure in Companies' Quarterly and Annual Reports, Securities Act Release No. 33-8124, 67 Fed. Reg. 57,276 (Sept. 9, 2002); Ownership Reports and Trading by Officers, Directors and Principal Security Holders, Exchange Act Release No. 34-46,421, 67 Fed. Reg. 56,462 (Aug. 27, 2002); Release No. 33-8182, *supra* note 46.

55. Sarbanes-Oxley Act, *supra* note 1, at Titles VII, IX, & XI.

56. See, e.g., Michael Schroeder and Greg Ip, *Imperfect Guardian: SEC Faces Hurdles Beyond Low Budget in Stopping Fraud*, WALL ST. J., July 19, 2002, at A1 (explaining the significant increase in SEC enforcement actions brought in 2002).

57. The Sarbanes-Oxley Act authorizes \$776 million for the SEC's budget. Sarbanes-Oxley Act, *supra* note 1, § 601. The SEC's budget for 2004 is expected to be \$842 million. See, e.g., Deborah Solomon, *New SEC Chief's Top Priority: Rebuilding Trust in Watchdog*, WALL ST. J., June 5, 2003, at A1.

58. Anecdotally, lawyers have suggested to me that companies often disclose information not to better inform investors, but to reduce the risk of liability for omitting a material fact or disclosing a "half truth."

There is another reason companies are disclosing more. The capital markets demand better information these days. Securities market participants are focusing on the quality of disclosure in a way that they have not for years, if ever. The market is much quicker to punish a company if questions are raised about the company's transparency and whether it has something to hide. Even securities analysts, who until recently rarely issued a "sell" or even a "hold" recommendation, seem to be more skeptical in the post-Enron world and are taking a harder look at companies. Many companies are responding by voluntarily disclosing more information before concerns arise.<sup>59</sup> This is the very result that opponents of the mandatory disclosure system would predict.<sup>60</sup> General Electric is just one company volunteering to disclose more information. GE has long been criticized for how it discloses information, especially with respect to its GE Capital business unit.<sup>61</sup> Responding to the desire of the capital markets for more transparency, in 2002 GE announced that it would provide more detailed disclosures.<sup>62</sup> In particular, GE said that it would disclose financial information for 26 business segments, up from 12 segments, and would disclose additional information about 14 of the 25 businesses that make up GE Capital.<sup>63</sup> Jeffrey Immelt, GE's CEO and chairman, said the following about his company's new approach to disclosure: "I want people to think about GE as we think of GE—as a transparent company."<sup>64</sup> Immelt continued: "If the annual report or quarterly report has to be the size of the New York City phone book, that's life."<sup>65</sup>

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59. There is a rich literature discussing voluntary disclosure in the securities context. See Stephen J. Choi, *Law, Finance, and Path Dependence: Developing Strong Securities Markets*, 80 TEX. L. REV. 1657, 1720-23 (2002) (collecting citations).

60. See *supra* notes 11-14 and accompanying text.

61. Steve Liesman et al., *New Leaves: Enron Triggers a Slew of Proposed Fixes, But What Will Stick?*, WALL ST. J., Mar. 7, 2002, at A1.

62. Rachel E. Silverman, *GE to Change Its Practices of Disclosure*, WALL ST. J., Feb. 20, 2002, at A3.

63. Rachel E. Silverman, *GE's Annual Report Bulges With Data in Bid to Address Post-Enron Concerns*, WALL ST. J., Mar. 11, 2002, at A3.

64. Steve Liesman et al., *New Leaves: Enron Triggers a Slew of Proposed Fixes, But What Will Stick?*, WALL ST. J., Mar. 7, 2002, at A1.

65. Rachel E. Silverman, *GE to Change Its Practices of Disclosure*, WALL ST. J., Feb. 20, 2002, at A3.

### III. THE GOALS OF DISCLOSURE, BOUNDED RATIONALITY, AND DECISION STRATEGIES

#### A. *The Means of Disclosure and the End of Informed Investor Decision Making*

People rarely want information for its own sake. Rather, people want information because it is empowering. Information enables those who have it to make informed decisions and to better protect their interests, whatever they may be. The federal securities laws are no different. The goal of the federal mandatory disclosure system is not disclosure. Disclosure is merely the chosen means to the end of informed investor decision making.<sup>66</sup> In turn, a regime of disclosure, by getting more information into the hands of investors, securities analysts, brokers, arbitrageurs, and others, promotes investor confidence, capital market integrity, and, ultimately, capital market efficiency. Disclosure can also reduce agency costs.<sup>67</sup> If the system works as intended, these goals are achieved through disclosures that improve the financial and operational transparency of companies—hence the recent expansion of disclosure requirements.<sup>68</sup> Realistically, few people expect the “average” individual investor to focus in any detail on the information that

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66. Although the discussion here is oriented toward the valuation of securities and buy/sell decisions, informed investor decision making also includes informed shareholder voting, as well as other steps investors, analysts, brokers, and others might take to monitor and discipline management. Informed investor decision making is about more than the accurate pricing of securities.

67. See *infra* notes 211-32 and accompanying text.

68. Transparency is important in another respect. The recent corporate scandals have not been limited to issuers. Scandals have also plagued leading financial institutions up and down Wall Street. Just as investors need information about companies in which they might invest, they need information about the financial firms and market professionals that they rely on for advice and that facilitate and broker financial transactions. For example, a “buy” recommendation from a securities analyst is useless (in fact, is harmful) if it does not reflect the analyst’s good faith analysis. At least in recent years, all too often an analyst’s recommendation was tainted by conflicts of interest—in particular, by pressure to write positive research reports and issue favorable recommendations so as not to jeopardize an existing or potential relationship with a company that could generate significant investment banking fees for the analyst’s firm and ultimately significant compensation for the analyst. See, e.g., Charles Gasparino, *NASD Expands Inquiry to Analysts’ Bosses*, WALL ST. J., Jan. 6, 2003, at C1; Burton G. Malkiel, *Remaking the Market: The Great Wall Street?*, WALL ST. J., Oct. 14, 2002, at A16; Susan Pulliam & Randall Smith, *SEC’s Pitt Seeks Split of Banking, Analyst Areas*, WALL ST. J., Sept. 26, 2002, at C1; Randall Smith & John Hechinger, *Former Unit of Fleet Boston Receives Fines: Total of \$33 Million Is Levied Over IPO Deals, Stock Research; SEC Sees Violation by Analyst*, WALL ST. J., Jan. 10, 2003, at C1; Michael Schroeder & Randall Smith, *CSFB Analysts Felt Pressured On Stock Reports*, WALL ST. J., Sept. 6, 2002, at C1. Ultimately, several leading financial institutions reached a \$1.4 billion global regulatory settlement that addresses securities analyst conflicts of interest. See Stephen Labaton, *10 Wall Street Firms Settle with U.S. in Analyst Inquiry*, N.Y. TIMES, Apr. 29, 2003, at A1; Randall Smith et al., *Wall Street Firms to Pay \$1.4 Billion to End Inquiry*, WALL ST. J., Apr. 29, 2003, at A1.



companies disclose. As a practical matter, a company's disclosures are largely "filtered" through experts—various securities professionals and financial intermediaries—who research and process the information and whose trades and recommendations ultimately set securities prices.<sup>69</sup>

Two things are needed for a securities regulation regime based on disclosure to work. First, information has to be disclosed. The ever-growing panoply of statutes, rules, and regulations described above ensures that companies will disclose more and more information. After all is said and done in response to Enron et al., capital markets will have access to more information in a more timely manner than ever before. But disclosure of information is not enough for a disclosure-based regulatory system to succeed. Investors, analysts, and others need to use the disclosed information effectively for the disclosures to be useful. In other words, for our mandatory disclosure system to work, securities market participants must not only have access to information, but must be able to search and process in an effective manner the information that is disclosed.<sup>70</sup> Otherwise, the information will not improve the quality of decision making. Concern for whether disclosures are understandable is nothing new. William O. Douglas, who later became chairman of the SEC and a Supreme Court Justice, was among the first to raise this concern. Shortly after the Securities Act was adopted, he wrote:

But those needing investment guidance will receive small comfort from the balance sheets, contracts, or compilation of other data revealed in the registration statement. They either lack the training or intelligence to assimilate them and find them useful, or are so concerned with a speculative profit as to consider them irrelevant.<sup>71</sup>

Professor Louis Loss echoed these sentiments, complaining that the readability of prospectuses was one of the fundamental shortcomings of the

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69. For more on expert "filters," see *infra* Part IV.B.1.

70. Professor Macey offers a complementary view in which he distinguishes the "supply side" of disclosure (*i.e.*, the production, formatting, and dissemination of information) from the "demand side" of disclosure (*i.e.*, the interpretation of information and its translation into trading decisions) and contends that demand-side problems were the primary cause of Enron's demise and the other corporate scandals of the day. See Jonathan Macey, *A Pox on Both Your Houses: Enron, Sarbanes-Oxley and the Debate Concerning the Relative Efficiency of Mandatory Versus Enabling Rules*, 81 WASH. U. L.Q. 329 (2003). Information overload raises concerns that fall on the demand side of disclosure. As discussed below, *infra* Part V.A, certain supply-side measures, such as requiring better formatting and presentation of information, can help remedy demand-side problems.

71. William O. Douglas, *Protecting the Investor*, 23 YALE REV. 521, 523-24 (1934) [hereinafter Douglas]. Douglas was skeptical that disclosure would adequately protect investors, and instead advocated more substantive regulation. *Id.* at 532; see also 1 LOSS & SELIGMAN, *supra* note 16, at 173-74.

registration process.<sup>72</sup> The SEC has also recognized that the disclosure of information will not adequately protect investors or result in better decision making if investors are unable to understand and process the information. In 1969, the Wheat Report concluded that prospectuses were often too long or complex and that investors could not easily understand them.<sup>73</sup> More recently, the SEC's Task Force on Disclosure Simplification, which was charged with making recommendations for streamlining, simplifying, and modernizing securities regulation, said that disclosure must be "understandable, complete and timely" to be effective and made a number of recommendations to simplify disclosure.<sup>74</sup> In response to the Task Force's findings, in 1998, the SEC adopted "plain English" reporting requirements to provide for more understandable disclosures.<sup>75</sup> Even the ongoing debate over the expensing and reporting of stock options is about making a company's financial disclosures more understandable by uncovering information buried in footnotes and putting it onto the company's financial statements. To be sure, the presence of expert "filters" assuages concerns about understandability, but does not eliminate them.

The issue of whether the information companies disclose is used effectively is much more complicated than William Douglas or Louis Loss appreciated or the SEC has recognized. The success of the federal mandatory disclosure system depends on more than purging SEC filings of legalese or uncovering information buried in footnotes. It depends on understanding how individuals process information and make decisions and on designing a regulatory regime that accounts for these realities of human psychology and decision making. Giving capital markets information, even in a readily readable form, is not enough. Ultimately, we need to understand better what investors and others do with the information in order to craft a disclosure regime that better satisfies the goals of the federal securities laws.

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72. See LOUIS LOSS, *FUNDAMENTALS OF SECURITIES REGULATION* 148-66 (1st ed. 1983) [hereinafter LOSS].

73. See Securities & Exchange Commission, *Disclosure to Investors: A Reappraisal of Federal Administrative Policies Under the '33 and '34 Acts: The Wheat Report* 62-63 (1969) [hereinafter Wheat Report].

74. See Securities & Exchange Commission, *Report of the Task Force on Disclosure Simplification* (Mar. 5, 1996), at <http://sec.gov/news/studies/smpl.htm> [hereinafter Disclosure Simplification Task Force Report].

75. See Covered Securities Pursuant to Section 18 of the Securities Act of 1933, Securities Act Release No. 33-7497, 63 Fed. Reg. 3032 (Jan. 2, 1998).

*B. Bounded Rationality and Our Limited Cognitive Abilities*

The federal securities law system has done an admirable job overall of ensuring that investors have access to material information. But scant attention has been paid to the question of how investors, analysts, brokers, and others search and process information and make decisions. In other words, how do investors and securities market professionals use the information the mandatory disclosure system provides them? Neither individual investors nor market professionals will make better informed decisions if they ignore the information they have or use it in an ineffective or even counterproductive manner.<sup>76</sup> Then-SEC Commissioner Laura Unger put it this way: “As the Commission pursues new ways to help democratize access to investment information, we have to remember that information can only empower investors if they understand it and can effectively apply it. Access to information isn’t a substitute for knowing how to interpret it.”<sup>77</sup>

The way people process information and make decisions is extraordinarily complicated and is the product of a number of psychological factors. The starting point for analyzing how people behave and think, if only because it makes modeling human behavior easier, is rationality—the assumption that individuals are able to anticipate and consider all relevant factors in making choices and that they have unlimited computational capabilities.<sup>78</sup> In this view, only the decision environment, such as the information and choice set an individual faces, constrains a person’s decisions. A person cannot choose a course of action that is not available and

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76. As Paul Slovic remarked over thirty years ago:

Modern technology has contributed its share to the information explosion by making vastly greater quantities of elegant data readily available to the analyst, broker, and investor. However, little attention has been given to the problems of interpreting this information skillfully. Graham et al., in their classic treatise on security analysis, recognized the proper use of information as a key element of investment decision making. They observed, “After the analyst has learned what information he can get and where to get it, he faces the harder question: What use to make of it?”

Paul Slovic, *Psychological Study of Human Judgment: Implications for Investment Decision Making*, 27 J. FIN. 779, 779 (1972) (citation omitted) [hereinafter Slovic].

77. SEC Commissioner Laura S. Unger, Remarks at the Internet Securities Regulation American Conference Institute (June 26, 2000), at <http://www.sec.gov/news/speech/spch387.htm> [hereinafter Remarks by Commissioner Unger].

78. Herbert Simon describes the “economic man” who is perfectly rational as follows:

This man is assumed to have knowledge of the relevant aspects of his environment which, if not absolutely complete, is at least impressively clear and voluminous. He is assumed also to have a well-organized and stable system of preferences, and a skill in computation that enables him to calculate, for the alternative courses of action that are available to him, which of these will permit him to reach the highest attainable point on his preference scale.

Herbert A. Simon, *A Behavioral Model of Rational Choice*, 69 Q.J. ECON. 99, 99 (1955) [hereinafter Simon, *Behavioral Model*].

cannot take into account information that is unknown. Many regulatory schemes, including the federal securities laws, assume that people, at least for the most part, are rational. Consequently, people simply need more information to better evaluate their options and make better decisions. If this is the case, more information is always better than less.

But this is not always the case. Inadequate information is not the only problem that should concern regulators. Herbert Simon recognized nearly fifty years ago that the “environment of choice” is just the starting point of the decision-making process; the “properties of the choosing organism” also matter.<sup>79</sup> Simon wrote: “But if we adopt this viewpoint, we must be prepared to accept that what we call ‘the environment’ may lie, in part, within the skin of the biological organism. That is, some of the constraints that must be taken as givens in an optimization problem may be physiological and psychological limitations of the organism (biologically defined) itself.”<sup>80</sup> Simon is credited with being among the first to point out that people have limited cognitive abilities to store, process, and interpret information.<sup>81</sup> According to Simon and others after him, people are boundedly rational, not perfectly rational.<sup>82</sup>

Bounded rationality affects how people make decisions. Cognitive capabilities are scarce resources that have to be allocated; because of limited cognitive capabilities, people cannot attend to all the information made available to them and cannot evaluate all their choices perfectly.<sup>83</sup> As a result, people decide how much time and effort to spend on a task and rationally exclude certain information and options, because to consider everything would make the decision-making process unmanageable and

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79. *Id.* at 100.

80. *Id.* at 101.

81. *Id.* at 101 (“For example, the maximum speed at which an organism can move establishes a boundary on the set of its available behavior alternatives. Similarly, limits on computational capacity may be important constraints entering into the definition of rational choice under particular circumstances.”).

82. For a collection of Simon’s work, see HERBERT A. SIMON, *MODELS OF BOUNDED RATIONALITY: ECONOMIC ANALYSIS AND PUBLIC POLICY* (1982). For more on bounded rationality, see Stephen M. Bainbridge, *Why a Board? Group Decisionmaking in Corporate Governance*, 55 *VAND. L. REV.* 1, 19-27 (2002) [hereinafter Bainbridge]; Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 *CAL. L. REV.* 1051, 1075-02 (2000) [hereinafter Korobkin & Ulen]. Even proponents of rational choice theory recognize that people are not perfectly rational in reality.

83. Simon, *Behavioral Model*, *supra* note 78, at 101 (explaining that “limits on computational capacity” constrain a person’s “rational choice”); Herbert A. Simon, *Rationality as Process and as Product of Thought*, 68 *AM. ECON. REV.*, NO. 2, 1, 9-14 (1978) (explaining that the mind is a scarce resource) [hereinafter Simon, *Rationality as Process*]; Herbert A. Simon, *Theories of Decision-Making in Economics and Behavioral Science*, 49 *AM. ECON. REV.* 253, 272-73 (1959) [hereinafter Simon, *Theories of Decision-Making*].

overwhelming or would simply take too much time.<sup>84</sup> Simon concludes that people “satisfice” rather than “optimize,” especially when faced with complex choices.<sup>85</sup> People chose an “aspiration level,” which is to say some satisfactory outcome.<sup>86</sup> They then strive to achieve this outcome, even if some “better” decision may exist in theory. In simpler terms, one can think of satisficing as doing the best as one can under the circumstances. This is not to say that individuals prefer to satisfice and not optimize. Rather, individuals satisfice because they do not have the cognitive capabilities to optimize.<sup>87</sup>

At bottom, satisficing is a coping device for making complex choices under uncertainty.<sup>88</sup> Decision makers trade off optimizing the outcome for simplifying the decision process.<sup>89</sup> Later work by Simon and others, notably Amos Tversky, Daniel Kahneman, and Paul Slovic, further developed Simon’s basic insight by showing that individuals employ simplifying decision strategies or heuristics to make complex decisions.<sup>90</sup> But what

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84. See Simon, *Behavioral Model*, *supra* note 78, at 101 (explaining that people adopt “schemes of approximation” to simplify tasks), 104 (explaining that people take steps to simplify complex situations “to find an approximate model of manageable proportions”); Simon, *Rationality as Process*, *supra* note 83, at 9 (“As economics moves out toward situations of increasing cognitive complexity, it becomes increasingly concerned with the ability of actors to cope with the complexity, and hence with the procedural aspects of rationality.”).

85. Simon, *Behavioral Model*, *supra* note 78, at 104; Simon, *Theories of Decision-Making*, *supra* note 83, at 262-64.

86. See, e.g., Simon, *Behavioral Model*, *supra* note 78, at 103-04; Simon, *Theories of Decision-Making*, *supra* note 83, at 263.

87. Satisficing can alternatively be thought of as optimizing subject to constraints. Cf. Russell Korobkin, *The Efficiency of Managed Care “Patient Protection” Laws: Incomplete Contracts, Bounded Rationality, and Market Failure*, 85 CORNELL L. REV. 1, 48 (1999) (explaining that satisficing can be seen as “globally ‘rational’”) [hereinafter Korobkin].

88. Simon, *Behavioral Model*, *supra* note 78, at 101; Simon, *Theories of Decision-Making*, *supra* note 83, at 256.

89. See, e.g., Naresh K. Malhotra, *Reflections on the Information Overload Paradigm in Consumer Decision Making*, 10 J. CONSUMER RES. 436, 438 (1984) [hereinafter Malhotra, *Reflections on Information Overload*] (“While consumers may employ heuristics to limit the intake of information, these heuristics may often involve a tradeoff between simplifying and optimizing. . . . Hence, in the context of decision making, it is entirely possible for a consumer to adopt a choice heuristic that may limit cognitive strain but that may not lead to the ‘best’ or even to a satisfactory choice.”); see also Bainbridge, *supra* note 82, at 21 (explaining that people “attempt to minimize effort in the face of complexity and ambiguity”); Korobkin & Ulen, *supra* note 82, at 1077-83; *infra* Part III.B.

90. See, e.g., Simon, *Behavioral Model*, *supra* note 78, at 100 (explaining that understanding how a person makes choices “involves some new considerations—in particular taking into account the simplifications the choosing organism may deliberately introduce into its model of the situation in order to bring the model within the range of its computing capacity”); JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES (Daniel Kahneman et al. eds., 1982) [hereinafter Kahneman et al.]; JOHN W. PAYNE ET AL., THE ADAPTIVE DECISION MAKER 1-2 (1993) [hereinafter PAYNE ET AL.]; HERBERT A. SIMON, MODELS OF BOUNDED RATIONALITY: ECONOMIC ANALYSIS AND PUBLIC POLICY (1982).

factors determine the complexity and uncertainty of the task environment, and exactly how does decision making change as a result?

### C. *How We Decide*

Human behavior is said to be “shaped by the interaction between the properties of the human information-processing system and the properties of task environments.”<sup>91</sup> As Simon put it: “Human rational behavior is shaped by a scissors whose two blades are the structure of task environments and the computational capabilities of the actor.”<sup>92</sup>

Imagine that you are an associate in a law firm representing a client in a large merger.<sup>93</sup> As the most junior member of the legal team, you are stuck doing due diligence on the deal. On Monday morning, the senior partner hands you three boxes of documents and asks you to review the material, summarize your findings in a memorandum, and decide whether or not there are any significant legal risks that your client needs to resolve before closing the transaction. Because time is of the essence, you only have two days to complete your diligence. Now imagine that the situation is the same, except that instead of reviewing three boxes, you are asked to review fifty boxes of documents during the same two-day period. Will you go about your task differently?

People make decisions in all sorts of ways. Building on earlier work by Simon and others, researchers have catalogued a number of decision strategies that individuals might adopt in different settings. These strategies can be understood primarily in terms of how much information a person considers and processes and the tradeoffs a person makes among the attributes that influence which alternative to choose.<sup>94</sup>

The weighted adding strategy is the most thorough choice strategy. A person using this strategy considers all available information in evaluating all the attributes of each option.<sup>95</sup> The decision maker first applies weights to all the attributes, thereby ranking how important each attribute is. The decision maker then trades off the attribute values of her options. In particular, she evaluates each attribute for each alternative and assigns a subjective value

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91. James R. Bettman et al., *Constructive Consumer Choice Processes*, 25 J. CONSUMER RES. 187, 187 (1998) (citation omitted) [hereinafter Bettman et al.].

92. Herbert A. Simon, *Invariants of Human Behavior*, 41 ANN. REV. OF PSYCHOL. 1, 7 (1990).

93. In their leading book on contingent decision making, Payne, Bettman, and Johnson motivate their discussion by describing a similar task involving choosing between two applicants for a job. See PAYNE ET AL., *supra* note 90.

94. See Bettman et al., *supra* note 91, at 189-90.

95. *Id.* at 190; PAYNE ET AL., *supra* note 90, at 24; Korobkin, *supra* note 87, at 46.

that measures how each alternative does on each attribute. Then for each attribute, the decision maker multiplies the attribute's weight times its subjective value. The weighted attribute values are then summed for all the attributes of each option. The decision maker is assumed to choose the option with the highest overall value or "score."<sup>96</sup> The weighted adding strategy requires a significant amount of information processing and computation that is unrealistic for most people. However, the effort is rewarded. The weighted adding strategy is thought to maximize the accuracy of the decision.<sup>97</sup> As the choice strategy that a perfectly rational "optimizing" person would employ, something like the weighted adding strategy underlies many, if not most, economic models of behavior.

The equal weight strategy is a relaxed variation of weighted adding.<sup>98</sup> This strategy considers each option and the attribute values for each option. Decision making, however, is simplified because certain information about attribute values is ignored. Specifically, the attributes are not weighted. The value of each option is simply the sum of the option's attribute values. Notwithstanding this simplification, the equal weight strategy is thought to be highly accurate.<sup>99</sup>

The lexicographic strategy is one of the simplest choice strategies.<sup>100</sup> In fact, it is the near-opposite of the weighted adding strategy. An individual using the lexicographic strategy chooses the alternative that ranks the highest on the most important attribute. If two or more alternatives tie, the alternative with the best value on the next most important attribute is chosen, and so on until the tie is broken. This strategy allows a decision maker to consider less information and to avoid making explicit tradeoffs among attributes, since she only considers the most important attribute.

Elimination-by-aspects is a more robust variation of the lexicographic

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96. See Bettman et al., *supra* note 91, at 190.

97. The weighted adding strategy is considered to be highly "compensatory." A "compensatory" decision strategy is one in which the decision maker makes tradeoffs among various attributes; strategies that do not involve making such tradeoffs are called "noncompensatory." For example, with a compensatory strategy, a high score on one attribute might compensate for a low score on another attribute; whereas with a noncompensatory strategy, a high score on one attribute cannot make up for a low score on another. Compensatory strategies are generally thought to be more accurate than noncompensatory strategies. See generally PAYNE ET AL., *supra* note 90, at 29-30; Bettman et al., *supra* note 91, at 190. For a useful illustration of compensatory versus noncompensatory decision strategies, see Chris Guthrie, *Panacea or Pandora's Box? The Costs of Options in Negotiation*, 88 IOWA L. REV. 801 (2003) [hereinafter Guthrie].

98. PAYNE ET AL., *supra* note 90, at 25; Bettman et al., *supra* note 91, at 190; Korobkin, *supra* note 87, at 50.

99. Bettman et al., *supra* note 91, at 190.

100. PAYNE ET AL., *supra* note 90, at 26-27; Bettman et al., *supra* note 91, at 190; Korobkin, *supra* note 87, at 49.

strategy.<sup>101</sup> The elimination-by-aspects strategy calls for the decision maker to rank the attributes according to their importance. The decision maker then chooses a cutoff value for the most important attribute. Each option that does not meet this minimum value is eliminated. If only one alternative remains, the decision maker chooses it. If more than one alternative remains, this elimination-by-aspects process is applied to the second most important attribute. The process continues until only one option remains.

Under what circumstances do individuals use a particular decision strategy?<sup>102</sup> Without having an answer to this question, a robust taxonomy of decision strategies might ultimately prove to be of little help to policy makers. The brain is a mysterious thing,<sup>103</sup> and we do not know for certain when somebody will select one decision strategy over another or exactly how a strategy, once selected, will be used. A leading explanation of when individuals use certain decision strategies depends on a form of cognitive cost-benefit analysis,<sup>104</sup> which fits into Simon's model of satisficing. This cost-benefit-analysis explanation of strategy choice is premised on people's bounded rationality, their limited cognitive capacity.<sup>105</sup> The basic argument is that each decision strategy involves a tradeoff between its accuracy<sup>106</sup> and the

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101. PAYNE ET AL., *supra* note 90, at 27; Bettman et al, *supra* note 91, at 190; Korobkin, *supra* note 87, at 49-50.

102. Individuals may, in fact, use combinations of strategies. For example, a person might initially use the lexicographic strategy to eliminate some alternatives and then employ the weighted adding strategy to evaluate the remaining alternatives in greater detail. See Eric J. Johnson & John W. Payne, *Effort and Accuracy in Choice*, 31 MGMT. SCI. 395, 408 (1985) [hereinafter Johnson & Payne]; Bettman et al., *supra* note 91, at 191.

103. Although advances in neuro-science may solve some of these mysteries.

104. Bettman et al., *supra* note 91, at 192; Stanley F. Biggs et al., *The Effects of Task Size and Similarity on the Decision Behavior of Bank Loan Officers*, 31 MGMT. SCI. 970, 972 (1985) [hereinafter Biggs et al.]; Don N. Kleinmuntz & David A. Schkade, *Information Displays and Decision Processes*, 4 PSYCHOL. SCI. 221, 223-24 (1993) [hereinafter Kleinmuntz & Schkade]; PAYNE ET AL., *supra* note 90, at 72-116.

105. There is an alternative approach to decision making—the “perceptual” approach—that does not center on accuracy/effort tradeoffs or cost-benefit analysis. According to the perceptual approach, people form perceptions that ultimately influence their decisions. For example, a decision maker might be influenced by how a choice is framed, might be averse to loss, or might focus on recent events in determining the likelihood of potential outcomes. The perceptual approach, however, can be integrated into the accuracy/effort framework. When the two approaches are integrated, the perceptual approach can help explain what information people focus on and how tasks are perceived; and the accuracy/effort approach can help explain how people use the information they notice and respond to the perceived task. See generally Bettman et al., *supra* note 91, at 192; PAYNE ET AL., *supra* note 90, at 99-116; Kleinmuntz & Schkade, *supra* note 104, at 227.

106. The accuracy of a decision is difficult to measure. Nonetheless, typical metrics (or proxies) for measuring decision accuracy include: (1) how much information is used (often referred to as cue usage); (2) how consistent are a person's decisions; and (3) how much consensus is there in the decisions among people. See Eugene G. Chewning, Jr. & Adrian M. Harrell, *The Effects of Information Loan on Decision Makers' Cue Utilization Levels and Decision Quality in a Financial Distress Decision Task*, 15 ACCT., ORG. AND SOCIETY 527, 535-40 (1990) [hereinafter Chewning &



effort<sup>107</sup> needed to implement the strategy. People are assumed to prefer more accurate decisions, but, everything else being the same, would like to exert less effort. Decision makers trade off their desire for accurate decisions and their desire to minimize cognitive effort until they reach an acceptable balance between accuracy and effort.

Accuracy and effort levels vary across decision strategies. For example, for a given task, the weighted adding strategy is considered to be both more accurate and more effortful than the lexicographic strategy. The complexity of the task at hand influences the decision strategy a person uses, since more complex tasks require more effort. Studies show that when faced with a complicated task, a decision maker will often adopt a simplifying decision strategy, such as the lexicographic strategy or elimination-by-aspects, in effect sacrificing accuracy in order to reduce her cognitive burden.<sup>108</sup> Faced with a simpler task, a decision maker is more likely to thoroughly consider all of her options by using a more complex<sup>109</sup> strategy that evaluates more information.

The typical assumption is that people can make better (*i.e.*, more accurate) decisions with more information, and that people will make still better decisions with still more information. Indeed, this assumption undergirds the federal mandatory disclosure system. But does this assumption hold in every case? Do people necessarily make better choices with more information, or can a task become too complex?

Because of bounded rationality, people can only process a finite amount

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Harrell]; Johnson & Payne, *supra* note 102, at 396-97; PAYNE ET AL., *supra* note 90, at 88-89; Slovic, *supra* note 76, at 783; Morris H. Stocks & Brad Tuttle, *An Examination of Information Presentation Effects on Financial Distress Predictions*, 6 ADVANCES IN ACCT. INFO. SYS. 107, 119 (1998) [hereinafter Stocks & Tuttle].

107. Effort includes the cost of acquiring, verifying, and processing information. *See, e.g.*, PAYNE ET AL., *supra* note 90, at 75-88; *see also* Gilson & Kraakman, *supra* note 19, at 593-609.

108. *See* Bettman et al., *supra* note 91, at 199; Stanley F. Biggs et al., *The Effects of Task Size and Similarity on the Decision Behavior of Bank Loan Officers*, 31 MGMT. SCI. 970, 974-76 (1985) [hereinafter Biggs et al.]; Sarah E. Bonner, *A Model of the Effects of Audit Task Complexity*, 19 ACCT., ORG. AND SOCIETY 213, 217, 220-21 (1994) [hereinafter Bonner]; Ellen C. Garbarino & Julie A. Edell, *Cognitive Effort, Affect, and Choice*, 24 J. CONSUMER RES. 147, 148 (1997); Johnson & Payne, *supra* note 102, at 395; Kleinmuntz & Schkade, *supra* note 104, at 223; Korobkin, *supra* note 87, at 52-54; Richard W. Olshavsky, *Task Complexity and Contingent Processing in Decision Making: A Replication and Extension*, 24 ORG. BEHAV. & HUM. PERFORMANCE 300, 300-01 (1979) [hereinafter Olshavsky]; PAYNE ET AL., *supra* note 90, at 12-15, 92-99. The fact that a person uses a simpler decision strategy, however, does not necessarily mean that he makes a worse decision. Indeed, a person might make a better decision by simplifying his task instead of trying to consider all relevant factors in a compensatory manner. *See* Johnson & Payne, *supra* note 102, at 408 (explaining that simpler strategies can approximate the same accuracy as complex strategies, but with significantly less cognitive effort).

109. In other words, more compensatory. *See supra* note 97.

of information during any particular period of time.<sup>110</sup> These processing limitations are commonly thought to give rise to information overload.<sup>111</sup> Studies have shown that as a decision maker is given more information, decision quality initially increases; once the information level reaches a certain point, however, the decision maker's decision quality decreases if she is given additional information.<sup>112</sup> The idea is that at some point—many studies suggest between five and ten attributes per choice—people become overloaded with information and begin to make worse decisions.<sup>113</sup>

One explanation of information overload is that as people try to process too much information, they simply become overwhelmed and confused. Their cognitive capabilities become strained and, if you will, short-circuit or malfunction. But there is an alternative explanation based on decision theory. The amount of information facing the decision maker—often referred to as

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110. See Simon, *Theories of Decision-Making*, *supra* note 83, at 273; Simon, *Behavioral Model*, *supra* note 78, at 100; Simon, *Rationality as Process*, *supra* note 83, at 13; see also *supra* notes 79-90 and accompanying text.

111. The literature on information overload is extensive. For a sampling of the literature, see Bettman et al., *supra* note 91; Bonner, *supra* note 108; Cornelius J. Casey, Jr., *Variation in Accounting Information Load: The Effect on Loan Officers' Predictions of Bankruptcy*, 89 ACCT. REV. 36 (1980) [hereinafter Casey]; Chewning & Harrell, *supra* note 106; Michael J. Driver & Theodore J. Mock, *Human Information Processing, Decision Style Theory, and Accounting Information Systems*, 52 ACCT. REV. 490 (1977); Errol R. Iselin, *Accounting Information and the Quality of Financial Managerial Decisions*, 22 J. INFORMATION SCI. 147 (1996) [hereinafter Iselin]; Kevin Lane Keller & Richard Staelin, *Effects of Quality and Quantity of Information on Decision Effectiveness*, 14 J. CONSUMER RES. 200 (1987) [hereinafter Keller & Staelin]; Naresh K. Malhotra, *Information Load and Consumer Decision Making*, 8 J. CONSUMER RES. 419 (1982) [hereinafter Malhotra, *Information Load*]; Malhotra, *Reflections on Information Overload*, *supra* note 89; PAYNE ET AL., *supra* note 90, at 34-36; Roger Simnett, *The Effect of Information Selection, Information Processing, and Task Complexity on Predictive Accuracy of Auditors*, 21 ACCT., ORG., & SOCIETY 699 (1996) [hereinafter Simnett]; Doug Snowball, *Some Effects of Accounting Expertise and Information Load: An Empirical Study*, 5 ACCT., ORG. & SOCIETY 323 (1980) [hereinafter Snowball]; Cheri Speier et al., *The Influence of Task Interruption on Individual Decision Making: An Information Overload Perspective*, 30 DECISION SCI. 337 (1999) [hereinafter Speier et al.]; Morris H. Stocks & Adrian Harrell, *The Impact of an Increase in Accounting Information Level on the Judgment of Individuals and Groups*, 20 ACCT., ORG. & SOCIETY 685 (1995) [hereinafter Stocks & Harrell]; Stocks & Tuttle, *supra* note 106; Brad Tuttle & F. Greg Burton, *The Effect of a Modest Incentive on Information Overload in an Investment Analysis Task*, 24 ACCT., ORG. & SOCIETY 673 (1999) [hereinafter Tuttle & Burton].

112. Information overload is usually reflected in an inverted-U shaped curve, plotting decision quality (y-axis) against the quantity of information (x-axis). See, e.g., Tuttle & Burton, *supra* note 111, at 674; Stocks & Harrell, *supra* note 111, at 686; Simnett, *supra* note 111, at 703; Chewning & Harrell, *supra* note 106, at 527.

113. Chewning & Harrell, *supra* note 106, at 530; Iselin, *supra* note 111, at 150; Korobkin, *supra* note 87, at 52-53; Malhotra, *Reflections on Information Overload*, *supra* note 89, at 437-38; Malhotra, *Information Load*, *supra* note 111, at 427; Simnett, *supra* note 111, at 702; Speier et al., *supra* note 111, at 338-39; Stocks & Harrell, *supra* note 111, at 686; Tuttle & Burton, *supra* note 111, at 673-74. Time pressure appears to be an important contributor to information overload. See Bettman et al., *supra* note 91, at 200; Korobkin, *supra* note 87, at 54; PAYNE ET AL., *supra* note 90, at 37-40; Dan Zakay, *Post-Decisional Confidence and Conflict Experienced in a Choice Process*, 58 ACTA PSYCHOLOGICA 75, 79 (1985).

“task size”—is one of the most important factors contributing to task complexity and thus influencing a person’s decision strategy.<sup>114</sup> The amount of information involved in making a decision increases if the number of alternatives a person faces increases, if there are more attributes to consider for each option, or if the amount of available information per attribute increases.

As explained above, studies show that people shift to simplifying decision strategies that are less accurate as tasks become more complicated.<sup>115</sup> Not only will people make fewer comparisons across choices and attributes, but when faced with a complicated task, a decision maker will tend to become more selective in the information she chooses to analyze.<sup>116</sup> It is possible that as more information becomes available, a person might use less information, on net, as the information search and processing costs increase. Making matters worse, studies show that people do not always focus on the most relevant information but might become distracted by less relevant information.<sup>117</sup>

The net result of having access to more information in combination with using a less accurate decision strategy as the information load increases is often an inferior decision.<sup>118</sup> The essence of information overload is that a decision maker may make better decisions when she brings a more complex decision strategy to bear on less information than when she brings a simpler decision strategy to bear on more information. Put differently, “[A] useful way of thinking about the concept of information overload is that it arises when the incremental decreases in decision effectiveness due to additional information quantity are greater than the incremental increases in decision effectiveness due to the additional information quality.”<sup>119</sup> Information

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114. See Bettman et al., *supra* note 91, at 199-200; Biggs et al., *supra* note 108, at 972-76; Bonner, *supra* note 108, at 214-18; Chewning & Harrell, *supra* note 106, at 527-30; Korobkin, *supra* note 87, at 52-53; Olshavsky, *supra* note 108, at 301, 313; PAYNE ET AL., *supra* note 90, at 34-37; Simnett, *supra* note 111, at 701-03.

115. See *supra* notes 95-115.

116. See, e.g., Bettman et al., *supra* note 91, at 200; Biggs et al., *supra* note 108, at 974; Korobkin, *supra* note 87, at 53-54; PAYNE ET AL., *supra* note 90, at 200.

117. See, e.g., Nisbett et al., *The Dilution Effect: Nondiagnostic Information Weakens the Implications of Diagnostic Information*, 13 COGNITIVE PSYCHOL. 248, 248 (1981); PAYNE ET AL., *supra* note 90, at 36-37; Philip E. Tetlock & Richard Boettger, *Accountability: A Social Magnifier of the Dilution Effect*, 57 J. OF PERSONALITY & SOC. PSYCHOL. 388 (1989) [hereinafter Tetlock & Boettger] (discussing the “dilution effect”); Steven M. Glover, *The Influence of Time Pressure and Accountability on Auditors’ Processing of Nondiagnostic Information*, 35 J. ACCT. RES. 213, 214-16 (same) [hereinafter Glover].

118. For a more formalized treatment of information overload, see Keller & Staelin, *supra* note 111.

119. *Id.* at 202.

overload, notably, does not depend on irrelevant or less important information crowding out material information, although that sometimes happens. A decision maker may suffer from information overload even if all the information disclosed is material to the decision. I should point out, though, that the decision maker still may be better off using a simpler decision strategy than if she tried to evaluate all the information available to her using a more complicated strategy; but she might be able to make an even better decision with less information overall.

Some have charged that information never overloads individuals.<sup>120</sup> For example, in an important article, David Grether, Alan Schwartz, and Louis Wilde (“GSW”) argue that people cope with large amounts of information by adopting simplifying decision strategies and thereby avoid becoming overloaded.<sup>121</sup> GSW essentially argue that people, being rational, optimize subject to constraints. That is to say, they do the best they can under the circumstances. In this framework, the constraints subject to which people make decisions are their limited cognitive abilities and, presumably, time limitations. Constrained optimization of this sort, however, is not inconsistent with information overload. Information overload never suggests that people are not acting rationally when they adopt simpler decision strategies to cope with complex tasks. The relevant question is not whether individuals do the best they can given the information load facing them. One hopes that they do. Rather, the key question is whether the task environment can be manipulated in a way that alleviates the relevant constraints and improves decision quality. One option might be to give people less information.

Much of the information overload literature studies how consumers choose products, ranging from jam to housing, and the effect of consumer product labeling.<sup>122</sup> Numerous studies, however, have identified information overload in the context of financial and accounting decisions, and the related literature is extensive.<sup>123</sup>

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120. See, e.g., David M. Grether et al., *The Irrelevance of Information Overload: An Analysis of Search and Disclosure*, 59 S. CAL. L. REV. 277, 278, 287-94 (1986) [hereinafter Grether et al., *The Irrelevance of Information Overload*].

121. *Id.* For comments on GSW, see Melvin A. Eisenberg, *Text Anxiety*, 59 S. CAL. L. REV. 305 (1986), and Roberta Romano, *A Comment on Information Overload, Cognitive Illusions, and Their Implications for Public Policy*, 59 S. CAL. L. REV. 313 (1986).

122. See, e.g., *infra* note 270.

123. See, e.g., Ravindranath Madhavan & John E. Prescott, *Market Value Impact of Joint Ventures: The Effect of Industry Information-Processing Load*, 38 ACADEMY OF MGMT. J. 900 (1995) (measuring market value impact of joint venture announcements as a function of quantity of industry information); Stocks & Harrell, *supra* note 111 (summarizing studies; predicting financial distress); Stocks & Tuttle, *supra* note 106 (predicting financial distress); Andrew L. Zacharakis & G. Dale Meyer, *The Potential of Actuarial Decision Models: Can they Improve the Venture Capital Investment Decision*, 175 BUS. VEN. 323 (2000) (making venture capital investment decisions); Simnett, *supra*

#### IV. INFORMATION OVERLOAD AND THE FEDERAL SECURITIES LAWS

##### A. *Taking Stock of Information Overload*

Is the federal system of mandatory disclosure effective? Not all disclosures are effective, and some may be counterproductive. For some time, those in the field of behavioral finance who study the psychology of investing have claimed that investors, analysts, and other securities market professionals are not perfectly rational. Not only do people have imperfect information and limited cognitive abilities,<sup>124</sup> but they are subject to numerous cognitive biases.<sup>125</sup> The corollary, of course, is that the way investors, analysts, and others actually behave and make decisions matters to capital markets, affecting whether capital markets are efficient and whether securities are accurately priced.<sup>126</sup> Nonetheless, a persistent assumption

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note 111 (predicting bankruptcy); Bonner, *supra* note 108 (summarizing studies); Biggs et al., *supra* note 108 (loan decisions); Chewning & Harrell, *supra* note 106 (predicting financial distress); Tuttle & Burton, *supra* note 111 (summarizing studies; estimating stock prices); Casey, *supra* note 111 (summarizing studies; predicting bankruptcy); Iselin, *supra* note 111 (summarizing studies); Snowball, *supra* note 111 (estimating future cash flows). Professors David Hirshleifer, Seongyeon Lim, and Siew Hong Teoh offer a complementary model of investor decision making in which they model how the limited attention of investors leads to the incomplete usage of information as a result of cue competition (the tendency for an investor's observations of one disclosure to distract the investor from other information, leading to the crowding out of more relevant information by less relevant information) and analytical interference (the tendency for disclosures in one area to distract an investor from appropriately accounting for the failure of a company to disclose other information). The upshot of limited attention is that investors ignore useful information. See David Hirshleifer & Siew Hong Teoh, *Limited Attention, Information Disclosure, and Financial Reporting* (Dec. 2002), at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=334940](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=334940) [hereinafter Hirshleifer & Teoh]; David Hirshleifer et al., *Disclosure to a Credulous Audience: The Role of Limited Attention*, at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=300544](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=300544) [hereinafter Hirshleifer et al.].

124. See *supra* Parts III.B & III.C.

125. Professor Prentice recently summed up the point well: “[V]irtually everyone now recognizes that there is a large gap between the manner in which economists traditionally assume that people think and act, and the manner in which people actually do think and act.” Robert Prentice, *Wither Securities Regulation?: Some Behavioral Observations Regarding Proposals for its Future*, 51 DUKE L.J. 1397, 1413 (2002) [hereinafter Prentice]. Explaining and understanding these deviations from perfect rationality make up the core of behavioral law and economics. See generally BEHAVIORAL LAW & ECONOMICS (Cass R. Sustein ed., 2000); Christine Jolls et al., *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471 (1995); Russell Korobkin, *A Multi-Disciplinary Approach to Legal Scholarship: Economics, Behavioral Economics, and Evolutional Psychology*, 41 JURIMETRICS J. 319 (2001); Korobkin & Ulen, *supra* note 82; Arlen, *supra* note 10.

126. For a good overview of behavioral finance, see generally ROBERT J. SHILLER, *IRRATIONAL EXUBERANCE* (2000) [hereinafter SHILLER]; ANDREI SHLEIFER, *INEFFICIENT MARKETS: AN INTRODUCTION TO BEHAVIORAL FINANCE* (2000) [hereinafter SHLEIFER]; HERSH SHEFRIN, *BEYOND GREED AND FEAR: UNDERSTANDING BEHAVIORAL FINANCE AND THE PSYCHOLOGY OF INVESTING* (2000) [hereinafter SHEFRIN]; David Hirshleifer, *Investor Psychology and Asset Pricing*, 56 J. FIN. 1533 (2001) [hereinafter Hirshleifer]; Donald C. Langevoort, *Taming the Animal Spirits of the Stock Market: A Behavioral Approach to Securities Regulation*, 97 NW. U. L. REV. 135 (2002) [hereinafter Langevoort, *Taming the Animal Spirits*]; Prentice, *supra* note 125. For an interesting argument in favor

underlying securities regulation is that securities market participants are perfectly rational, or at least close enough.<sup>127</sup> This is starting to change, at least in academic circles if not yet in courtrooms or at the SEC. The psychology of investing is starting to influence how we think about the proper structure and enforcement of the federal securities laws.<sup>128</sup> While I do not think we are ready to toss aside the rationality assumption completely, we are at the point where we should focus more on how people really act and think in regulating our capital markets.<sup>129</sup> Investing is not easy, and requires lots of tough decisions. Despite the references in the financial media, judicial opinions, and scholarly work to a company's "fundamental value" or "intrinsic value,"<sup>130</sup> no such figure actually exists. Rather, investors and analysts consider vast quantities of information for numerous companies, in addition to important macroeconomic factors, and decide what a particular security is worth, and then buy, sell, or do nothing accordingly. As Professor Slovic put it: "In no other realm are such vast quantities of information from such diverse sources brought to bear on so many important decisions. Careful accumulation and skilled interpretation of this information is said to be the

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of investor irrationality, on the grounds that irrationality adds liquidity to capital markets and ultimately makes markets more efficient, see Gregory La Blanc & Jeffrey J. Rachlinski, *In Praise of Investor Irrationality* (manuscript on file with author).

127. See, e.g., Langevoort, *Market Efficiency Revisited*, *supra* note 20, at 912-20; Langevoort, *Taming the Animal Spirits*, *supra* note 126, at 135-39; Prentice, *supra* note 125, at 1408.

128. Professor Langevoort is helping lead the effort to incorporate investor psychology into securities regulation. See, e.g., Langevoort, *Market Efficiency Revisited*, *supra* note 20; Langevoort, *Taming the Animal Spirits*, *supra* note 126 (referring to "behavioral securities regulation"); Donald C. Langevoort, *Organized Illusions: A Behavioral Theory of Why Corporations Mislead Stock Market Investors (and Cause Other Social Harm)*, 146 U. PA. L. REV. 101 (1997); Donald C. Langevoort, *Selling Hope, Selling Risk: Some Lessons for Law from Behavioral Economics About Stockbrokers and Sophisticated Customers*, 84 CAL. L. REV. 627 (1996); see also Stephen Bainbridge, *Mandatory Disclosure: A Behavioral Analysis*, 68 U. CIN. L. REV. 1023 (2000); Stephen J. Choi & Adam C. Pritchard, *Behavioral Economics and the SEC*, STAN. L. REV. (forthcoming 2004) (Mar. 1, 2003 manuscript, on file with author) [hereinafter Choi & Pritchard]; Lawrence A. Cunningham, *Behavioral Finance and Investor Governance*, 59 WASH. & LEE L. REV. 767 (2002); Kent Greenfield, *Using Behavioral Economics to Show the Power and Efficiency of Corporate Law as Regulatory Tool*, 35 UC DAVIS L. REV. 581 (2002); Prentice, *supra* note 125; Robert A. Prentice, *The Case of the Irrational Auditor: A Behavioral Insight Into Securities Fraud Litigation*, 65 NW. U. L. REV. 133 (2000); Hillary A. Sale, *Judging Heuristics*, 35 UC DAVIS L. REV. 903 (2002); Lynn A. Stout, *The Mechanisms of Market Inefficiency: An Introduction to the New Finance*, J. CORP. L. (forthcoming 2003) (manuscript at 17-25, on file with the author) [hereinafter Stout, *An Introduction to the New Finance*]; Robert Thompson, *Securities Regulation in an Electronic Age: The Impact of Cognitive Psychology*, 75 WASH. U. L.Q. 779 (1997).

129. See Langevoort, *Taming the Animal Spirits*, *supra* note 126 (suggesting a move toward "behavioral securities regulation"); see also Prentice, *supra* note 125, at 1413 (explaining that assuming investor rationality is a "dangerous simplification" for the federal securities laws to rely on).

130. "Fundamental" or "intrinsic" value refers to a company's supposed true or actual value—in other words, what the underlying business is objectively worth. See *infra* notes 297-300 and accompanying text.

*sine qua non* of accurate evaluation of securities.”<sup>131</sup>

Information overload is part of the larger inquiry into investor psychology and its implications for market efficiency, security pricing, and securities regulation. Information overload could have profound implications for our mandatory disclosure system. In requiring more and more disclosure, securities regulation has paid little attention to how investors use information or make decisions.<sup>132</sup> This is ill-advised.<sup>133</sup> Disclosure-based regulatory regimes should focus on more than getting the information out. A regime like the federal securities laws needs to consider how more disclosure affects decision making. Meaningful, effective disclosure does not simply mean more disclosure. Because of information overload, in some cases, more disclosure can mean less effective disclosure.

Concerns that investors are becoming overloaded with information have intensified, especially in light of the new disclosure requirements mandated by the Sarbanes-Oxley Act and new SEC requirements.<sup>134</sup> For example, SEC Commissioner Cynthia Glassman has stated: “So now we turn to the task of determining how to get more transparency—true transparency and not just more data with the unintended consequence of investor overload and the

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131. Slovic, *supra* note 76, at 779; *see also* KRIPKE, *supra* note 11, at 77 (“Although SEC disclosure has been marked by a search for objectivity, the unfortunate reality is that values of securities depend on estimates of the interactive effects of conscious decisions and uncontrollable events, and on judgment in the face of uncertainty and change.”).

132. An exception to the “more-disclosure-is-better-than-less” approach that springs to mind is the prohibition on “gun jumping.” The federal securities laws limit the information an issuer can disclose leading up to a public offering. *See* I LOSS & SELIGMAN, *supra* note 16, at 442-64. The implications of investor psychology and decision making for the prohibition on gun jumping, and for the entire registration process, deserve future consideration.

133. Disclosing more and more information might not only be ill-advised because of the risk of information overload; it might also be ill-advised because more disclosure increases compliance costs, can chill risk-taking, and increases the cost to process information. *See* Gilson & Kraakman, *supra* note 19, at 593-609 (explaining that capital markets become less efficient as information costs, consisting of the cost of acquiring, verifying, and processing information, increase).

134. Professor Schwarcz has recently raised a related concern. Focusing on structured finance transactions, Schwarcz explains that some transactions are so complex that disclosures are “necessarily imperfect.” Either the description of the transaction is oversimplified or it is too complicated for most people to understand, including securities market professionals like analysts. It is not clear, for example, that investors or analysts would have done a better job with more detailed disclosures about Enron’s special purpose entities. Schwarcz considers the following possible responses to the necessarily imperfect disclosures relating to complex securitization or derivatives deals: tolerate it; ban transactions where the information asymmetry exceeds some threshold; or require supplemental protections to minimize the asymmetry and its consequences. Schwarcz concludes that a rule should be adopted requiring “management to be free of any material conflicts of interest in disclosure-impaired transactions.” *See* Steven L. Schwarcz, *Rethinking the Disclosure Paradigm in a World of Complexity* (Oct. 30, 2002), at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=336685](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=336685) [hereinafter Schwarcz]; *see also* Frank Partnoy, *A Revisionist View of Enron and the Sudden Death of “May,”* 48 VILL. L. REV. 1245 (2003) (expressing concern about the complexity of derivative disclosures) [hereinafter Partnoy].

unnecessary reporting burden on companies.”<sup>135</sup> Then-acting SEC Chairman Laura Unger, in expressing doubt about Regulation FD (Fair Disclosure), made a similar point: “As a Commissioner of a disclosure-based agency, I believe that more information is generally better. But is that always the case? . . . [W]hat if the proposals are adopted and result in significantly greater amounts of information coming out in the form of press releases? Do we need to be concerned about potential ‘information overload’? . . . [W]e have to remember that information can only empower investors if they understand it and can effectively apply it.”<sup>136</sup> Further, a number of commentators at a series of roundtables organized by the SEC in the spring of 2002 expressed concern about information overload.<sup>137</sup> For example, John Rekenhaller, Research Director at Morningstar Investor Services, said: “One of our stock analysts noted that Nortel’s 10-K Report had 220 pages. I don’t think we need another ten or 20 pages added to that. In fact, we could probably shrink it fairly effectively.”<sup>138</sup> And Dwight Churchill, Senior Vice President and Head of Fixed Income at Fidelity Investments, commented: “[W]e’re requiring analysts to sift through a huge amount of information . . . They can’t use [MD&A] to help them a whole lot, and so they end up having to sort back through to figure out exactly what’s going on. It’s putting too much of a burden on them. And, given the economics and the number of companies these different analysts are following, it’s very difficult for them to draw the correct picture of an organization.”<sup>139</sup>

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135. SEC Commissioner Cynthia A. Glassman, Opening Remarks Before the Symposium on Enhancing Financial Transparency, Securities and Exchange Commission Policy Roundtable Symposium on Enhancing Financial Transparency (June 4, 2002), at <http://www.sec.gov/news/speech/spch565.htm>.

136. Remarks by Commissioner Unger, *supra* note 77.

137. Financial Disclosure and Auditor Oversight Roundtables, Panel 1 (Improving Financial Disclosure), Mar. 4, 2002, Mar. 6, 2002, & Apr. 4, 2002, *transcript at* <http://www.sec.gov/news/extra/marchroundcast.htm> [hereinafter Panel 1]. It is worth pointing out that these commentators squarely fall within the scope of expert “filters.” *See infra* Part IV.B.1.

138. Panel 1, *supra* note 137, at 4.

139. *Id.* at 6. For more on information overload, see Douglas, *supra* note 71, at 527 (“So complicated is the matter that it is hardly conceivable that the mass of data will prove digestible.”); SEC Advisory Committee Report, *supra* note 15, at D-8 (explaining that “some argue that if information oriented to audiences other than investors or shareholders were required to be included in filings with the Commission, investors and shareholders would be compelled to sift out that which is relevant to their views, thereby hampering investment and corporate suffrage decision-making”); Prentice, *supra* note 125, at 1511 n.241 (collecting additional citations); Partnoy, *supra* note 134 (collecting additional citations in the context of derivative disclosures); Alex Berenson, *Of Information Overload and the “Efficient” Market*, N.Y. TIMES, May 21, 2000, § 3 at 1; Jeffrey Bronchick, *We Need Better Stock Analysis, Not More Info*, WALL ST. J., Aug. 6, 2002, at A20; D. Keith Denton, *Better Decisions with Less Information*, INDUSTRIAL MANAGEMENT, July/Aug. 2001, at 21; Sarah Hewitt et al., *SEC Internet Report*, THE NAT’L L.J., Jan. 24, 2000, at B5; Gretchen Morgenson, *Annual Reports: More Pages, But Better?*, N.Y. TIMES, Mar. 17, 2002, § 3 at 1; Hal R. Varian, *Investor*



Certain features of securities regulation already account for the risk of information overload, at least to some degree. First is the concept of “materiality.” Take fraud under the federal securities laws. For a misstatement or omission to constitute fraud, it must be material. In *TSC Industries, Inc. v. Northway, Inc.*,<sup>140</sup> the Supreme Court held that a fact is “material” if “there is a substantial likelihood that a reasonable investor would consider it important in deciding how to vote.”<sup>141</sup> In adopting this standard, the Supreme Court rejected the view that a fact is material if an investor “might” find it important.<sup>142</sup> The Court was concerned that such a low threshold of materiality would lead to a flood of disclosures that would ultimately swamp investors: “Some information is of such dubious significance that insistence on its disclosure may accomplish more harm than good. . . . [M]anagement’s fear of exposing itself to substantial liability may cause it simply to bury the shareholders in an avalanche of trivial information—a result that is hardly conducive to informed decisionmaking.”<sup>143</sup>

Financial statements are a second example. Financial statements reflect an aggregation or consolidation of financial information about a company. Instead of disclosing raw data, companies summarize their financial condition over certain periods of time in a standardized format—balance sheets, income statements, statements of cash flow, and the like. One reason to allow, and in fact require, this standardized consolidation of information is

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*Behavior Clouds the Wisdom of Offering Wider Choice in 401(k)’s*, N.Y. TIMES, Feb. 14, 2002, at C2; Mike McNamee, *The SEC Isn’t Answering Investors’ Prayers*, BUSINESSWEEK ONLINE (June 7, 2002), at [http://www.businessweek.com/bwdailydnflach/jun2002/nf2002067\\_5252.htm](http://www.businessweek.com/bwdailydnflach/jun2002/nf2002067_5252.htm) (last visited Aug. 3, 2003); Pitt, Written Testimony, *supra* note 16, at 7 (“We also recommend improving other disclosure requirements to provide disclosure of higher quality, while avoiding greater quantity for quantity’s sake.”).

140. 426 U.S. 438 (1976).

141. *Id.* at 449.

142. *Id.*

143. *Id.* at 448. The Court made a similar point in *Basic Inc. v. Levinson*, in which it adopted the “probability/magnitude” test for determining whether speculative information is material: “The role of the materiality requirement . . . [is to] filter out essentially useless information that a reasonable investor would not consider significant, even as part of a larger ‘mix’ of factors to consider in making his investment decision.” 485 U.S. 224, 234 (1988) (holding that materiality “will depend at any given time upon a balancing of both the indicated probability that the event will occur and the anticipated magnitude of the event in light of the totality of the company activity”).

As Professor Partnoy has recently pointed out, in adopting rules implementing § 401(a) of the Sarbanes-Oxley Act, which requires new disclosures for off-balance sheet transactions, the SEC adopted a similar “reasonably likely” standard (requiring disclosure of off-balance sheet transactions that are reasonably likely to have a material effect on the company’s financial condition) to avoid the risk that investors, analysts, and others would become “overwhelmed” with information under a “may” standard. See Partnoy, *supra* note 134 (ultimately critical of the “reasonably likely” standard, preferring a “may” standard).

that investors would be unable to wade through and process a company's raw data, and the standardized format of financial statements facilitates financial comparisons across companies.

A final example is MD&A. Instead of requiring companies to disclose trends or uncertainties that are material under the probability/magnitude test of *Basic Inc. v. Levinson*,<sup>144</sup> companies are required to disclose only known trends or uncertainties that have had or are reasonably likely to have a material impact on the business.<sup>145</sup> Professor Langevoort has suggested that this reflects concern that using materiality as the threshold for an affirmative obligation to disclose forward-looking information would encourage excessive disclosure.<sup>146</sup>

The slogan of “disclosure, again disclosure, and still more disclosure”<sup>147</sup> is too simplistic of a basis upon which to premise our securities regulation regime. But taking stock of how people use the information disclosed begs the tough question: How should we respond to the information overload risk? What should we do when disclosure compromises the ability of investors, analysts, and other securities market participants to make sound investment decisions? Should our mandatory disclosure system require less, not more, disclosure? How do we weigh concerns about the ability of investors and analysts to process information against their continuing cries for more information? Given the increasing influence that the psychology of investing is likely to exert on securities regulation, and given that the securities laws are mandating more and more disclosure, these questions deserve serious consideration.

### *B. Rationalizing Information Overload and the Federal Securities Laws*

Not every problem warrants a solution. So before considering whether the federal securities laws should require less disclosure or adopt some other fix, it is worth pausing to consider how serious the risk of information overload is. People might do well enough in the face of increasing amounts of information that no regulatory fix is justified, especially one that runs directly counter to the overall structure of our federal securities laws by calling for less disclosure. Investors and analysts, for example, might on the whole make good decisions using heuristics or less complex decision strategies to

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144. See *supra* notes 140-43 and accompanying text.

145. 17 C.F.R. §§ 229.303 (2003).

146. Donald C. Langevoort, *Toward More Effective Risk Disclosure for Technology-Enhanced Investing*, 75 WASH U. L.Q. 753, 775 (1997) [hereinafter Langevoort, *More Effective Risk Disclosure*].

147. 1 LOSS & SELIGMAN, *supra* note 16, at 29.

cope with vast amounts of information, such that the gap between the “ideal” outcome and the actual decision is not wide enough to justify a regulatory response.<sup>148</sup> Moreover, there is a risk that investors and analysts might make worse decisions if given less information, particularly if the information disclosed is less useful than what is omitted.

At present, we do not know to what extent investors and analysts are subject to information overload or how they will respond to less information. We need more data.<sup>149</sup> Even with more studies and experiments testing for information overload, however, the extent of the problem will be difficult to gauge since we only have rough measures for determining a decision’s accuracy.<sup>150</sup> In addition, there is always the risk that the studies and experiments relied on may be incorrect, and there is a dangerous tendency to take a relatively narrow study or experiment that is highly qualified in its findings and draw much larger conclusions and implications that the data may not sustain.<sup>151</sup>

Although we should be cautious before significantly cutting back the level of disclosure under the federal securities laws, how people actually process information and make decisions should begin to factor in to how we

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148. See Eric J. Johnson & John W. Payne, *Effort and Accuracy in Choice*, 31 MGMT. SCI. 395, 408 (1985) (explaining that “heuristics can approximate the accuracy of normative rules with substantial savings in effort”). Others have raised similar concerns in responding to calls for more (not less) disclosure in the context of consumer choice. See Grether et al., *Information Overload*, *supra* note 120, at 279-80 (“For example, if consumers would satisfice as the result of a disclosure requirement meant to cure the problem that too little information exists, would consumers still be doing better than they had done before the state’s intervention? Is the satisficing that accompanies product search amenable to regulatory solution? Is the gap between satisficing and optimizing—how well consumers actually do in contrast to the ideal—often large enough to justify regulatory concern?”).

149. See *infra* notes 261-63 and accompanying text. Indeed, one of the arguments against behavioral law and economics is that the data are inconclusive and there is no theory to explain the alleged cognitive biases that are observed. See, e.g., *Arlen*, *supra* note 10, at 1776-88.

150. See *supra* note 106 for a discussion of how decision accuracy is measured. Further, it might be appropriate to ask an even more fundamental question before making any decision about revamping, or perhaps even tinkering with, our securities laws in response to empirical studies. That is, in general, to what extent should we rely on social science in developing or revamping legal institutions or making policy, particularly if the legal or policy change would be a radical departure from the existing regime? This question, which I do not purport to resolve here, has been a controversial topic at least since Justice Holmes wrote in *Lochner v. New York* that “the 14th Amendment does not enact Mr. Herbert Spencer’s Social Statics . . . [or] embody a particular economic theory, whether of paternalism . . . or *laissez faire*.” 198 U.S. 45, 75 (1905) (Holmes, J., dissenting).

151. In other words, there is a danger that the data will be misused or even abused, in which case the legal change supported by the data very well might not be justified and, worse yet, might be counterproductive. It is, however, worth noting that if relevant data are ignored on these or other grounds, another theory of decision making will be advanced—namely, rational choice theory—if only by default.

regulate our capital markets.<sup>152</sup> If it turns out that investors do not seriously suffer from information overload, all the better. But it is fair to say, and others agree,<sup>153</sup> that there is a growing risk of information overload. At the very least, considering the possibility of information overload suggests both the limitations of disclosure as a regulatory device as well as ways to disclose information more effectively, and might temper our tendency to disclose more information without accounting more critically for its potential impact on the user.<sup>154</sup> Given the risk of overload, even if we do not yet know its precise magnitude for every securities market participant, there very well might be certain disclosures worth deleting presently.

I am not suggesting that we should never require additional disclosures. New disclosures might be needed when we learn new things about the structure of our capital markets, the practices of financial institutions, accounting practices, or what drives investor valuations. We might even learn that people can handle more information than we thought. Furthermore, whatever the level of mandatory disclosure, the mix of information matters; the most useful information should be disclosed.<sup>155</sup> Accordingly, it is likely that we would add certain disclosures, even if the disclosure system were scaled back as a whole.

The bottom-line point is that before disclosing more information simply because we have a disclosure-based regulatory system, we need to give more thought to how the information will be used.<sup>156</sup> More information is not *per*

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152. See Langevoort, *Taming the Animal Spirits*, *supra* note 126; Prentice, *supra* note 125. Interestingly, investor psychology, in the form of SEC and congressional focus on boosting investor trust and confidence, already does play a role in securities regulation. See, e.g., Lynn A. Stout, *The Investor Confidence Game* (Aug. 14, 2002), at [http://ssrn.com/abstract\\_id=322301](http://ssrn.com/abstract_id=322301) [hereinafter Stout, *Investor Confidence*]; Tamar Frankel, *Regulation and Investors' Trust in the Securities Markets* (Sept. 23, 2002), at [http://ssrn.com/abstract\\_id=333340](http://ssrn.com/abstract_id=333340) [hereinafter Frankel]. At bottom, trust and confidence are psychological.

153. See *supra* notes 134-39 and accompanying text.

154. Professor Langevoort has made a similar point in the context of cognitive biases:

To me, that evidence presents a fairly strong case for the presence of significant market inefficiencies. But it is not dispositive and leaves open to question both the specific directions that the inefficiency takes and the magnitude of the deviations. For now, the most valuable use of the evidence may well be in the form that I have followed here: using the [inefficient market hypothesis] and behavioral literature to see possibilities . . . [that] can help us think through difficult problems outside the box of conventional theories of investor behavior. In formulating strategy in the face of an admittedly imperfect understanding of the stock markets, we can at least consider hedging our bets.

Langevoort, *Taming the Animal Spirits*, *supra* note 126, at 187.

155. See *infra* notes 197-200.

156. Cf. Langevoort, *Market Efficiency Revisited*, *supra* note 20, at 914 (cautioning against reifying market "efficiency" rhetoric); Prentice, *supra* note 125, at 1411-12 ("Any proposal to completely restructure securities market regulation should pay less obeisance to simplifying assumptions of traditional economic reasoning and more attention to that reasoning's limitations than

se better than less.<sup>157</sup>

The potential merits of disclosing less are straightforward. If users are able to process information more effectively when faced with less information, better investment decisions might result if disclosure is scaled back. In other words, less information might promote informed investor decision making.<sup>158</sup> There are other benefits too. A less stringent mandatory disclosure system should decrease compliance costs and the risk of liability, in turn driving down the cost of capital. But are there costs of requiring less disclosure? The decision to scale back disclosure is more complicated than this somewhat syllogistic analysis suggests. Other factors would need to be considered in making any policy decision to relax our mandatory disclosure system.

### 1. Expert “Filters”

One would anticipate the following response to concerns about information overload: Individual investors might be overloaded, but the expert “filters”—securities analysts, money managers, institutional investors, sophisticated individual investors, arbitrageurs, brokers, and other securities market professionals and financial intermediaries<sup>159</sup>—the federal securities laws rely on to decipher and analyze information<sup>160</sup> are not overloaded. As William O. Douglas put it when the Securities Act was adopted: “[E]ven though an investor has neither the time, money, nor intelligence to assimilate the mass of information in the registration statement, there will be those who can and who will do so, whenever there is a broad market.”<sup>161</sup> The argument is that the individual investor gets the benefit of the experts’ ability to search

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[Professor] Choi’s proposal [for investor regulation] does.”); KRIPKE, *supra* note 11, at 59 (questioning the SEC’s “obsessive approach” to disclose more).

157. Another option would be for the government, perhaps the SEC, to engage in some type of merit review. As noted above, this type of substantive regulation was rejected in favor of a disclosure-based system when the Securities Act and the Exchange Act were adopted. *See supra* notes 15-17 and accompanying text. I am not aware of any serious proposals, even in light of the recent scandals, advocating that the government become the country’s broker or securities analyst. Accordingly, I am only going to make two quick points about merit review. First, the government experts chosen to give investment advice, or otherwise evaluate companies and their securities, would be imperfectly rational and subject to cognitive biases like everybody else. *See Choi & Pritchard, supra* note 128. Second, one could imagine an entire array of public choice problems associated with this type of merit review. *See generally* PERSPECTIVES ON PUBLIC CHOICE (Dennis C. Mueller ed., 1997); PUBLIC CHOICE AND PUBLIC LAW READINGS AND COMMENTARY (Maxwell L. Stearns ed., 1997).

158. To the extent investors demand additional information, companies would have an incentive to disclose it. *See supra* note 12 and accompanying text.

159. We might even include the financial media among the expert filters.

160. *See* Wheat Report, *supra* note 73, at 52.

161. Douglas, *supra* note 71, at 524.

and process large amounts of information, even if she is herself overloaded. Indeed, the experts get the benefit of each other's ability to search and process large amounts of information effectively. In this view, there is no need to worry about information overload. First, most investors are passive in the sense that they invest through mutual funds, which we assume to be managed by sophisticated, competent money managers with the support of numerous analysts.<sup>162</sup> Second, many investors, whether they invest through mutual funds or buy individual securities, rely on financial advisors or stockbrokers for investing advice or at least read the research reports put out by brokerage firms and others. Third, and perhaps most importantly, is the efficient capital market hypothesis. In this view, the experts protect even the investor who "goes it alone," since the buying and selling of informed traders will ultimately incorporate available public information into securities prices. As then-Professor Easterbrook and Professor Fischel put it, "The uninformed traders can take a free ride on the information impounded by the market: they get the same price received by the professional traders without having to do any of the work of learning the information . . . ."<sup>163</sup>

The assumption that the experts are not overloaded, however, is too simplistic; indeed, many experts have worried aloud about becoming overloaded.<sup>164</sup> To be sure, studies show that those with experience and expertise are able to search and evaluate information more effectively than

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162. Nearly \$7 trillion is invested through mutual funds in the United States. See Mutual Fund Ownership and Shareholder Characteristics 57, at [http://www.ici.org/pdf/02fb\\_datasec\\_intro.pdf](http://www.ici.org/pdf/02fb_datasec_intro.pdf) (accessed July 26, 2003); see also *id.* at 37, at [http://www.ici.org/pdf/02fb\\_ch4.pdf](http://www.ici.org/pdf/02fb_ch4.pdf) (accessed July 26, 2003).

163. Easterbrook & Fischel, *supra* note 11, at 11. The conventional wisdom is that capital markets approximate semi-strong form efficiency, in that they rapidly incorporate publicly-available information. The behavioral finance literature, however, raises serious doubts about capital market efficiency. See *infra* Part V.B.

164. See *supra* notes 134-39 and accompanying text. Relying on experts raises other concerns. Securities analyst conflicts of interest have received the most attention. See, e.g., Regulation Analyst Certification, Securities Act Release No. 33-8193, 68 Fed. Reg. 4482-01 (Feb. 20, 2003); see also *supra* note 68 (referencing the \$1.4 billion global regulatory settlement addressing analyst conflicts). In addition, Regulation FD, which generally prohibits companies from disclosing material non-public information selectively, represents a bias toward leveling the playing field in the sense of ensuring that individual investors have access to the same information that market professionals do. See 17 C.F.R. §§ 240.100-240.103 (2003). In some respects, Regulation FD can be understood as eschewing a policy whereby the individual investor is protected by market professionals and the efficiency of capital markets. Regulation FD shows a preference for allowing individual investors to protect themselves by giving them access to the same information that analysts, money managers, and other experts have access to.

Of course, some experts are better than others at searching and processing information. Warren Buffett comes to mind. For an argument that Warren Buffett exploits the imperfect rationality of experts in bringing his own judgment and expertise to bear in evaluating companies, see JAMES O'LOUGHLIN, *THE REAL WARREN BUFFETT: MANAGING CAPITAL, LEADING PEOPLE* (2003).

non-experts.<sup>165</sup> This is in part because experts, when faced with lots of information, are better at determining what to ignore and what to focus on.<sup>166</sup> But this is not to say that experts could not do better with less information in some cases. Several studies and experiments show that experts can become overloaded, even if they can effectively use more information than non-experts.<sup>167</sup> In terms of the classic inverted-U curve of information overload studies,<sup>168</sup> we could think of the curve turning down at a higher quantity of information for experts than non-experts and with a less steep slope, but it

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165. See, e.g., Matthew J. Anderson, *A Comparative Analysis of Information Search and Evaluation Behavior of Professional and Non-Professional Financial Analysts*, 13 ACCT., ORG. & SOCIETY 431, 434 (1988) (explaining that experts, as compared to non-experts, have more specialized knowledge; are better able to store and recall information; and are better able to identify and focus on relevant information); Malhotra, *Information Load*, *supra* note 111, at 428 (explaining that “cognitively complex people” can process more information); James Shanteau, *Competence in Experts: The Role of Task Characteristics*, 53 ORG. BEHAV. & HUM. DECISION PROCESSES 252, 254 (1992) (citing studies showing that experts perform better than novices in “nearly every aspect of cognitive functioning”) [hereinafter Shanteau, *Competence in Experts*]; Snowball, *supra* note 111, at 325-26 (explaining that experience should facilitate the selection and processing of information); Simnett, *supra* note 111, at 702-03 (explaining that experts, as compared to non-experts, “know what information to look for”; are better able to retrieve information; organize information better; are better at filtering out less salient information; and develop better strategies for coping with large amounts of information).

166. See Guthrie, *supra* note 97, at 621 n.111 (citing Ettenson et al., *Expert Judgment: Is More Information Better?*, 60 PSYCHOL. REP. 227, 237 (1987) (finding that the “ability to concentrate on what is relevant without necessarily using all available information may differentiate expert decision makers from their less-experienced counterparts” and that “the nonuse of information by experts reflects ‘skillful omission’ rather than a cognitive limitation”). This might help explain why the market focuses as much as it does on a company’s own earnings estimates. A reasonable heuristic for valuing a company in the face of vast amounts of information might be to focus on an available item of information like a company’s earnings estimates (which, to be sure, reflect lots of other information).

167. See, e.g., Biggs et al., *supra* note 108, at 983-84 (loan officers engage in contingent decision making); Shanteau, *Competence in Experts*, *supra* note 165, at 254 (explaining experts are subject to the same cognitive limitations as non-experts); James Shanteau, *Cognitive Heuristics and Biases in Behavioral Auditing: Review, Comments and Observations*, 14 ACCT., ORG. & SOCIETY 165, 172-73 (1989) (explaining that experts are subject to the same biases, and use the same heuristics, as lay persons); Simnett, *supra* note 111 (auditors subject to information overload); see also Hirshleifer & Teoh, *supra* note 123 (summarizing studies showing that capital market professionals suffer from limited attention and information processing capabilities).

That many experts are asking for more information following recent scandals at Enron, WorldCom, Tyco, and elsewhere does not validate the more-is-better-than-less view of disclosure or suggest that experts are not subject to overload. Rather, the recent calls for additional disclosures reflect an understandable desire for better, higher-quality information that is more important to investment decisions than much of what is already disclosed. Information overload can accommodate a different mix of disclosures. Whatever the level of mandatory disclosure, the most useful (*i.e.*, “diagnostic”) information should be disclosed. Indeed, it is likely that we would add certain disclosures, even as the disclosure requirements were scaled back as a whole. *Cf.* Partnoy, *supra* note 134 (calling for more disclosure with respect to derivatives). Moreover, the experts might very well be suffering from overload, even if they do not recognize it, dealing with vast quantities of information by adopting simplifying decision strategies (*e.g.*, financial models) that highlight select information.

168. See *supra* note 112.

still curves down at some point.<sup>169</sup> This should not be surprising given that everybody—experts and non-experts alike—has limited cognitive abilities. A vast behavioral finance literature suggests that securities market professionals, like lay investors, are subject to all sorts of cognitive biases that affect investment decisions.<sup>170</sup> Information overload can be thought of as reflecting just another cognitive limitation or decision-making bias.

Undoubtedly, analysts, money managers, brokers, and other experts search for ways to use information more effectively. After all, these individuals, and the institutions they work at, have real “skin in the game.” They have a strong financial incentive to make good decisions when trading securities or advising others;<sup>171</sup> those who do not make good decisions often enough will not survive in the business. In terms of the accuracy-effort framework of decision making,<sup>172</sup> the additional accuracy might very well be worth the additional effort of developing better financial models or simply working longer and harder hours.<sup>173</sup> Moreover, securities market professionals are likely to learn from past mistakes and gain valuable experience over time. And if somebody needs support, individuals can be engaged to help: people can be hired, resources can be reallocated, and tasks can be divided. In large part, the expert filters are in reality collections of individuals housed in financial institutions that can bring lots of human and other resources to bear on a task.

Although the risk of information overload may be eased for experts, it is not eliminated. The basic premise of information overload still holds—people, even the smartest professional traders and analysts, have limited cognitive capabilities. People also have finite amounts of time and other resources. Consequently, there are opportunity costs when an individual (or group of individuals) spends more time and effort on certain information or on a particular company; less time and effort can be spent on other information and other companies.<sup>174</sup> Indeed, extensive research finds

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169. See Simnett, *supra* note 111, at 703.

170. See generally SHILLER, *supra* note 126; SHLEIFER, *supra* note 126; Kenneth L. Fisher & Meir Statman, *Cognitive Biases in Market Forecasts*, Fall Volume, J. PORTFOLIO MGMT. 72 (2000) [hereinafter Fisher & Statman]; Hirshleifer, *supra* note 126; Priya Raghurib & Sanjiv Ranjan Das, *The Psychology of Investor Decisionmaking: A Case for Theory-Driven Experimental Enquiry*, 55 FIN. ANAL. J. 56 (1999) [hereinafter Raghurib & Das]; Langevoort, *Taming the Animal Spirits*, *supra* note 126; Langevoort, *Market Efficiency Revisited*, *supra* note 20.

171. Individual investors, of course, also have a strong financial incentive to make good decisions when trading securities.

172. See *supra* notes 102-09 and accompanying text.

173. However, more effort does not necessarily result in better decisions. Cf. *infra* notes 178-81 and accompanying text (discussing “accountability” and decision making).

174. As Professors Hirshleifer and Teoh put it in the context of their model of limited investor attention, “Inattention seems foolish, as inattentive investors lose money by ignoring aspects of the



evidence of the persistent mispricing of securities, notwithstanding that groups of very smart, highly-motivated experts spend a considerable amount of time studying companies and trading securities.<sup>175</sup> Although these studies do not directly focus on information overload, they suggest that experts, notwithstanding their financial incentives and expertise, often get it wrong.<sup>176</sup> Finally, on a more practical level, there are limits to how many people should be hired and to the reallocation of resources, and the very process of dividing up a task has its own costs and inefficiencies. At some point, the out-of-pocket and coordination costs outweigh any incremental benefit of bringing more resources to bear on a particular matter.<sup>177</sup>

However, it is not just that experts are prone to information overload. It is possible that experts might actually do worse than non-experts under certain circumstances. First is the idea of “accountability.” Psychologists define accountability as “the pressure to justify one’s judgments/decisions to others.”<sup>178</sup> Studies show that when people are held accountable, as one would expect market professionals to be, they try to process more information in more complex ways.<sup>179</sup> Perhaps counterintuitively, this additional effort can lead to worse, not better, decisions. Studies show that by trying to evaluate more information, individuals who are accountable often overinterpret information, focus too much on less relevant information while ignoring key (or “diagnostic”) information, and pay too much attention to conflicting

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economic environment. However, if time and attention are costly, such behavior may be reasonable.” Hirshleifer & Teoh, *supra* note 123.

175. See *supra* note 106 and accompanying text; see also *infra* Part V.B.

176. See David Hirshleifer et al., *Disclosure to a Credulous Audience: The Role of Limited Attention*, at <http://www.cob.ohio-state.edu/fin/dice/2002.htm> (accessed July 26, 2003) (explaining that evidence of mispricing “is surprising since mispricing in securities markets offers potential profit opportunities to smart traders”). For more on the limits of arbitrage to trade away these mispricings, see *infra* note 303.

177. See Schwarcz, *supra* note 134, at 12-17 (explaining that more people can be engaged to help digest complex disclosures, but that “the costs involved as well as market imperfections and behavioral psychology appear to preclude this from being a complete long-term solution”).

178. Steven M. Glover, *The Influence of Time Pressure and Accountability on Auditors’ Processing of Nondiagnostic Information*, 35 J. ACCT. RES. 213, 216 (1997); see also Vicky B. Hoffman & James M. Patton, *Accountability, the Dilution Effect, and Conservatism in Auditors’ Fraud Judgments*, 35 J. ACCT. RES. 227, 228-30 (1997); Tetlock & Boettger, *supra* note 117, at 388; Philip E. Tetlock, *Accountability and the Perseverance of First Impressions*, 46 SOC. PSYCHOL. Q. 285, 286 (1983) [hereinafter Tetlock].

179. See, e.g., Thomas A. Buchman et al., *Accountability and Auditors’ Judgments About Contingent Events*, 23 J. BUS., FIN. & ACCT. 379, 380 (1996); Glover, *supra* note 117, at 216; Tetlock & Boettger, *supra* note 117, at 388; Tetlock, *supra* note 178, at 286-87; see also Timothy D. Wilson & Jonathan W. Schooler, *Thinking Too Much: Introspection Can Reduce the Quality of Preferences and Decisions*, 60 J. OF PERSONALITY & SOC. PSYCHOL. 181, 182 (1991) (explaining that analyzing reasons can focus peoples’ attention on nonoptimal criteria, which can lead to inferior decision making).

information in anticipation of criticism from the party they are accountable to.<sup>180</sup> In essence, because people are “trying too hard” or are otherwise concerned about justifying their decisions, they might use an overly-complicated decision process that leads to an inferior result.<sup>181</sup>

Another concern with experts is overconfidence. People tend to be overconfident in their abilities.<sup>182</sup> Not only do people overestimate their ability to evaluate information and predict the future based on available data, but they also overestimate their abilities as compared to others. Numerous studies have documented this overconfidence bias among securities market professionals as well as lay investors.<sup>183</sup> There is, however, some reason to think that experts, particularly those who have had success in the past, might be particularly overconfident. First, studies have shown that confidence increases with expertise or experience, although there are admittedly studies cutting the other way.<sup>184</sup> Second, studies show that people who are very successful tend to be especially confident in their abilities.<sup>185</sup> It is reasonable to assume that most securities market professionals—or at least those who are most influential or manage the largest funds—have been quite successful over their careers, or at least probably view themselves as having been so. A third and related point concerns the availability bias. The availability bias is the idea that people focus on events that they are able to recall, regardless of their actual probabilities.<sup>186</sup> As a result, the likelihood of the event happening

180. See, e.g., Glover, *supra* note 117, at 214, 216; Tetlock & Boettger, *supra* note 117, at 388-89, 396-97; Tetlock, *supra* note 178, at 286-87. One benefit of accountability, however, might be to “de-bias” certain cognitive biases, such as framing effects, the availability heuristic, first impressions, or overoptimism, by motivating the decision maker to think more critically about the information and her decision. See, e.g., Tetlock & Boettger, *supra* note 167, at 388; Tetlock, *supra* note 178, at 286.

181. Not only experts are accountable. But it is reasonable to think of experts as being accountable for their investment decisions and recommendations in a way that a lay person is not accountable when investing, for example, to his or her spouse or family.

182. See Fisher & Statman, *supra* note 170, at 3; Hirshleifer, *supra* note 126, at 1548; Langevoort, *Taming the Animal Spirits*, *supra* note 126, at 145-47; Gregory Mitchell, *Taking Behavioralism Too Seriously? The Unwarranted Pessimism of the New Behavioral Analysis of Law*, 43 WM. & MARY L. REV. 1907, 1976 n.138 (2002); Raghurir & Das, *supra* note 170, at 69; SHILLER, *supra* note 126, at 142-46; Prentice, *supra* note 125, at 1457-61 & n.296 (collecting citations).

183. See, e.g., *supra* note 126.

184. See, e.g., Simon Gervais & Terrance Odean, *Learning to Be Overconfident*, 14 REV. FIN. STUD. 1 (2001) (showing that confidence increases in the early stages of a trader’s career and then decreases as the trader becomes more experienced) [hereinafter Gervais & Odean]; Thomas I. Selling, *Confidence and Information Usage: Evidence from a Bankruptcy Prediction Task*, 5 BEHAV. RES. IN ACCT. 237, 248 (1993) (experiment showing that MBA students became more confident in their ability to predict bankruptcy from accounting data as they gained experience).

185. See, e.g., Langevoort, *Taming the Animal Spirits*, *supra* note 126, at 146 n.50 (citing Gervais & Odean, *supra* note 184).

186. See, e.g., Theodore Eisenberg et al., *Reconciling Experimental Incoherence with Real-World Coherence in Punitive Damages*, 54 STAN. L. REV. 1239, 1245 (2002); Cass Sunstein, *Probability Neglect: Emotions, Worst Cases, and Law*, 112 YALE L.J. 61, 64 (2002) [hereinafter Sunstein].

may be overestimated in the person's decision-making process if it is readily available in the person's memory.<sup>187</sup> It is possible, for example, that a money manager, analyst, or arbitrageur who has been successful, especially if recently successful, will focus on her successes and overestimate the likelihood that her success will continue and, as a result, become overly confident in her own abilities.<sup>188</sup> Finally, it turns out that more information often contributes to the overconfidence bias, even when the quality of the decision might be deteriorating because of information overload.<sup>189</sup> Experts, then, might be particularly prone to overconfidence since they typically have access to more information than individual investors, for example, as a result of private conversations with management (Regulation FD notwithstanding<sup>190</sup>) or rank-and-file employees and analyst conference calls.

After all is said and done, we might learn that the expert filters—because they have greater ability and incentive to “get it right”—make very good investing decisions in the face of vast quantities of information and that reducing the level of disclosure would not meaningfully improve their decisions. Even under these circumstances, a reduction in disclosure would be worth considering, assuming we were not on the upward slope of the inverted-U curve of information overload studies. The very reason experts can do well in an environment saturated with information is often because they adopt less complicated decision strategies that enable them to focus their efforts on more relevant data and ignore less useful information.<sup>191</sup> Professor Jacoby, one of the leaders in studying information overload and decision making, writes that “[r]esearch shows that, operating under conditions that have both financial and ego consequences and where information acquisition costs are virtually zero, even professional security analysts deciding on which securities to select do not acquire most (or even much) of the information available.”<sup>192</sup> I am confident, for example, that much of what is

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187. See, e.g., Sunstein, *supra* note 186, at 64-65.

188. See Kim D. Krawiec, *Accounting for Greed: Unraveling the Rogue Trader Mystery*, 79 OR. L. REV. 301, 315 (2000); Prentice, *supra* note 125, at 1460-61; see also Snowball, *supra* note 111, at 325-26 (explaining that past experiences heavily influence predictions).

189. See, e.g., Stuart Oskamp, *Overconfidence in Case-Study Judgments*, reprinted in Kahneman et al., *supra* note 90; A. Rashad Abdel-Khalik, *The Effect of Aggregating Accounting Reports on the Quality of the Lending Decision: An Empirical Investigation*, J. ACCT. RES. 104 (1973) (explaining that research shows that more information increases confidence); Dane K. Peterson & Gordon F. Pitz, *Confidence, Uncertainty, and the Use of Information*, 14 J. EXPERIMENTAL PSYCHOL. 85 (1988); Simnett, *supra* note 111, at 715; Zacharakis & Meyer, *supra* note 123, at 331.

190. See *supra* note 164.

191. See *supra* notes 165-70.

192. Jacob Jacoby, *Is It Rational to Assume Consumer Rationality? Some Consumer Psychological Perspectives on Rational Choice Theory*, 66-67 (N.Y. Univ. Ctr. For Law & Bus., working paper #CLB-00-009, 2000) (citing Jacob Jacoby et al., *Effectiveness of Security Analysts*

presently disclosed goes largely unused. If information is not being used, why require that it be disclosed? Information is costly to disclose because of transaction costs and the increased risk of liability under the federal securities laws for the issuer and its directors and officers when mandatory disclosure requirements are stringent. In order to reduce the cost of capital, it might make sense to rationalize disclosure requirements by deleting required disclosures that do not meaningfully contribute to the investment decision of experts.<sup>193</sup> The difficulty, of course, is determining what items to delete. If useful items are deleted, the experts might do worse with less information. Complicating matters, as the following discussion suggests, not every expert wants or uses the same information.

## 2. *What to Disclose?*

This raises a more fundamental question: To whom should the federal mandatory disclosure system be directed? These questions have significant consequences for any attempt to cut back on the level of disclosure. Simply, we would need to determine what required disclosures to delete. The broad emphasis of information overload, and the psychology of investing in general, is that the user of the information matters. There are many diverse users of the information that the federal securities laws require to be disclosed. As one scholar put it, “The user is a shadowy figure at best.”<sup>194</sup> The users of the information include small individual investors, arbitrageurs, securities analysts, money managers, brokers, and financial advisers, to name a few. Different users have different amounts of expertise, experience, time, training, and sophistication and probably different decision strategies.<sup>195</sup> Accordingly, they use information differently and have different capacities to search and process information. Although it might seem easier to answer the question of “what to disclose?” if we focus on experts, not all experts are the same. An arbitrageur who has been running a hedge fund for years is probably going to use information differently from a mid-level buy-side analyst. Furthermore, different users will have different investment strategies,

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*Information Accessing Strategies: A Computer Interactive Assessment*, 1 COMPUTERS & HUM. BEHAV. 95, 95-113 (1985)).

193. There is some precedent for this approach. See Disclosure Simplification Task Force Report, *supra* note 74.

194. John P. Fertakis, *On Communication, Understanding, and Relevance in Accounting Reporting*, 44 ACCT. REV. 680, 683 (1969).

195. See, e.g., PAYNE ET AL., *supra* note 90, at 33 (“A person’s repertoire of strategies may depend upon many factors, such as cognitive development, experience, and more formal training and education.”); Snowball, *supra* note 111, at 324 (discussing interactions between user expertise and information load).

portfolios, risk tolerances, and techniques for valuing securities, leading them to use different information in making investment decisions. Complicating things, the information a person finds most useful in evaluating a company will likely vary over time as changes take place within the company or its industry and as macroeconomic factors evolve. In short, different users will focus on different information, even if there is a core set of information that all (or at least most) users want and use. More importantly, different users can be expected to become overloaded at different points and to different extents.<sup>196</sup>

It is hard to know what information each user should have in order to make effective investment choices.<sup>197</sup> Without knowing what disclosure items to delete, scaling back disclosure is imprudent; more harm than good might be done if companies were no longer required to disclose certain key information.<sup>198</sup> Even if less is disclosed overall, the mix of information that is disclosed still matters. With some additional empirical research, it is possible to gain insight into how different market participants use different information in making investment decisions.<sup>199</sup> The SEC's Advisory Committee on Corporate Disclosure made an effort in the 1970s to address this question by studying how a number of market participants used disclosures.<sup>200</sup> But knowing how people use information in making investment decisions begs a second question: Assuming disclosure requirements are going to be scaled back, to which user should disclosure be tailored? As suggested above, it is unlikely that the same disclosures will be optimal across all securities market participants.

An exhaustive consideration of options for how to tailor the federal disclosure system is beyond this Article's scope. Nonetheless, a few options merit brief mentioning. First, disclosure could be tailored to the median user of the information. This might be a good enough approximation of what each user needs to enable all users to do well enough. Second, disclosure could be tailored to the experts, whose trades and analyses are the key determinants of

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196. Cf. Michael J. Driver & Theodore J. Mock, *Human Information Processing, Decision Style Theory, and Accounting Information Systems*, 52 ACCT. REV. 490, 490 (1975) ("These results also indicate that the utility of a particular type of information cannot be effectively evaluated apart from the users of that information. There may be little point in providing financial forecast data or human resource accounting data to administrators whose *cognitive makeup* is such that they ignore it.").

197. Further, just because an investor demands certain information, it does not necessarily follow that the investor will make a better decision with the information than without it.

198. This information, of course, could be disclosed voluntarily under market pressure.

199. See *infra* notes 261-63 and accompanying text for a proposed research agenda. At least when it comes to a core set of information, I think there would be widespread agreement over what information (nearly) every investor or expert would want. Quality financial statements come to mind.

200. See SEC Advisory Committee Report, *supra* note 15.

security prices. It is worth noting, however, that the SEC, in adopting Regulation FD, expressed significant regard for the individual investor, even at the risk of less overall disclosure and less efficient capital markets.<sup>201</sup> In the spirit of Regulation FD, then, a third option is to tailor disclosure to (unsophisticated) individual investors. This, however, might compromise capital market efficiency if it denies the expert filters key information that they can process without being overloaded, although analysts and other experts could always pressure management for additional disclosures. A fourth possibility is a tiered disclosure system. For example, one set of disclosures could be available to experts, and a different set of disclosures could be available to lay investors.<sup>202</sup> The tiered-disclosure approach is consistent, at least in broad terms, with Professor Choi's recent proposal for investor regulation as opposed to issuer regulation.<sup>203</sup> Professor Choi proposes that investors take a test designed to evidence their level of investor sophistication. Depending on how well an investor does on the exam, his investment choices would be limited. The better an investor does on the exam, the more investing options he would have. A final option would be to do nothing. Given the uncertainty of making any significant change, the present system might adequately satisfy most investors' needs without overloading them too much. In this case, minor modification might be worthwhile, but no wholesale regulatory overhaul.

Three other difficulties complicate any decision to delete disclosures. First, the entire process of regulatory change suggested here is subject to an array of well-known public choice pressures.<sup>204</sup> Indeed, the SEC itself has been subject to public choice critiques.<sup>205</sup> Second, policymakers are themselves boundedly rational and subject to cognitive biases, so it is not certain that they will evaluate the options for regulatory change in a way that will lead to a better result than the present system. More harm than good might be done if the regulators make mistakes in scaling back the disclosure

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201. See Selective Disclosure and Insider Trading, Securities Act Release No. 33-7881, 53 SEC Docket 3 (Aug. 15, 2000).

202. For a more specific suggestion along these lines, see *infra* notes 286-91 and accompanying text.

203. See Stephen Choi, *Regulating Investors Not Issuers: A Market-Based Proposal*, 88 CAL. L. REV. 279 (2000). For an interesting critique of Choi's proposal grounded in behavioral finance, see Prentice, *supra* note 125.

204. See generally PERSPECTIVES ON PUBLIC CHOICE (Dennis C. Mueller ed., 1997); PUBLIC CHOICE AND PUBLIC LAW READINGS AND COMMENTARY (Maxwell L. Stearns ed., 1997).

205. See, e.g., Jonathan R. Macey, *Administrative Agency Obsolescence and Interest Group Formation: A Case Study of the SEC at Sixty*, 15 CARDOZO L. REV. 909 (1994). Although beyond this Article's scope, a public choice problem might explain why the mandatory disclosure system is as extensive and demanding as it currently is.

system.<sup>206</sup> Third, just as it is hard to know how people use information, it is difficult to know for sure how investors might respond to a regulatory change calling for less disclosure. For example, such a change could erode investor confidence as investors become concerned that the federal securities laws are not adequately policing issuers.<sup>207</sup>

The upshot of the foregoing is simply that, assuming the policy decision is made to scale back the mandatory disclosure system, operationalizing this policy choice, in terms of deciding what disclosure requirements to delete, is itself a difficult regulatory challenge.

### 3. *Other Goals of the Federal Securities Laws*

Concerns about information overload might ultimately impact the trajectory of securities regulation, with the SEC becoming more hesitant to expand disclosure requirements or possibly deciding to delete certain disclosure items.<sup>208</sup> Indeed, as noted above, there is increasing concern, even from the SEC, about the quantity of disclosure. I believe that the SEC should be open to the possibility of scaling back disclosure requirements. However, even if the empirical data on investor psychology and decision making sustain the case for less disclosure, and the SEC is able to determine how most effectively to scale back what should be disclosed, there is still more to consider before revamping our mandatory disclosure system or even changing the “more is better” tenor of the federal securities laws.

The goal of less disclosure as suggested here is to promote better investor decision making by avoiding information overload. Earlier, however, I overstated the case for informed investor decision making as the goal of the federal securities laws. To be sure, informed investor decision making is a key goal of the federal securities laws, probably the main goal today. But it is not the only goal. Two other goals are reducing agency costs and promoting investor confidence. A third function of the federal securities laws, which we might call “solving the lemons problem,” has also been offered as a goal of

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206. See Choi & Pritchard, *supra* note 157.

207. For a more detailed discussion of investor confidence, see *infra* notes 233-45 and accompanying text.

208. In its report to the SEC, the Disclosure Simplification Task Force recommended that the SEC delete certain immaterial disclosure requirements that were cluttering-up SEC filings. See Disclosure Simplification Task Force Report, *supra* note 74. Cutting back disclosure in response to information overload, however, would argue for deleting not only immaterial information from SEC filings but more important information as well.

the disclosure system.<sup>209</sup> Reducing disclosure might be contrary to these goals, even if it means better investment decisions.<sup>210</sup>

*a. Reducing Agency Costs*

One purpose of the federal securities laws is to reduce agency costs.<sup>211</sup> The argument is that disclosure has a prophylactic effect by deterring corporate insiders from engaging in fraudulent or corrupt behavior or mismanagement that comes at the expense of various corporate constituencies, investors being the most important for purposes of the federal securities laws. As such, disclosure serves an important corporate governance function. The logic has been expressed quite colorfully over the years. A.A. Sommer drew the following analogy: “Very simply put, if every instance of adultery had to be disclosed, there would probably be less adultery.”<sup>212</sup> And Louis Loss put it this way: “People who are forced to undress in public will presumably pay some attention to their figures.”<sup>213</sup> William O. Douglas contributed the following: “[T]he terroristic phases of the [Securities] Act are dominant. Real protection is afforded investors by scaring other people.”<sup>214</sup> But Louis Brandeis gave us perhaps the most famous statement expressing the role of disclosure in deterring corporate misconduct: “Publicity is justly

209. See Edward Rock, *Securities Regulation as Lobster Trap: A Credible Commitment Theory of Mandatory Disclosure*, 23 CARDOZO L. REV. 675 (2002) [hereinafter Rock].

210. Disclosure is typically thought to promote each of these goals, avoiding any need for policy makers to choose among them. However, once information overload is factored in, these goals might be at odds. In particular, more information might promote investor confidence, help reduce agency costs, and solve the lemons problem, but might frustrate investor decision making once the information load reaches a certain point.

211. See Paul G. Mahoney, *Mandatory Disclosure as a Solution to Agency Problems*, 62 U. CHI. L. REV. 1047, 1051-52, 1080, 1109-10 (1995); 1 LOSS & SELIGMAN, *supra* note 16, at 173; JOEL SELIGMAN, *THE TRANSFORMATION OF WALL STREET: A HISTORY OF THE SECURITIES AND EXCHANGE COMMISSION AND MODERN CORPORATE FINANCE* 39-40 (3d ed. 2003) [hereinafter SELIGMAN, *TRANSFORMATION*]; Alison Grey Anderson, *The Disclosure Process in Federal Securities Regulation: A Brief Review*, 25 HASTINGS L.J. 311, 319-20, 324, 330 (1974); John C. Coffee, Jr., *Beyond the Shut-Eyed Sentry: Toward a Theoretical View of Corporate Misconduct and an Effective Legal Response*, 63 VA. L. REV. 1099, 1114, 1247, 1251, 1266 (1977); Merritt B. Fox, *Required Disclosure and Corporate Governance*, 62 LAW & CONTEMP. PROBS. 113 (1999) [hereinafter Fox]; Edmund W. Kitch, *The Theory and Practice of Securities Disclosure*, 61 BROOK. L. REV. 763, 874-75 (1995); Louis Lowenstein, *Financial Transparency and Corporate Governance: You Manage What You Measure*, 96 COLUM. L. REV. 1335 (1996) [hereinafter Lowenstein]; Sommer, *supra* note 15, at 72, 263, 264, 266; Cynthia A. Williams, *The Securities and Exchange Commission and Corporate Social Transparency*, 112 HARV. L. REV. 1197, 1210-23 (1999) [hereinafter Williams].

212. Sommer, *supra* note 15, at 266-67.

213. LOSS, *supra* note 72, at 33.

214. Douglas, *supra* note 71, at 526. Douglas, however, was ultimately skeptical that disclosure would be effective in deterring corporate corruption and misconduct. See 1 LOSS & SELIGMAN, *supra* note 16, at 173.



commended as a remedy for social and industrial diseases. Sunlight is said to be the best of disinfectants; electric light the most efficient policeman.”<sup>215</sup> Two disclosure items of particular note when it comes to reducing agency costs are Item 402 of Regulation S-K (dealing with executive compensation) and Item 404 of Regulation S-K (dealing with conflict-of-interest transactions).<sup>216</sup> These disclosures have less to do with valuing the company and more to do with deterring insider misconduct or mismanagement, although there is some overlap between the goal of reducing agency costs and informed investor decision making. As Professor Langevoort has stressed, the valuation of a company depends, at least in part, on assessing the management team and the risk of corporate misconduct or mismanagement.<sup>217</sup>

Shaming is a modern variation of this agency cost rationale of disclosure.<sup>218</sup> The strategy of shaming is premised on actively using disclosure to influence corporate conduct, instead of passively relying on the deterrent effect of SEC disclosures. Institutional investors and large shareholders increasingly employ a strategy of shaming directors and officers, in part because shareholders have almost no *de jure* control over how the corporation is run on a day-to-day basis.<sup>219</sup> For example, one frequently sees full-page advertisements in the *New York Times* or the *Wall Street Journal* exhorting management to adopt some course of conduct or vilifying management for having engaged in some ill-advised behavior. The decision of Jack Welch, the long-time CEO and chairman of General Electric, to give back much of his severance package in the face of the public’s outcry over what it saw as an excessive and outlandish deal for Welch is a good example of the power of shaming.<sup>220</sup> Along similar lines,

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215. LOUIS D. BRANDEIS, *OTHER PEOPLE’S MONEY AND HOW THE BANKERS USE IT* 92 (1914).

216. See, e.g., Lowenstein, *supra* note 211, at 1344; Mahoney, *supra* note 14, at 1051, 1054, 1080, 1109-11; Seligman, *Historical Need*, *supra* note 11, at 45-51; Williams, *supra* note 211, at 1222.

217. Donald C. Langevoort, *Managing the “Expectations Gap” in Investor Protection: The SEC and the Post-Enron Reform Agenda*, 48 *VILL. L. REV.* 1139, 1152 (2003) [hereinafter Langevoort, *Expectations Gap*] (“These [goals] are inseparable insofar as a valuation decision is impossible without an assessment of the risk that incumbent management will divert to itself the otherwise expected stream of earnings . . . . Management integrity, or fear of mismanagement, are both legitimate concerns that are part and parcel of the valuation process . . .”).

218. See David A. Skeel, Jr., *Shaming in Corporate Law*, 149 *U. PA. L. REV.* 1811 (2001) [hereinafter Skeel]. Indeed, many have concluded that disclosure deters certain conduct because of the associated embarrassment if the behavior were known by the public. See SELIGMAN, *TRANSFORMATION*, *supra* note 211, at 40 (explaining that disclosure deters “embarrassing activities”); Coffee, *supra* note 211, at 1266 (explaining that disclosure increases “embarrassment costs”).

219. See, e.g., Skeel, *supra* note 218.

220. See Carol Hymowitz, *In the Lead: Investors Have to Lead the Charge to Keep Big Bosses in Line*, *WALL ST. J.*, Sept. 17, 2002, at B1.

shareholders could use the shareholder proposal process to express their views to corporate insiders, even if management is not obligated to follow the shareholders' recommendation. This at least sends management a message and puts the directors and officers in the position of having to publicly reject the expressed will of the shareholders, something that is not always easy to do in bright sunlight.

In addition to deterring undesirable conduct because it is embarrassing or will lead to public outcry if uncovered, disclosure might influence managerial behavior in a more subtle way. Professor Louis Lowenstein has argued that disclosure requires directors and officers to focus on aspects of their own conduct and corporate performance that might otherwise go unnoticed.<sup>221</sup> Professor Lowenstein goes on to suggest that by forcing insiders to confront "disagreeable realities" about the business "early on and in detail,"<sup>222</sup> the process of disclosure might bring the directors and officers to a level of self-awareness about how the company is being run that will result in steps to improve corporate performance.<sup>223</sup> Similarly, it may encourage the management team to keep doing what has worked, while shunning what has not. Professors Thompson and Sale have made a cognate point, revealing in an interesting study that securities fraud class actions often focus on how the business has been operated, in effect regulating corporate managers by subjecting them and their business decisions to greater scrutiny, forcing the management team to justify the company's performance.<sup>224</sup>

Behavioral law and economics might have something to add along these lines. Studies show that people often act in the best interest of others, and not in their own narrow self-interest like *homo economicus*.<sup>225</sup> It is at least

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221. See Lowenstein, *supra* note 211; see also Fox, *supra* note 211, at 123-25 (supporting Professor Lowenstein's reasoning).

222. Lowenstein, *supra* note 211, at 1342.

223. *Id.* at 1342-52. Professor Fox has done a good job summarizing Lowenstein's position:

Professor Louis Lowenstein has argued that required disclosure can improve managerial performance simply by forcing managers to become more aware of reality. . . . When managers have the legal obligation to disclose certain information, they may have to gather and analyze information they would otherwise ignore. The proposition that this consciousness raising will lead to an improvement in shareholder welfare rests on two assumptions. First, without required disclosure, management will not gather and analyze all of the information that could, in a cost-effective fashion, help it pursue its own objective function. Second, the managerial objective function is sufficiently congruent with the best interests of shareholders so that if management, because of required disclosure, determines how to better pursue its objective function, the actions it will take will also improve shareholder welfare. Both assumptions, though debatable, are plausible.

Fox, *supra* note 211, at 123-24.

224. Thompson & Sale, *supra* note 17.

225. See, e.g., Jennifer Arlen et al., *Endowment Effects Within Corporate Agency Relationships*, 31 J. LEG. STUD. 1, 31-32 (2002); Lynn Stout, *Other-Regarding Preferences and Social Norms* (Mar.

possible that other-regarding behavior could be encouraged by putting management in a position to focus on how it is running the business and how the business is impacting various corporate constituencies. Requiring management to prepare wide-ranging disclosures might do this, as Lowenstein suggests.<sup>226</sup>

A related concern arises from the expressive function of law.<sup>227</sup> The view that law can serve an expressive function contends that, above and beyond imposing sanctions, the law can make a statement about how people are supposed to behave—that is, it can express certain social values—and thereby shape norms of conduct, although there is disagreement on the process by which the norm change occurs.<sup>228</sup> In discussing the expressive aspects of regulation, Professor Sunstein has said: “These expressive or symbolic dimensions are central in many regulatory contexts. They are just as real and significant as other dimensions of policy. Part of what policy-making does is to define, interpret, and create collective understandings and values.”<sup>229</sup> Whatever else one might think about the Sarbanes-Oxley Act, it expresses that fraud and other corporate misconduct should not be countenanced. Indeed, the Securities Act and the Exchange Act sent a similar message when adopted, setting the tone, according to some, for a new era of “financial morality.”<sup>230</sup> Scaling back disclosure requirements might send the wrong message. It might signal that fraud and other corporate misconduct, or even simply aggressive accounting, is acceptable, or at least tolerated more

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2001), at [http://papers.ssrn.com/paper.taf?abstract\\_id=265902](http://papers.ssrn.com/paper.taf?abstract_id=265902); Margaret M. Blair & Lynn A. Stout, *Trust, Trustworthiness, and the Behavioral Foundations of Corporate Law*, 149 U. PA. L. REV. 1735 (2001).

226. See *supra* notes 221-23 and accompanying text.

227. Professor Prentice has made arguments similar to the following based on the expressive function of the federal securities laws in criticizing Professor Choi’s investor regulation proposal. See Prentice, *supra* note 125, at 1502-06.

228. For example, some argue that people internalize norms of behavior. Others argue that law’s expressive function works by shaming people into behaving in accordance with the expressed social value. Still others argue that norms are the product of a coordination game wherein individuals gravitate in their play to a particular focal point, which becomes the norm. Finally, others argue that norms develop as people take steps to signal that they are “good types” in order to coordinate future interactions. The reality is that everybody is probably right to some extent. For different views of the expressive function of law, see Matthew D. Adler, *Expressive Theories of Law: A Skeptical Overview*, 148 U. PA. L. REV. 1363 (2000); Elizabeth S. Anderson & Richard H. Pildes, *Expressive Theories of Law: A General Restatement*, 148 U. PA. L. REV. 1503 (2000); Robert Cooter, *Expressive Law and Economics*, 27 J. LEG. STUD. 585 (1998); Alex Geisinger, *A Belief Change Theory of Expressive Law*, 88 IOWA L. REV. 35 (2002); Richard H. McAdams, *A Focal Point Theory of Expressive Law*, 86 VA. L. REV. 1649 (2000); Cass R. Sunstein, *On the Expressive Function of Law*, 144 U. PA. L. REV. 2021 (1996) [hereinafter Sunstein].

229. Sunstein, *supra* note 228, at 70.

230. SELIGMAN, TRANSFORMATION, *supra* note 211, at 178-79; see also Prentice, *supra* note 125, at 1503.

by regulators than previously thought.<sup>231</sup> This, in turn, might encourage more fraud and misconduct, increasing agency costs, which would not be the goal of relaxing disclosure obligations. Even “legitimate” actors might begin to engage in aggressive practices that push the envelope, testing the boundaries of acceptable behavior.<sup>232</sup>

At bottom, even if scaling back disclosure promotes informed investor decision making, it might nonetheless compromise the goal of reducing agency costs.

### *b. Boosting Investor Confidence*

Boosting investor confidence is another goal of the federal securities laws.<sup>233</sup> Investor confidence is important to getting people to invest and, accordingly, important to the thickness and efficiency of capital markets. The corporate scandals hit investor confidence hard, partly evidenced by the significant withdrawals investors made from the stock market and their hesitancy to put in new money. Investors have lost confidence in directors and officers, in securities market professionals, and in the regulatory system. The need to restore confidence has motivated the recent regulatory and legislative responses to corporate scandal.

Investors’ belief that they have access to enough information to make informed investment decisions is certainly an important part of investor confidence. In fact, as discussed earlier, some studies show that at some point, investors can become overconfident with more information.<sup>234</sup> But

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231. *Cf.* Prentice, *supra* note 125, at 1503 (criticizing Choi’s investor regulation proposal as “tak[ing] the securities industry in the wrong direction” by creating a more permissive regulatory environment that makes fraud “more acceptable and therefore more likely to occur”).

232. *Cf. id.* at 1504 (“When the Reagan administration adopted a deregulatory attitude, traders on Wall Street adopted shady practices they previously had abjured.”). Since there is no consensus on what accounts for the expressive function of law or the process by which norms of conduct respond to “statements” of social values, one has to be careful about overstating the expressive function of more disclosure as compared to less. Indeed, it is possible that, in response to a relaxed regulatory regime, investors and securities market professionals will fill the void by becoming more vigilant and more skeptical—in other words, that the market will respond by policing companies more carefully.

233. *See* KRIPKE, *supra* note 11, at 28; Easterbrook & Fischel, *supra* note 11, at 692 (“The justification most commonly offered for mandatory disclosure rules is that they are necessary to ‘preserve confidence’ in the capital markets. It is said that investors, especially small and unsophisticated ones, withdraw their capital to the detriment of the markets and the economy as a whole when they fear that they may be exploited by the firms or better-informed traders. Disclosure rules both deter fraud and equalize ‘access’ to information, restoring the necessary confidence.”); Seligman, *Historical Need*, *supra* note 11, at 51-53 (disclosure helps reduce “investors’ concerns that they could be defrauded or treated unfairly and help facilitate an increased level of corporate securities sales”); 1 LOSS & SELIGMAN, *supra* note 16, at 187; *see also* Stout, *Investor Confidence*, *supra* note 152; Frankel, *supra* note 152.

234. *See supra* note 189 and accompanying text.

there is another aspect to investor confidence, namely, the general conviction investors have—or at least had—that the regulatory system provides adequate investor protection and ensures capital market integrity, above and beyond investors’ ability to make informed decisions. In this view, a demanding mandatory disclosure system with active enforcement and severe civil and criminal penalties can promote investor confidence.<sup>235</sup> In short, a stringent regulatory regime shows the investing public, as well as market professionals, that there is a cop on the beat and gives them comfort that companies are not withholding key information. Conversely, a regulatory regime that is perceived as too lax, such as might be the case if mandatory disclosure requirements were eased, might undermine investor confidence in the regulatory system and, ultimately, in the integrity of capital markets. This might be a particular concern if investors see the scaling back of disclosure obligations as one of many deregulatory steps.<sup>236</sup> Interestingly, investor confidence might be eroded even if the quality of investor decision making improves in the face of less disclosure. The most important impact of the Sarbanes-Oxley Act and the recent SEC rulemaking might not be the substantive changes they bring about for securities regulation, but that these legislative and regulatory responses have helped restore investor confidence.<sup>237</sup> For example, the August 2002 certifications by CEOs and CFOs certifying company financials overlapped with existing requirements that directors and officers sign SEC filings.<sup>238</sup> Nonetheless, these certifications seemed to instill a renewed sense of confidence in the integrity of financial statements.

But there are even two sides to investor confidence. As already discussed,

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235. See William W. Bratton, *Game Theory and the Restoration of Honor to Corporate Law's Duty of Loyalty*, reprinted in *PROGRESSIVE CORPORATE LAW* (Lawrence E. Mitchell ed., 1995); Prentice, *supra* note 125, at 1500-01 (discussing the role of legal sanctions in bolstering trust in capital markets); Frankel, *supra* note 152, at 3-5 (explaining that regulation can promote investor trust in capital markets); Tamar Frankel, *Trusting and Non-Trusting: Comparing Benefits, Cost and Risk*, at 25 (Boston University School of Law Working Paper No. 99-12, 1999), at <http://www.bu.edu/law/faculty/papers> (accessed July 26, 2003). *But see* Larry E. Ribstein, *Law v. Trust*, 81 B.U. L. REV. 553, 576-84 (arguing that law can destroy trust) [hereinafter Ribstein].

236. This “slippery-slope” concern has particular salience today, given several relatively recent securities law developments that have reduced the risk of fraud liability for companies and their officers, directors, lawyers, underwriters, and accountants. See, e.g., John C. Coffee, Jr., *Understanding Enron: “It’s About the Gatekeepers, Stupid,”* 57 BUS. LAW. 1403 (2002). Sarbanes-Oxley and the recent flurry of SEC rules, of course, would be a counterpoint to any perceived deregulatory trend.

237. See Frankel, *supra* note 152, at 3-4 (explaining that public hearings and new legislation signal to investors that Congress is “doing something” to protect them).

238. Commission Order No. 4-460, Order Requiring the Filing of Sworn Statements Pursuant to Section 21(a)(1) of the Securities Exchange Act of 1934 (June 27, 2002).

there is a risk of investor overconfidence.<sup>239</sup> Second, there is a risk that trust and confidence will turn into complacency.<sup>240</sup> There is reason to suspect that this is exactly what happened during the bull market of the 1990s, setting the stage for the corporate scandals that came to light in 2001 and 2002. Take Enron. There were a number of signs in Enron's SEC filings warning of corporate misconduct, but, with very few exceptions, nobody, including the expert filters, asked the tough questions one might have hoped for.<sup>241</sup> For a disclosure-based regulatory regime to work, people need to be diligent and vigilant and have a healthy skepticism of what they are being told. The Cold War motto, "trust, but verify," comes to mind. The risk of complacency heightens if investors assume that the regulatory regime provides enough protection so that they do not need to watch out for themselves.<sup>242</sup> As Professor Langevoort has pointed out, investors often assume that the federal securities laws provide more investor protection than the laws really do: "[S]ecurities regulation is far from any assurance of corporate transparency, delivering neither as much protection as many investors assume nor as much as is optimal."<sup>243</sup> For example, few people knew, or if they knew did not focus on, the infrequency with which the SEC has historically reviewed SEC filings and that it had not reviewed Enron since 1997, or that the SEC has, by many accounts, been significantly under-funded and under-staffed in recent years. Langevoort terms this the "expectations gap," which he suggests the Sarbanes-Oxley Act has helped fill,<sup>244</sup> although it is unclear whether the new legislation will live up to its expectations. There is a real risk, especially on the heels of the recent corporate scandals, that relaxing disclosure requirements would erode investor confidence. At the very least, such deregulatory steps probably would not do anything to restore confidence. Today, restoring confidence might be the most important thing the SEC and Congress can do, just as it was the top priority during the crisis of confidence following the 1929 stock market crash.<sup>245</sup>

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239. See *supra* notes 182-90 and accompanying text.

240. Larry E. Ribstein, *Market vs. Regulatory Responses to Corporate Fraud: A Critique of the Sarbanes-Oxley Act of 2002*, 28 J. CORP. L. 1, 24-25 (2003).

241. Of course, one reason the tough questions might not have been asked is because the gatekeepers, most notably securities analysts, were afraid of upsetting management for fear of losing other business, such as lucrative investment banking or underwriting business.

242. Ribstein, *supra* note 235, at 25. If complacency settles in, the market will have a hard time regulating itself, undermining the position of those who advocate market-based, not regulatory- or legislative-based, solutions to corporate and accounting scandals. For a thoughtful discussion of market-based responses to recent scandals at Enron, WorldCom, and elsewhere, see Ribstein, *supra* note 235.

243. Langevoort, *Expectations Gap*, *supra* note 217, at 1140.

244. *Id.*

245. The claims here about investor confidence are modest. It is hard to know for sure how

*c. The Lemons Problem*

In a seminal article, George Akerlof shows that in a market with informational asymmetries, where sellers know more than buyers about the products or services being sold, sellers have an incentive to offer inferior products.<sup>246</sup> Under these circumstances, the challenge for buyers is to identify quality, which buyers have difficulty doing without the necessary information to distinguish between superior and inferior items or the ability otherwise to determine quality at a reasonable cost.<sup>247</sup> As a result, according to Akerlof, a market for lemons develops, in which inferior items (lemons) are sold and buyers withdraw.<sup>248</sup>

Although Akerlof famously focuses on the used car market, the lemons problem can be extended to securities.<sup>249</sup> The stock market collapse of 2001 and 2002 following the scandals at Enron, WorldCom, Adelphia, Tyco, and elsewhere illustrates the point. After these scandals came to light, investors began to discount stocks as a whole because of corporate governance concerns. Investors were unable to discern the honest, well-run (*i.e.*, “good”) companies from the dishonest, poorly-run (*i.e.*, “bad”) ones, and so punished all companies indiscriminately, even those with good, honest management teams. The August 2002 CEO and CFO financial statement certifications<sup>250</sup> helped solve the lemons problem that a few (perhaps a bushel of) bad apples created.

More generally, there will always be “good” companies and “bad” companies. The task for “good” companies is to signal to investors that they

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investor confidence—a product of investor psychology—is created or destroyed. Accordingly, it is hard to predict how investor confidence will be affected by more or less regulation.

246. George A. Akerlof, *The Market for “Lemons”: Quality Uncertainty and the Market Mechanism*, 84 Q.J. ECON. 488 (1970).

247. *Id.* at 495.

248. Akerlof explains it this way:

The presence of people in the market who are willing to offer inferior goods tends to drive the market out of existence—as in the case of our automobile “lemons.” It is this possibility that represents the major costs of dishonesty—for dishonest dealings tend to drive honest dealings out of the market. There may be potential buyers of good quality products and there may be potential sellers of such products in the appropriate price range; however, the presence of people who wish to pawn bad wares as good wares tends to drive out the legitimate business. The cost of dishonesty, therefore, lies not only in the amount by which the purchaser is cheated; the cost also must include the loss incurred from driving legitimate business out of existence.

*Id.* at 495.

249. See Stout, *An Introduction to New Finance*, *supra* note 128, at 9-10; Prentice, *supra* note 125, at 1504-05 n.515; see also Schwarcz, *supra* note 134, at 25-38 (discussing the lemons problem in the context of Enron and complex disclosures of securitizations and derivative transactions).

250. See *supra* note 238.

are, in fact, good.<sup>251</sup> But for the signal to work, it has to be believable and hard to make; it cannot readily be mimicked by “bad” companies. Professor Ed Rock has recently explained that the federal securities laws provide issuers with the means of credibly committing to provide comprehensive, quality, and truthful disclosures indefinitely.<sup>252</sup> He argues that this commitment is important because investors want assurances that they will have access to the information necessary to value a company’s securities.<sup>253</sup> But this credible commitment to disclosure can also help solve the lemons problem. Three aspects of the disclosure system are particularly important. First, the disclosure system is voluntary in the sense that the disclosure obligations are not triggered until the issuer goes public.<sup>254</sup> Second, the mandatory disclosure obligations are extensive and demanding; compliance is costly. Third, having opted in as an issuer, the risk of liability—whether civil sanctions pursued by the SEC, criminal sanctions pursued by the Department of Justice, or private lawsuits—for failure to comply is high, especially post-Sarbanes-Oxley. In short, the commitment to disclose under the federal securities laws is credible, and because of the stringent disclosure requirements, not every company is willing or able to make the commitment. As a result, companies that voluntarily opt in to the mandatory disclosure system by going public are able to signal that they are “good,” thereby helping investors distinguish between “good” and “bad” companies.<sup>255</sup> Put

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251. For a discussion of signaling, see DOUGLAS G. BAIRD ET AL., *GAME THEORY AND THE LAW* 122-58 (1998); PAUL MILGROM & JOHN ROBERTS, *ECONOMICS, ORGANIZATION & MANAGEMENT* 154-59 (1992); A. MICHAEL SPENCE, *MARKET SIGNALING: INFORMATION TRANSFER IN HIRING AND RELATED PROCESSES* (1974); Eric A. Posner, *Law and Social Norms: The Case of Tax Compliance*, 86 VA. L. REV. 1781, 1786-91 (2000).

252. Rock, *supra* note 209, at 686-87 (explaining that the mandatory disclosure system “provides a credible and specialized enforcement mechanism, which warrants both the comprehensiveness and quality of the information disclosed,” with the risk of civil and criminal sanctions making the commitment credible and limitations on exit making the commitment to disclosure “indefinite”).

253. *Id.* at 685.

254. *Id.* at 678. The voluntariness of opting into the federal securities laws is somewhat overstated. An issuer may have no real choice but to opt in to raise needed capital and has no choice if it exceeds certain thresholds in terms of total assets and number of shareholders.

255. *Cf.* Posner, *supra* note 251, at 1786-91 (offering a model of tax compliance in which people comply with the tax law in order to signal that they are “good types” with low discount rates who are likely to cooperate and thus less likely to cheat). A company’s failure to comply with the federal securities laws, having opted in, might also signal that a company is “bad,” which could have serious consequences for the company’s stock price and ability to raise capital. *See* Posner, *supra* note 251, at 1789-90 (explaining that people avoid “bad types”).

Professor Rock’s analysis has a different focus. Rock sees the federal securities laws as providing companies with a mechanism for credibly committing to investors to provide high-quality, comprehensive disclosure for the indefinite future. Rock, *supra* note 209, at 688-91. My focus is on the role the federal securities laws play in providing companies with a means of signaling that they are honest and well-run. Another way companies signal that they are “good” is by renting the reputation of reputational intermediaries, for example by hiring top law firms or engaging well-respected



differently, the fact that a company is willing and able to comply with the federal securities laws is itself useful information for investors—in addition to what is disclosed in SEC filings.<sup>256</sup> More generally, the mere fact of complying with the law, whether the securities laws or other legal requirements, might signal that a company is “good.”

Because a commitment is an effective signal only if it is costly for “bad” companies to make, scaling back the mandatory disclosure system could undermine its signaling function and its usefulness in solving the lemons problem in capital markets. If the disclosure obligations were less demanding, or even if enforcement were more lax or the sanctions for noncompliance were less severe, the signals sent by the companies who opt in to the regime might be less meaningful to investors because it would be easier for “bad” companies to mimic the behavior of “good” companies by credibly committing to comply with the federal securities laws.<sup>257</sup> For this reason, one might expect “good” companies to prefer a stringent disclosure regime.<sup>258</sup> If investors cannot distinguish “good” companies from “bad” companies, they are likely to protect themselves by demanding a discount for all securities or simply withdrawing from the market.<sup>259</sup>

#### V. THE REGULATORY FIX AND SOME THOUGHTS ON THE EFFICIENT CAPITAL MARKET HYPOTHESIS

Where does this leave us? A number of concerns would need to be addressed before significantly scaling back the federal mandatory disclosure

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underwriters. See, e.g., Frank Partnoy, *Barbarians at the Gatekeepers?: A Proposal for a Modified Strict Liability Regime*, 79 WASH. U. L.Q. 491 (2001).

It is certainly possible for a company to agree contractually to stringent disclosure requirements, and the risk of being held liable for fraud or breach of contract might make the commitment credible. However, the risk of civil or criminal sanctions pursued by the SEC or the Department of Justice, on top of private lawsuits for fraud and breach of contract, makes the commitment to disclose by opting in to the federal securities law regime more credible than a contractual commitment to disclose. Rock, *supra* note 209, at 686-87, 696.

256. To be sure, this “signaling” story is imperfect. Enron, WorldCom, Tyco, Adelphia, Global Crossing, and other companies riddled with corporate scandal were all public companies, subject to the federal securities laws.

257. Gilson & Kraakman, *supra* note 19, at 605 (explaining that stringent legislation makes it more costly for low-quality producers to mimic the behavior of high-quality producers).

258. *Id.* (explaining that “trade associations that are dominated by high quality firms often lobby for more stringent legislative standards and greater enforcement of those standards” in order to drive lemons from the market) (emphasis in original).

259. See Stout, *Investor Confidence*, *supra* note 152, at 9-10 (“Inadequate fraud rules supposedly harm companies because when investors cannot distinguish good, honest, well-run companies from poorly-managed or dishonest firms (so called ‘lemons’), they refuse to pay a decent price for the securities of either. Thus solid firms cannot get investors to buy their stocks and bonds because they cannot distinguish themselves, in investors’ minds, from confidence schemes and scam artists.”).

system. First, we do not know for sure whether or not we are approaching or perhaps past the point of overload for any investors or securities professionals, although I have my suspicions that we are. If we decide to scale back the disclosure system, determining the right quantity and type of information to require companies to disclose is a difficult task, both in terms of accommodating the various goals of the federal securities laws and the different needs and abilities of users of the information. Notwithstanding these challenges, the risk of information overload, and the role of investor psychology more generally, should begin to factor into securities regulation in a more systematic way.<sup>260</sup>

#### A. *The Regulatory Fix*

Even if we are not prepared to scale back disclosure at this point, there are at least two steps worth taking now. The first is to collect more empirical data.<sup>261</sup> At the very least, it is fair to say that the view that investors always do better with more information is too simplistic. However, before revamping our securities laws to avoid information overload, we need more data about how people process information and make investing decisions. Without a better understanding of investor behavior, it would be unwise to make any significant regulatory changes, since it is hard to predict how people will respond. The risk of doing more harm than good by relaxing disclosure obligations might be too great, given that the United States already has the world's thickest capital markets. As Herbert Simon put it: "Truly complex systems do not lend themselves to summarization in a few laws of motion. . . . For real progress, the assemblage of a large and systematic body of fact will need to precede the spinning of webs of theory."<sup>262</sup>

Future studies—whether interviews, surveys, laboratory experiments, or the study of historical data—can build on the existing behavioral finance literature. Two broad inquiries should be pursued. First, what is the magnitude of information overload for various securities market participants,

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260. Professor Langvoort has been one of the leading advocates for factoring investor psychology into securities regulation. See, e.g., Langevoort, *Market Efficiency Revisited*, *supra* note 20, at 920 (explaining that we have "gambled on a simplifying theory [rational choice]" in regulating securities markets, but that "at some point, the dice will stop rolling, and intellectually, it will be time to settle up"); Langevoort, *Taming the Animal Spirits*, *supra* note 126, at 138 (calling for "behavioral securities regulation").

261. See also Langevoort, *Taming the Animal Spirits*, *supra* note 126, at 188 (calling for more studies of investor behavior).

262. Herbert A. Simon, *Business Economics*, July 1999, at 94 (reviewing HUGH SCHWARTZ, *RATIONALITY GONE AWRY? DECISION MAKING INCONSISTENT WITH ECONOMIC AND FINANCIAL THEORY* (1998)).

most importantly the expert filters who determine security prices? Second, if the mandatory disclosure system is to be scaled back, what information is most useful that should be disclosed? Any number of specific questions could be studied, including: What information do different investors or securities market professionals want? What information do they actually use and how? How does an unsophisticated investor select information as compared to a securities analyst? Do junior analysts use different decision strategies than senior analysts? How does more or less disclosure impact investor confidence? How does a person's capacity to process information vary with her expertise? How do the ways people select and process information and make decisions respond to more information? Do individual investors perform better with training? If so, what kinds of training? It is also important to know what information various securities market participants find most useful; if mandatory disclosure is scaled back, the SEC needs to know what disclosure requirements to delete. Indeed, although we might scale back disclosure as a whole, we might find that certain information that is not disclosed presently should be. In other words, in addition to disclosing less, it might make sense to disclose a different mix of information.

These and similar questions need to be asked for different types of investors and securities professionals and for different decision-making settings. This type of work is ongoing in psychology departments, economics departments, and business schools around the country, but the SEC and legal academics should get more involved in collecting and analyzing data. As a useful, and relatively easy, first step, investors, analysts, arbitrageurs, brokers, money managers, and others could be surveyed to find out what information they use, what information they ignore, what information they want, and the like. This is not completely new territory for the SEC, which in the past has made some effort at empirical research along the lines suggested here, the most notable example being the studies conducted by the Advisory Committee on Corporate Disclosure in the 1970s.<sup>263</sup>

While we await the data,<sup>264</sup> a second step is worth taking. At bottom, information overload results when people have difficulty selecting and processing information in the face of a complex task involving vast quantities of information. The risk of overload can be mitigated, then, by simplifying the task at hand. One way to do this, of course, is to reduce the information load. Another option is to make the information load, whatever it is, easier to

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263. See SEC Advisory Committee Report, *supra* note 15.

264. Even after collecting more data, we must be cautious in how we use the data to inform policymaking. It is difficult for regulation, which is often blunt and inflexible, to accommodate the often narrow, qualified findings of experiments and surveys.

evaluate.

Numerous studies have shown that information overload can be alleviated by presenting information in a way that makes it easier to search and process the information and easier to make comparisons across choices.<sup>265</sup> In other words, the presentation of information can be manipulated to improve the accuracy and decrease the effort of performing a task by making information more accessible and understandable.<sup>266</sup> Presentation can also be manipulated, for better or for worse, to increase the salience of certain information by drawing attention to it<sup>267</sup> or to frame how people consider their choices.<sup>268</sup> Experts who study how the presentation of information affects decision making typically focus on the form of the information (*i.e.*, numerical, verbal, or pictorial, such as graphs or charts), its organization, and the sequence of presentation, each of which can have a different impact on decision making.<sup>269</sup>

The SEC has long focused on the proper formatting and presentation of information in SEC filings.<sup>270</sup> Some specific examples of past SEC attempts

265. See, e.g., Bettman et al., *Cognitive Considerations in Designing Effective Labels for Presenting Risk Information*, 5 J. PUB. POL'Y & MARKETING 1 (1986) [hereinafter Bettman et al., *Cognitive Considerations*]; Bettman et al., *supra* note 91, at 202; Don N. Kleinmuntz & David A. Schkade, *Information Displays and Decision Processes*, 4 PSYCHOL. SCI. 2221 (1993); Korobkin, *supra* note 87, at 55-56; David A. Schkade & Don. N. Kleinmuntz, *Information Displays and Choice Processes: Differential Effects of Organization, Form, and Sequence*, 57 ORG. BEHAV. & HUM. DECISION PROCESSES 319 (1994); Morris H. Stocks & Brad Tuttle, *An Examination of Information Presentation Effects on Financial Distress Predictions*, 6 ADVANCES IN ACCT. INFO. SYS. 107 (1998); Morgan Swink & Cheri Speier, *Presenting Geographic Information: Effects of Data Aggregation, Dispersion, and Users' Spatial Orientation*, 30 DECISION SCI. 169 (1999); PAYNE ET AL., *supra* note 90, at 48-54, 218-28. For interesting discussions of how the presentation and accounting treatment of financial information can affect investor decision making, where investors are modeled as having limited attention and processing power, see Kent Daniel et al., *Investor Psychology in Capital Markets*, 49 J. MONET. ECON. 139, 184-90 (2002) [hereinafter Daniel et al.]; Hirshleifer & Teoh, *supra* note 123; Hirshleifer et al., *supra* note 123; see also Libby et al., *Experimental Research in Financial Accounting* (Feb. 23, 2001), at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=261860](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=261860) (accessed July 26, 2003) [hereinafter Libby et al.].

266. The Internet is particularly important in this regard. Not only does the Internet allow companies to "layer" their disclosures, see *infra* notes 288-89 and accompanying text, but the Internet also makes it easier for people to search information. On the other hand, because of the Internet, people are faced with more and more information when making investment decisions.

267. See, e.g., Hirshleifer et al., *supra* note 123, at 5 (describing salience of information as its "prominence" or tendency to "stand out"); SCOTT PLOUS, *THE PSYCHOLOGY OF JUDGMENT AND DECISION MAKING* 178-80 (1993) [hereinafter PLOUS]; Kahneman et al., *supra* note 90, at 192-94.

268. See, e.g., 1 HANDBOOK OF SOCIAL PSYCHOLOGY 180-81 (Gardner Lindzey & Elliot Aronson eds., 3d ed. 1985); PLOUS, *supra* note 267, at 42; Bettman et al., *supra* note 91, at 202; Korobkin & Ulen, *supra* note 82, at 1104-07; Donald C. Langevoort, *Behavioral Theories of Judgment and Decision Making in Legal Scholarship: A Literature Review*, 51 VAND. L. REV. 1499, 1503-04 (1998); PAYNE ET AL., *supra* note 90, at 48-50, 64-66, 108.

269. See, e.g., Kleinmuntz & Schkade, *supra* note 104.

270. Another area where the formatting and presentation of information has received significant

to improve how information is presented include the “plain English” initiative,<sup>271</sup> the increased use of graphs, charts, and tables in executive compensation disclosures,<sup>272</sup> and recent changes in the format for certain investment company disclosures.<sup>273</sup> Indeed, the charge to the Task Force on Disclosure Simplification in the mid-1990s was to recommend ways to simplify disclosure.<sup>274</sup> More generally, standardized disclosure formats, such as Form 10-Ks or 10-Qs, standardized financial statements, and simplified accounting treatment can help reduce search and processing costs.<sup>275</sup>

Ultimately, even determining what formatting or presentation changes are merited under the federal securities laws is not easy. There is no optimal format for every decision or type of information, and individuals might respond differently to different presentations of information.<sup>276</sup> Questions regarding the impact of information presentation on investor behavior could be added to the empirical research agenda outlined above. Nonetheless, the following suggestions—the details of which remain to be worked out—are worth serious consideration and possible adoption presently.

First, the SEC should continue to require issuers to use more charts, graphs, and tables in SEC filings, as the SEC appears to be doing. In its most recent rules, the SEC has been sensitive to formatting considerations, in some cases proposing that the disclosures be in a graphical or tabular format as opposed (or in addition) to narrative discussions.<sup>277</sup>

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attention is warning labels and products liability, the challenge being to format product warnings that consumers will read and can understand. *See, e.g.*, INFORMATIONAL APPROACHES TO REGULATION (Wesley A. Magat & W. Kip Viscusi eds., 1992); Bettman et al., *Cognitive Considerations*, *supra* note 265; Symposium, *Rational Actors or Rational Fools? The Implications of Psychology for Products Liability*, 6 ROGER WILLIAMS U. L. REV. 1 (2000); Howard Latin, “Good” Warnings, Bad Products, and Cognitive Limitations, 41 UCLA L. REV. 1193 (1994).

271. *See supra* note 75.

272. *See supra* notes 31-34 and accompanying text.

273. *See* James A. Fanto, *We’re All Capitalists Now: The Importance, Nature, Provision and Regulation of Investor Education*, 49 CASE W. RES. L. REV. 105, 171-78 (1998) [hereinafter Fanto].

274. *See supra* notes 74-75 and accompanying text.

275. A current lightning rod of attention and controversy is how to account for stock options. Presently, the details of a company’s stock option grants are contained in the notes to the company’s financial statements. Although the information is available for investors, analysts, and others to calculate the impact of the options on the company’s bottom line, many worry that this information is buried and could be made more accessible if companies were required to expense stock options—in effect, taking the information in the notes and putting it on the income statement. For more on how accounting treatment can affect the salience of information such as stock option grants and thereby affect decision making, see Hirschleifer & Teoh, *supra* note 123; Stout, *An Introduction to the New Finance*, *supra* note 128.

276. *See* Bettman et al., *supra* note 91, at 15 (“No one format is optimal for all types of information and/or situations. Rather, processability depends upon the congruence between the format and organization of the information and the type of processing to be done.”).

277. *See, e.g.*, Disclosure in Management’s Discussion and Analysis About Off-Balance Sheet Arrangements, Contractual Obligations and Contingent Liabilities and Commitments, Securities Act

Second, by requiring that more items be disclosed on Form 8-K, the SEC achieves two goals.<sup>278</sup> Most notably, it promotes “real-time” disclosure. Second, the information disclosed on a Form 8-K might be easier to search and process because it is separated out and not disclosed as part of a larger filing, where it can be “lost” amid other disclosures or purposefully buried to obscure it.<sup>279</sup> At some point, of course, the number of periodic reports filed might itself become overwhelming for investors if they are continuously bombarded with bits and pieces of information and lose a sense of the complete picture. Nonetheless, it is worth considering further expanding the list of items reported on Form 8-K beyond the new items the SEC has proposed for disclosure on Form 8-K.<sup>280</sup> More generally, the idea of separating out certain key information in quarterly and annual reports is worthwhile. The SEC has gone this route when it comes to new MD&A disclosure requirements. In its release proposing rules providing for the disclosure of certain accounting estimates and critical accounting policies, the SEC said:

The proposals would require that a company present the required information in a separate section of MD&A. While the proposed disclosure may relate to other aspects of the discussion in MD&A, such as the results of operations or liquidity and capital resources, we have chosen to separate it both to highlight the discussion and because we believe the proposed discussion would present information that is better communicated separately to promote understanding.<sup>281</sup>

Third, the SEC has said that it is considering requiring that companies disclose a summary of MD&A.<sup>282</sup> Alan Beller, Director of the Division of Corporation Finance at the SEC, has elaborated, suggesting that the summary

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Release No. 33-8144, 67 Fed. Reg. 68,054 (Nov. 4, 2002) (tabular format for aggregate contractual obligations; tabular or textual format for contingent liabilities and commitments); Form 8-K Disclosure of Certain Management Transactions, Securities Act Release No. 33-8090, 77 SEC Docket 1072 (Apr. 12, 2002) (soliciting comments regarding tabular format for certain disclosures on Form 8-K); Disclosure in Management’s Discussion and Analysis About the Application of Critical Accounting Policies, Securities Act Release No. 33-8098, 77 SEC Docket 1631 (May 10, 2002) (separating disclosures regarding a company’s critical accounting policies from the rest of MD&A).

278. See *supra* notes 37-43 and accompanying text.

279. Separating out key disclosures, in addition to making it more prominent, might also make it more difficult for management to “spin” information.

280. See *supra* note 38.

281. Disclosure in Management’s Discussion and Analysis About the Application of Critical Accounting Policies, Securities Act Release No. 33-8098, 67 Fed. Reg. 35,620 (May 10, 2002).

282. *Id.*; see also Alan L. Beller, Director, Division of Corporation Finance, Securities & Exchange Commission, Remarks before the Rocky Mountain Securities Conference (May 17, 2002) [hereinafter Beller, Remarks].

could give a “concise, clear presentation of management’s views of how the company makes money; what is most important in understanding the company’s financial reporting; what financial, operational, macroeconomic or other trends management pays most attention to; and what seems most likely to management to spoil the party going forward.”<sup>283</sup> Beller is also reported to have said: “Current MD&A goes on endlessly about stuff that investors can find in the balance sheet. They don’t need 10 pages of elevator music.”<sup>284</sup> Given the importance of MD&A to investors, making it more accessible is a good idea. The summary would not replace the full MD&A, which would continue to be required. One could certainly imagine, though, disclosures where the summary MD&A contains a hyperlink to the more extensive discussion for those who are interested. The SEC should seriously consider this and other efforts to summarize disclosures.<sup>285</sup>

Fourth, the SEC should consider tiered financial reporting, requiring summary financial statements in addition to a company’s complete financial statements.<sup>286</sup> In the United Kingdom, companies are permitted to send shareholders summary financial statements.<sup>287</sup> Financial statements, especially when the notes are considered, are voluminous and difficult to wade through. Issuers could be required to summarize certain key financial information using charts and tables, possibly showing company trends for a three-, five-, or ten-year period. Again, the summary information could be hyperlinked to more detailed information, or the summary could be inserted in the company’s 10-Q or 10-K along with its full financial statements. A recent study by Blunn & Company reports that companies who put their annual reports online are increasingly linking line items to related notes, making it easier for investors to search and use a company’s financial disclosures, whereas other companies put a summary of key financial

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283. Beller, Remarks, *supra* note 282.

284. *Market Fears Levy Long-Term Fixes: Voluntary Action Now Will Keep Companies Ahead of the Curve*, INVESTOR REL. BUS., June 17, 2002, at 1.

285. There is no reason to limit summaries to MD&A. The SEC, for example, could consider a new “Highlights” disclosure requirement, summarizing the key information in the company’s Form 10-Q or 10-K, along the lines of the “Key Facts” document proposed in the United Kingdom, see Sara Calian, *Top 10 Recommendations for a Simplified Prospectus*, WALL ST. J. ONLINE, Feb. 14, 2003, at <http://online.wsj.com> (last visited Feb. 14, 2003), or the “profile prospectus” available for mutual funds, see New Disclosure for Open-End Management Investment Companies, Securities Act Release No. 33-7513, 66 SEC Docket 1703 (Mar. 13, 1998).

286. For a formal treatment of two-tiered financial reporting, see Robert M. Bushman et al., *A Model of Two-Tiered Financial Reporting*, 34 J. ACCT. RES. 51 (1996).

287. For more on the United Kingdom’s use of summary financial statements, see KATHARINE BAGSHAW, *SUMMARY FINANCIAL STATEMENTS: A GUIDE TO BEST PRACTICE* (1999); Katharine Bagshaw, *Summary Financial Statements: Cost-Effective Communication*, 78 MGMT. ACCT. 52 (2000).

information online.<sup>288</sup> Discussing the possibility of a tiered system of financial disclosure along the lines suggested here, then-SEC Chairman Harvey Pitt said:

First, we believe investors would benefit if companies could produce clear and concise financial statements. This would not be an initiative to “dumb down” or omit the complete picture that current financial statements are intended to provide. Rather, it would be an effort to give companies the flexibility to produce and disclose financial information in “layers” ranging from those with a general “big picture” focus to those that encompass the minutest detail, all of which would be readily accessible to investors electronically. This would permit investors to “drill down” to whatever layer they wish. The layers would allow companies to explain financial statement disclosure to investors in ways that are more clear, concise and understandable.<sup>289</sup>

It is worth noting that we already aggregate financial information; we give investors a balance sheet, income statement, and statement of cash flow, and not raw data. In this sense, summary financial statements are not a new concept; they are just more aggregation than is presently done. Moreover, precedent for summarizing financial disclosures can be found in the SEC’s earlier experience with summary annual reports.<sup>290</sup> Indeed, in 1995 the SEC issued a rule proposal regarding the use of abbreviated financial statements.<sup>291</sup>

Finally, studies show that training and education can lead to better decision making by enabling people to process more information effectively, by helping people learn what information to ignore, and by giving people a wider array of decision strategies to employ in diverse settings.<sup>292</sup> Regardless of the quantity of information and its format, education and training might promote informed investor decision making. Relevant education and training might include teaching investors everything from basic valuation to how to

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288. Dominic Jones, *New Trends in Online Annual Reports*, at <http://www.irwebreport.com/features/030101.htm>.

289. Pitt, Written Testimony, *supra* note 16, at 12-13.

290. For a discussion of the summary annual report, see J. Robert Brown, Jr. & Stephen M. DeTore, *Rationalizing the Disclosure Process: The Summary Annual Report*, 39 CASE W. REV. L. REV. 39 (1989); Charles Lee & Dale Morse, *Summary Annual Reports*, 4 ACCT. HORIZONS 39 (1990).

291. Use of Abbreviated Financial Statements, Securities Act Release No. 33-7183, 59 SEC Docket 1556 (June 27, 1995).

292. See generally Sarah E. Bonner et al., *Using Decision Aids to Improve Auditors’ Conditional Probability Judgments*, 71 ACCT. REV. 221 (1996) [hereinafter Bonner et al.]; PAYNE ET AL., *supra* note 90, at 235-39.



read financial statements, and from how to understand basic macroeconomic factors to how stock exchanges operate. Further, studies show that decision aids, from basic checklists to computer models, can also help people process information and make better decisions.<sup>293</sup> A simple checklist, for example, can help formalize the decision-making process and facilitate the evaluation of information and the comparison of choices across a number of factors.<sup>294</sup> The SEC has already initiated a number of investor education programs.<sup>295</sup> The town hall meetings held by former SEC Chairman Levitt perhaps received the most attention recently. The SEC should consider additional investor education programs that it could institute.

### *B. Some Thoughts on the Efficient Capital Market Hypothesis*

A full consideration of the implications of information overload for the efficient capital market hypothesis is beyond this Article's scope, although a few thoughts are in order. The efficient capital market hypothesis is well known, so I can quickly summarize it.<sup>296</sup> According to the ECMH, security prices fully reflect all available information. New information is rapidly incorporated into security prices by the active trading of investors, so that security prices always reflect informed investors' best guess of a company's value.<sup>297</sup> As a result, investors cannot expect to earn abnormal returns by buying or selling securities on the basis of new information, unless they are among the first to trade on it. Some assert that capital markets are not only informationally efficient, but also "fundamentally" efficient in that a company's stock price reflects the company's fundamental value.<sup>298</sup>

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293. See, e.g., Bonner et al., *supra* note 292; PAYNE ET AL., *supra* note 90, at 220, 228-35, 237-38 (discussing how decision aids and computer models can increase a person's capacity to process information); Zacharakis & Meyer, *supra* note 123, at 340 (explaining data showing that decision aids, including simple checklists, improve venture capital decision making).

294. Zacharakis & Meyer, *supra* note 123, at 340.

295. For a summary of SEC investor education initiatives, see Fanto, *supra* note 273, at 156-79. Professor Fanto also urges the SEC to adopt more of these initiatives. *Id.* at 107-08, 178.

296. See *supra* notes 18-20 and accompanying text; see also RICHARD A. BREALEY & STEWART C. MYERS, PRINCIPLES OF CORPORATE FINANCE 345-70 (7th ed., 2003); Lawrence Cunningham, *From Random Walks to Chaotic Crashes: The Linear Genealogy of the Efficient Capital Market Hypothesis*, 62 GEO. WASH. L. REV. 546 (1994); Gordon & Kornhauser, *supra* note 20; Kahan, *supra* note 15; Lynn A. Stout, *Are Stock Markets Costly Casinos? Disagreement, Market Failure, and Securities Regulation*, 81 VA. L. REV. 611 (1995) [hereinafter Stout, *Costly Casinos*].

297. Gilson & Kraakman, *supra* note 19, at 565-92 (describing mechanisms of market efficiency); Gordon & Kornhauser, *supra* note 20, at 770; Langevoort, *Information Technology*, *supra* note 15, at 778-79; SHLEIFER, *supra* note 126, at 2, 4.

298. For summaries of the fundamental efficiency view, see Langevoort, *Taming the Animal Spirits*, *supra* note 126, at 140-43; Stout, *Costly Casinos*, *supra* note 296, at 617; Stout, *An Introduction to the New Finance*, *supra* note 128, at 6-14. Professor Stout has argued that investors

The ECMH generally assumes that investors are rational, meaning that investors accurately value a company's securities, and that the costs of searching and processing information are low.<sup>299</sup> To the extent that investors make mistakes in valuing securities, the errors are said to be random and therefore to cancel each other out.<sup>300</sup> To the extent that securities remain mispriced, the buying and selling by arbitrageurs brings security prices in line with fundamental value. Accordingly, any (significant) deviations between security prices and fundamental value will not be prolonged.

The ECMH generally does not account for how people actually search and process information or make decisions, but instead assumes rationality. Numerous studies, however, have found significant "noise" in capital markets and that investors and securities market professionals deviate from perfectly rational behavior.<sup>301</sup> Some of the most well-known sources of these deviations from rationality include loss aversion, framing, the representativeness heuristic, the availability heuristic, overoptimism, and overconfidence.<sup>302</sup> These findings are significant because they suggest that investors, analysts, and others process information imperfectly, and in many cases, the errors are not random and therefore do not necessarily cancel each other out. Consequently, a significant divergence between security prices and fundamental value can develop. The ability to arbitrage away the wedge between security prices and fundamental value in fact is limited, contrary to a key tenet of the ECMH.<sup>303</sup> (One limit on arbitrage might be information

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have heterogeneous expectations (*i.e.*, they value securities differently), contrary to a key assumption of the Capital Asset Pricing Model. Accordingly, Stout concludes that even if investors are rational, security prices may diverge from fundamental value. See Stout, *Costly Casinos*, *supra* note 296; Lynn A. Stout, *Are Takeover Premiums Really Premiums? Market Price, Fair Value, and Corporate Law*, 99 *YALE L.J.* 1235 (1990). Fischer Black has generously described markets as being efficient whenever security prices are within a factor of two of value. See Fischer Black, *Noise*, 41 *J. FIN.* 529, 533 (1985).

299. For other assumptions of the ECMH, see Fama, *supra* note 19, at 387-388; Gordon & Kornhauser, *supra* note 20, at 770-71 (summarizing the conditions under which capital markets will be efficient as "no transaction costs in trading securities, costless access by all market participants to all available information, and agreement by market participants as to implications of such information for the current price and distributions of future price of each security"); SHLEIFER, *supra* note 126, at 2. In their important article on the ECMH, Gilson and Kraakman point out that information costs (*e.g.*, the cost of acquiring, verifying, and processing information), if high enough, impede market efficiency. Gilson & Kraakman, *supra* note 19, at 592-609; see also Stout, *An Introduction to the New Finance*, *supra* note 128, at 15 (discussing the information costs Gilson and Kraakman identify).

300. Gilson & Kraakman, *supra* note 19, at 581; SHLEIFER, *supra* note 126, at 2.

301. See, *e.g.*, Fisher & Statman, *supra* note 170; Hirshleifer, *supra* note 126; Langevoort, *Market Efficiency Revisited*, *supra* note 20; Langevoort, *Taming the Animal Spirits*, *supra* note 126; Prentice, *supra* note 125; SHILLER, *supra* note 126; SHLEIFER, *supra* note 126; Raghurib & Das, *supra* note 170.

302. See *supra* notes 125-26.

303. See Langevoort, *Taming the Animal Spirits*, *supra* note 128, at 148-50; SHLEIFER, *supra* note 126, at 13, 87-111; Stout, *An Introduction to the New Finance*, *supra* note 128, at 5; *cf. supra* notes

overload—there simply might be too many companies to follow and too much information to digest for arbitrageurs to scour each corner of the market searching for arbitrage opportunities.)

Information overload is part of this investor-psychology-based critique of the ECMH. Information overload raises doubts about two key features of the ECMH: first, that all information is reflected in stock prices; and second, that the information is correctly interpreted.<sup>304</sup>

First, it is not certain that all available information is reflected in security prices, as the ECMH claims. As a result of information overload, individual investors, securities analysts, money managers, and others might not consider all relevant information in making investment decisions.<sup>305</sup> Which information is considered will depend, in part, on which decision strategy an individual uses and what information an individual ignores or overlooks in evaluating securities. Different individuals will focus on different information. (This would be true even if each person used a similar decision strategy and there was no information overload.<sup>306</sup>) If key information is not used, not only are capital markets not informationally efficient, but security prices will not reflect fundamental value. So as not to overstate the concern, it is important to note that if “enough” investors and market professionals consider each item of (material) information, the information can be incorporated in security prices; the ECMH does not depend on each individual considering each piece of information. Accordingly, information overload, at least insofar as its implications for market efficiency are concerned, should be less of a concern for a stock like Microsoft, which is covered by several analysts and which trades actively, than for a small cap stock that trades over the counter and has little, if any, analyst coverage.

Second, there is no guarantee that investors, analysts, or other securities

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159-93 and accompanying text (describing the imperfect rationality of experts).

304. Professor Schwarcz makes a similar point, arguing that the capital markets are not efficient with respect to disclosures about particularly complex transactions, which neither lay investors, nor the expert filters, can adequately interpret. *See* Schwarcz, *supra* note 134; *see also* Stout, *An Introduction to the New Finance*, *supra* note 128, at 3 (describing as the “Achilles heel of efficient market theory—the puzzle of how, exactly, information flows into prices”). The extent to which information overload has these effects depends on the degree to which the expert filters, the “mechanisms of market efficiency” that Gilson and Kraakman refer to, whose trades incorporate information into and set security prices, are overloaded. *See supra* notes 159-93 and accompanying text; Gilson & Kraakman, *supra* note 19, at 565-92, 613-22.

305. *See supra* Parts III.C and IV.A.

306. Professor Stout describes the heterogeneous expectations of investors as follows: “Different investors are likely to face different costs in obtaining and using different subsets of information relevant to stock values. An accountant may find it easiest to gauge a coffee company’s prospects according to its financial statements, whereas a gourmand who hates numbers may judge the firm by the taste of its product.” Stout, *Costly Casinos*, *supra* note 296, at 626 (citations omitted).

market participants will accurately process whatever information they do consider.<sup>307</sup> For example, if individuals are subject to information overload, there is reason to believe that they will not accurately interpret the available information. Thus, even the information that is fully reflected in security prices might not be reflected correctly.<sup>308</sup> In other words, even if capital markets are informationally efficient with respect to a piece of information, they might not be fundamentally efficient. On the other hand, if “enough” market participants correctly process the information, the concern that investors will misinterpret it is mitigated. Furthermore, it is not clear that information overload leads to the kind of systematic biases often associated with behavioral finance. For example, not every investor has the same point of overload, and not every investor will adopt the same decision strategy in each setting. Accordingly, to the extent that information overload leads to errors in how people evaluate information and value companies, the errors might be random and largely cancel each other out. That having been said, if people adopt similar decision strategies and focus on similar information, we might expect them to make similar mistakes. In general, the decision-making errors resulting from information overload could be substantial, especially if wide segments of the market are overloaded. To the extent that pricing errors do not cancel each other out, the limits of arbitrage to ensure fundamental efficiency will be further tested, and we can expect information overload to result in a greater degree of persistent mispricing. At the very least, the transaction costs of the trading necessary to bring security prices in line with fundamental value could be significant.

Before drawing any firm conclusions about the impact of information overload on security prices and market efficiency, we need more data. We need more data about how people search and process information and make decisions, and we need more data about how information is incorporated into security prices.<sup>309</sup> As Professors Gordon and Kornhauser put it: “[The ECMH] should be embedded in a general model that simultaneously explains both investors’ decisions to acquire information and the process of market aggregation of information held by investors.”<sup>310</sup> Extensive studies show sustained mispricings and inefficiencies in capital markets, although more

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307. See Gilson & Kraakman, *supra* note 19, at 594 (discussing the cost of processing information).

308. It is important to note that information overload is not the only reason people might make mistakes processing information. Valuing securities requires a person to consider a wide array of information about a company, its industry, and macroeconomic conditions. Any time a person, even an expert, attempts to make a complex decision under uncertainty, there is an opportunity for error.

309. SHLEIFER, *supra* note 126, at 27 (explaining that behavioral finance is “still in its infancy”).

310. Gordon & Kornhauser, *supra* note 20, at 787.

empirical and theoretical finance work is needed looking specifically at the effects of information overload.<sup>311</sup>

The tentative suggestion of information overload, though, is provocative. Capital markets might be more, not less, informationally efficient and fundamentally efficient if less, not more, information is available. Information overload, along with the entire field of behavioral finance, could have important implications for how we regulate capital markets, perhaps first and foremost by raising questions about those features of securities regulation premised on the ECMH.<sup>312</sup> Even proponents of the ECMH realize that it is not “strictly valid.”<sup>313</sup> Nonetheless, it is too early to eulogize the ECMH. Given the apparent indeterminacy of investor psychology, the ECMH might be the most accurate model we have, at least for the time being; and even when investor psychology is fully factored in, capital markets might turn out to be efficient enough to continue as a useful basis for policymaking.

## VI. CONCLUSION

One of the key pillars undergirding the federal securities laws—that investors effectively process information—is under pressure. An extensive literature shows that investors and other securities market participants are subject to cognitive biases and, because of bounded rationality, adopt heuristics in making investment decisions. My focus here has been on the risk of information overload—the risk that investors will actually make less accurate decisions in the face of more information as they adopt less complicated decision strategies in an effort to simplify their investment decisions. I have tried to provide a framework for thinking about information overload and how it fits within the overall structure of securities regulation. At bottom, information overload raises doubts about the effectiveness of the disclosure philosophy at the core of the federal securities laws. Investors might be better off if the mandatory disclosure system were scaled back by deleting certain disclosure requirements. Solving information overload is not just about deleting trivial disclosure items, however. Some material disclosures might be worth putting on the chopping block too.

My conclusions and policy prescriptions are tentative, given the state of our understanding of investor psychology and decision making. A number of

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311. See, e.g., Daniel et al., *supra* note 265; Hirshleifer & Teoh, *supra* note 123; Hirshleifer et al., *supra* note 123; Libby et al., *supra* note 265; see also *supra* note 126.

312. See *supra* notes 18-20.

313. Fama, *supra* note 19, at 410.

concerns would admittedly need to be addressed before revamping the federal mandatory disclosure regime to require less disclosure. For example, what disclosure items should be deleted? To which market participants should disclosure be tailored? What message would scaling back the disclosure system send to investors? How would investor confidence be impacted? What about the role of disclosure in reducing agency costs? And, perhaps most important, are investors overloaded and, if so, what about the expert filters? Nonetheless, I have two suggestions. First, the SEC and others should collect additional empirical data so that we have a better understanding of investor behavior and can more effectively factor how investors and securities market professionals really act and behave into securities regulation. We know that investors, as well as the expert filters, are not perfectly rational, but we do not know enough about how people actually behave to justify changing the federal securities laws significantly. Second, the SEC should continue requiring companies to present information in a way that makes it more accessible and easier to process. I am not sure any other regulatory steps are warranted now in response to the risk of information overload or behavioral finance more generally.

The most important point to take away from this Article is that securities regulation needs to focus to a greater extent on the user of information. For the federal mandatory disclosure system—or any disclosure-based regulatory regime—to work effectively, regulators and policy makers need to focus on how users process information and make decisions. In short, investor psychology matters. It is not enough to require more and more disclosure without more carefully considering how the information is used by investors, analysts, brokers, arbitrageurs, and other market participants. My goal is not to suggest that we scrap the mandatory disclosure system. Rather, my goal is to suggest possibilities for getting the most out of the federal securities laws. It might be that we get more out of disclosure with less of it.