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### The Essential Role of Securities Regulation

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## THE ESSENTIAL ROLE OF SECURITIES REGULATION

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GIDEON PARCHOMOVSKY ††

### ABSTRACT

*This Article posits that the essential role of securities regulation is to create a competitive market for sophisticated professional investors and analysts (information traders). The Article advances two related theses—one descriptive and the other normative. Descriptively, the Article demonstrates that securities regulation is specifically designed to facilitate and protect the work of information traders. Securities regulation may be divided into three broad categories: (i) disclosure duties; (ii) restrictions on fraud and manipulation; and (iii) restrictions on insider trading—each of which contributes to the creation of a vibrant market for information traders. Disclosure duties reduce information traders' costs of searching and gathering information. Restrictions on fraud and manipulation lower*

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*information traders' cost of verifying the credibility of information, and thus enhance information traders' ability to make accurate predictions. Finally, restrictions on insider trading protect information traders from competition from insiders that would undermine information traders' ability to recoup their investment in information. Normatively, the Article shows that information traders can best underwrite efficient and liquid capital markets, and, hence, it is this group that securities regulation should strive to protect. Our account has important implications for several policy debates. First, our account supports the system of mandatory disclosure. We show that, although market forces may provide management with an adequate incentive to disclose at the initial public offering (IPO) stage, they cannot be relied on to effect optimal disclosure thereafter. Second, our analysis categorically rejects calls to limit disclosure duties to hard information and self-dealing by management. Third, our analysis supports the use of the fraud-on-the-market presumption in all fraud cases even when markets are inefficient. Fourth, our analysis suggests that in cases involving corporate misstatements, the appropriate standard of care should, in principle, be negligence, not fraud.*

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## INTRODUCTION

Any serious examination of the role and function of securities regulation must sidestep the widespread, yet misguided, belief that securities regulation aims at protecting the common investor.<sup>1</sup> Securities regulation is not a consumer protection law. Rather, scholarly analysis of securities regulation must proceed on the assumption that the ultimate goal of securities regulation is to attain efficient financial markets and thereby improve the allocation of resources in the economy.<sup>2</sup> Accepting this assumption, however, raises an important question: how precisely does securities regulation promote market efficiency? Surprisingly, this pivotal question has never been fully answered.<sup>3</sup> This Article seeks to redress this critical omission by providing a unifying general theory that explicates and clarifies the essential role of securities regulation.<sup>4</sup>

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1. For a long time, courts focused on protecting the ordinary or small investor. *See, e.g.*, *Schlesinger Inv. P'ship v. Fluor Corp.*, 671 F.2d 739, 743 (2d Cir. 1982) (“The Williams Act was meant to protect the ordinary investor.”); *Feit v. Leasco Data Processing Equip. Corp.*, 332 F. Supp. 544, 565 (E.D.N.Y. 1971) (“[P]rospectuses should be intelligible to the average small investor.”). Similarly, Congress also focused on ordinary investor protection for many years. *See, e.g.*, H.R. REP. NO. 73–85, pt. 1 (1933) (legislative history of Securities Acts) (“The purpose of the legislation . . . is to protect the public with the least possible interference to honest business.”); H.R. REP. NO. 73-1383, pt. 2, at 5 (1934) (“As a complex society so diffuses . . . the financial interests of the ordinary citizen that he . . . cannot personally watch the managers of all his interests . . . it becomes a condition of the very stability of that society that its rules of law . . . protect that ordinary citizen’s dependent position.”). Some commentators criticize this focus on the ordinary investor without offering a coherent alternative. *See, e.g.*, Ralph K. Winter, *On “Protecting the Ordinary Investor,”* 63 WASH. L. REV. 881, 882–83 (1988) (criticizing the monolithic view of investors’ protection and describing varying levels of protection needed by different groups of investors).

2. *See* Jeffrey N. Gordon & Lewis A. Kornhauser, *Efficient Markets, Costly Information, and Securities Research*, 60 N.Y.U. L. REV. 761, 802 (1985) (“[T]he law should select rules promoting the efficiency of financial markets relative to the optimal information set.”).

3. *See, e.g.*, Robert M. Bushman, Joseph D. Piotoski & Abbie J. Smith, *What Determines Corporate Transparency?*, 42 J. ACCT. RES. 207, 208 (2004) (noting that, although information costs play a central role in financial theories concerning economic development and efficiency, “little research considers how and why information systems, per se, vary around the world”).

4. It should be noted that our analysis focuses exclusively on publicly traded securities on stock exchanges. We do not address the effect of securities regulation on transactions outside of stock exchanges or on transactions involving nonfungible assets.

The main thesis of this Article posits that the role of securities regulation is to create and promote a competitive market for information traders. Drawing on this thesis, we construct a complete account of the mechanisms through which securities regulation promotes efficient financial markets and offer a coherent legal framework for analyzing securities regulation policy. Although other scholars who explored specific issues in securities regulation touched upon our main thesis, none, to date, has proceeded to offer a general theory that explains securities regulation as a whole.<sup>5</sup>

The two main determinants of market efficiency are share price accuracy and financial liquidity.<sup>6</sup> More accurate share prices and more liquid trading enhance the efficiency of financial markets.<sup>7</sup> Given the importance of incorporating information into prices and providing liquidity in trading, the question for policymakers is: who should be entrusted with performing these tasks? There are several groups of market participants among whom policymakers can choose. The first consists of *insiders*, who possess nonpublic information, and have the ability to process and analyze general market and firm-specific information. The second group is *information traders*, who specialize in gathering and analyzing general market and firm-specific information. The third group is *liquidity traders*, who buy and hold a portfolio of stocks based on consumption/saving considerations independently of general market or firm-specific information. The final group is *noise traders*, who act irrationally, falsely believing that they possess some valuable informational advantage or superior

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5. See John C. Coffee, Jr., *Market Failure and the Economic Case for a Mandatory Disclosure System*, 70 VA. L. REV. 717, 728–29 (1984) (focusing on sell-side analysts while justifying mandatory disclosure); Zohar Goshen & Gideon Parchomovsky, *On Insider Trading, Markets, and “Negative” Property Rights in Information*, 87 VA. L. REV. 1229, 1249–51 (2001) (focusing on analysts while justifying the restriction on insider trading); Paul Mahoney, *Precaution Costs and the Law of Fraud in Impersonal Markets*, 78 VA. L. REV. 623, 623–24 (1992) (focusing on informed traders while criticizing the fraud-on-the-market theory).

6. See Francis A. Longstaff, *Optimal Portfolio Choice and the Valuation of Illiquid Securities*, 14 REV. FIN. STUD. 407, 407–08 (2001) (noting the importance of liquidity); Jonathan R. Macey & David D. Haddock, *Shirking at the SEC: The Failure of the National Market System*, 1985 U. ILL. L. REV. 315, 325–26 (1985) (explaining the importance of liquidity); cf. Ken Nyholm, *Estimating the Probability of Informed Trading*, 25 J. FIN. RES. 485, 504 (2002) (“[L]ow-volume stocks are found to be much slower than high-volume stocks in adapting quotes to new full-information levels.”). See generally Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. FIN. 383 (1970) (emphasizing the importance of share price accuracy).

7. See Ronald Gilson & Reinier R. Kraakman, *The Mechanisms of Market Efficiency*, 70 VA. L. REV. 549 (1984)

trading skills.<sup>8</sup> In light of the inability of noise traders to promote market efficiency and the indifference of liquidity traders to accurate pricing,<sup>9</sup> one must narrow the list to two groups: insiders and information traders.

A comparison of the two groups reveals that information traders operate in a highly competitive environment, whereas insiders operate under quasi-monopolistic conditions. In addition, information traders enjoy economies of scale and scope in gathering and analyzing general market and firm-specific information; generate positive externalities for the information market; cannot manipulate business decisions or take advantage of timing when using firm-specific information; and reduce corporate governance agency costs. For all these reasons, the policy behind securities regulation is to protect the interests of information traders over those of insiders (and other market participants).

This Article agrees with this policy and advances two related policy justifications to support it—one descriptive and the other normative. Descriptively, this Article contends that securities regulation is specifically designed to facilitate and protect the work of information traders. Furthermore, it shows that information traders are the only group that benefits from securities regulation. The remaining groups—liquidity traders, noise traders and insiders—either cannot or do not need to avail themselves of the benefits that securities regulation provides. For liquidity traders and noise traders, securities regulation is of little practical relevance. Insiders, on the other hand, are made worse off by securities regulation. The only group positively affected is the information traders.

Normatively, this Article argues that information traders are the group that can best underwrite efficient and liquid capital markets, and, hence, it is *this* group securities regulation *should* strive to protect. By protecting information traders, securities regulation enhances efficiency and liquidity in financial markets. This protection, in turn, benefits other types of investors by reducing transaction costs and increasing liquidity. Furthermore, by protecting information traders, securities regulation represents the highest form of market integrity, which ensures accurate pricing and superior liquidity to all

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8. Another group—market makers—is added later in the Article to simplify the model. See *infra* Part I.B.

9. For detailed discussion, see *infra* Part I.

investors.<sup>10</sup> In this way, securities regulation improves the allocation of resources in the economy.<sup>11</sup>

The law of securities regulation may be divided into three broad categories: disclosure duties, restrictions on fraud and manipulation, and restrictions on insider trading.<sup>12</sup> Each category facilitates the activities of information traders in a distinct way. Disclosure duties reduce their information gathering costs.<sup>13</sup> Restrictions on fraud and manipulation simultaneously lower information traders' cost of verifying the credibility of information, and improve their ability to make accurate predictions.<sup>14</sup> Finally, restrictions on insider trading protect information traders from competition from insiders that would undercut the ability of information traders to recoup their investment in information, driving information traders out of the market.<sup>15</sup> Thus, the aggregate effect of securities regulation is to create and secure a competitive market for information traders.

Moreover, a competitive market for information traders reduces management agency costs. In cases of conflict of interest between management and shareholders, management is likely to abuse its

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10. See Marcel Kahan, *Securities Regulations and the Social Costs of Inaccurate Stock Prices*, 41 DUKE L.J. 977, 988 (1992).

11. See, e.g., John F. Barry III, *The Economics of Outside Information and Rule 10b-5*, 129 U. PA. L. REV. 1307, 1316 (1981) (citing the goal of capital markets as "a pareto optimal resource allocation"); Victor Brudney, *Insiders, Outsiders, and Informational Advantages under the Federal Securities Laws*, 93 HARV. L. REV. 322, 341 (1979) ("The market will thus function efficiently to allocate savings to enterprises which are more profitable and divert them from enterprises which are less profitable."); Frank H. Easterbrook & Daniel R. Fischel, *Auctions and Sunk Costs in Tender Offers*, 35 STAN. L. REV. 1, 13-15 (1982); Merritt B. Fox et al., *Law, Share Price Accuracy and Economic Performance: The New Evidence*, 102 MICH. L. REV. 331, 367-68 (2003) (finding that more accurate share prices enhance the performance of the real economy); Ross Levine, *Financial Development and Economic Growth: Views and Agenda*, 35 J. ECON. LITERATURE 688, 720-21 (1997) (examining the direct correlation between financial development and economic growth).

12. It is customary to group insider trading under "fraud and manipulation." However, for reasons explained next in the text, we differentiate between insider trading and other forms of fraud relating to distorted information and trading.

13. See generally Paul M. Healy & Krishna G. Palepu, *Information Asymmetry, Corporate Disclosure, and the Capital Markets: A Review of the Empirical Disclosure Literature*, 31 J. ACCT. & ECON. 405 (2001) (conducting empirical research regarding the relationship between disclosure and information costs in capital markets settings).

14. See *infra* Part III.C.

15. See Goshen & Parchomovsky, *supra* note 5, at 1258 ("In the absence of pre-emptive competition from insiders, analysts will enter the market.").

power to further its interests at the expense of those of shareholders.<sup>16</sup> The management agency cost might take the form of a breach of the duty of loyalty (e.g., self-dealing), or a breach of the duty of care (e.g., inefficient investments).<sup>17</sup> Disclosure duties help reveal management actions. Although breaches of the duty of loyalty attract greater media attention,<sup>18</sup> breaches of the duty of care are much more prevalent and their social cost is much higher.<sup>19</sup> Although courts can discern fraud or illegal transfers, they are ill-equipped to evaluate the quality of business decisions.<sup>20</sup> As a result, judicial oversight can curtail breaches of the duty of loyalty but not breaches of the duty of care. In fact, in reviewing business decisions, courts employ the business judgment rule, which calls for minimal intervention.<sup>21</sup> Thus,

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16. See Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure*, 3 J. FIN. ECON. 305, 354–55 (1976) (describing the agency costs of outside vs. inside equity).

17. See, e.g., *Graham v. Allis-Chalmers Mfg. Co.*, 188 A.2d 125, 130 (Del. 1963) (finding directors not liable for “losses suffered by their corporations by reason of their gross inattention to the common law duty of actively supervising and managing the corporate affairs”); Principles of Corporate Governance § 4.01 (outlining the duty of care of directors and officers and establishing the business judgment rule); MODEL BUS. CORP. ACT § 8.30 (1984); STEPHEN M. BAINBRIDGE, *CORPORATION LAW AND ECONOMICS* 286–304 (2002).

18. See, e.g., Mary Flood, *Court denies request for Enron document release*, CHRON.COM, Oct. 1, 2003, <http://www.chron.com/disp/story.mpl/special/enron/2129992.html> (reporting on the media’s effort to get transcripts of the Enron criminal trial).

19. See Michael C. Jensen, *The Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers*, 76 AM. ECON. REV. 323, 323–24 (1986) (describing the efficiency cost in free cash flow and how debt motivates organizational efficiency); Michael C. Jensen, *Eclipse of the Public Corporation*, 67 HARV. BUS. REV., 61, 64 (1989) (explaining that, in industries of slow long-term growth, management is pressured to waste resources).

20. Mark J. Roe, *Corporate Law’s Limits*, 31 J. LEGAL STUD. 233, 243, 270–71 (2002).

21. See, e.g., *Norlin Corp. v. Rooney, Pace Inc.*, 744 F.2d 255, 264–65 (2d Cir. 1984) (affirming preliminary injunction and holding that the business judgment rule does not apply to defendant’s action due to a prima facie showing of self-interest); *Gearhart Indus. Inc. v. Smith Int’l Inc.*, 741 F.2d 707, 721 (5th Cir. 1984) (citing rule barring liability of corporate directors for “mistakes of business judgment that damage corporate interests”); *Berwald v. Mission Dev. Co.*, 185 A.2d 480, 482–83 (Del. 1962) (affirming summary judgment for corporation, thus denying minority shareholder-plaintiffs’ motion for liquidation and distribution of assets); *Hunter v. Roberts, Throp & Co.*, 47 N.W. 131, 134 (Mich. 1890) (noting that a court should “ponder well” before compelling payment of a dividend where “each individual director testifies that the corporation cannot pay a dividend without serious injury to the business of the corporation”); *Kamin v. Am. Express Co.*, 383 N.Y.S.2d 807, 810 (Sup. Ct. 1976), *aff’d* 387 N.Y.S.2d 993 (App. Div. 1976) (“[T]he question of whether or not a dividend is to be declared or a distribution of some kind should be made is exclusively a matter of business judgment for the board of directors.”); *In re Spering*, 71 Pa. 11, 21 (1872) (finding “no judgment or decree which has held directors to account except when they have themselves been personally guilty of some fraud on the corporation, or have known and connived at some fraud in others, or where such fraud might have been prevented had they given ordinary attention to their duties”).

the task of curbing breaches of the duty of care is largely left to the market and to social norms.<sup>22</sup> Intense coverage by analysts—a subgroup of information traders—is the most effective antidote to management agency costs.<sup>23</sup> In contrast to judges, analysts are capable of evaluating the quality of managements' business decisions and reflect their opinions in stock prices.

Our account of the role of securities regulation also sheds new light on several ongoing policy debates concerning the role and content of securities regulation. First, our account supports a system of mandatory disclosure.<sup>24</sup> We show that although market forces may provide management with an adequate incentive to disclose at the initial public offering (IPO) stage, they cannot be relied on to effect optimal disclosure thereafter. Whereas at the IPO stage there exists asymmetric information between the seller (the corporation and its management) and the buyers (potential shareholders), in the secondary market, there is no asymmetric information between sellers (actual shareholders) and buyers (potential shareholders); all nonpublic information lies with management. Thus, because information traders compete amidst equally uninformed sellers and buyers, they cannot induce optimal disclosure from corporations by “assuming the worst” about corporations that provide suboptimal disclosure. Because the interest of management diverges from that of shareholders, information traders cannot discipline “reticent” management by lowering share prices. Thus, optimal disclosure must be mandated.

Second, our analysis categorically rejects the calls to limit disclosure duties to hard information<sup>25</sup> and self-dealing by management.<sup>26</sup> These calls are predicated on the view that securities regulation should only be concerned with minimizing agency costs,

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22. See Edward B. Rock & Michael L. Wachter, *Islands of Conscious Power: Law, Norms, and the Self-Governing Corporation*, 149 U. PA. L. REV. 1619, 1623–24 (2001) (describing how the business judgment rule allows nonlegally enforceable rules and standards such as the duty of care to properly govern and reduce third-party adjudication).

23. See, e.g., John A. Doukas et al., *Security Analysis, Agency Costs, and Company Characteristics*, 56 FIN. ANALYSTS. J. 54, 61 (2000) (supplying empirical evidence showing that security analysis acts as a monitor to reduce the agency costs associated with separation of ownership and control).

24. See *infra* Part III.A.

25. Hard information refers to facts that are easy to verify, such as past information, while soft information refers to facts that are hard to verify, such as future plans and projections.

26. See *infra* Part II.E.

not with achieving accurate pricing. It seems, however, that this proposal assumes only one type of management agency cost: breaches of the duty of loyalty. Once breaches of the duty of care are added to the analysis, it becomes evident that narrowing disclosure duties would in fact hamper the ability of information traders to minimize total management agency costs.

Third, our analysis supports the use of the fraud-on-the-market (FOTM) presumption even when markets are inefficient.<sup>27</sup> Several scholars argue that the finding of certain behavioral economics studies, which show that markets are *inefficient*, eliminates the theoretical justification for the fraud-on-the-market presumption.<sup>28</sup> Our model, however, shows that the justification for using the fraud-on-the-market theory is even stronger when markets are inefficient. Information traders are the agents who render markets efficient. Therefore, when markets are inefficient, it is even more crucial to aid and protect information traders.

Fourth, our analysis similarly rejects the argument that courts should abolish the fraud-on-the-market presumption when markets *are* efficient, and reinstate, in its stead, common law reliance.<sup>29</sup> Critics of the fraud-on-the-market presumption have claimed that it overdeters voluntary disclosure by management because it forces corporations to compensate not only information traders who relied on misstatements, but also liquidity traders who were not harmed.<sup>30</sup> We show that once the full scope of the harm from misstatements is taken into consideration, no overdeterrence results. Misstatements create several types of harms. They increase verification costs for information traders, raise liquidity costs for liquidity traders, and aggravate agency costs for all corporations. The fraud-on-the-market presumption ensures compensation that reflects all these harms. In fact, we show that given that management is the cheapest cost avoider of the harm resulting from misstatements, the appropriate standard of care should, in principle, be negligence, not fraud.

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27. See *infra* notes 223–26 and accompanying text.

28. Paul A. Ferrillo et al., *The “Less Than” Efficient Capital Markets Hypothesis: Requiring More Proof From Plaintiffs in Fraud-On-The-Market Cases*, 78 ST. JOHN’S L. REV. 81, 107–16 (2004); see also *infra* notes 211–14 and accompanying text.

29. See *infra* notes 227–28 and accompanying text.

30. See Mahoney, *supra* note 5, at 656 (“The reliance filter is an appropriate one because it removes that subset of plaintiffs whose ex ante behavior will be altered least by the denial of recovery—namely, those traders who either ignore or independently verify, and therefore do not rely on misstatements.”).

Structurally, this Article proceeds in three parts. Part I explores the mechanisms by which financial markets achieve efficiency and liquidity. It pays special attention to the role of information traders in improving financial markets and explains why securities regulation should favor information traders over other market participants and ensure the development of a vibrant market for information traders. Part II highlights the ways in which securities regulation law creates and supports a market for information traders. Part III discusses the normative implications of our analysis. We explain the ramifications of our analysis for the debate on mandatory disclosure and provide a new justification for the fraud-on-the-market presumption.

### I. THE MARKET MECHANISM

Efficient markets are characterized by accurate pricing and high liquidity.<sup>31</sup> Accurate pricing is essential for achieving efficient allocation of resources in the economy.<sup>32</sup> Accurate pricing is also important to the market for corporate control, for monitoring and controlling the management agency problem, and for the allocation of resources through initial public offerings and secondary offerings.<sup>33</sup> Liquid markets benefit the economy by reducing the cost of transacting and the risk associated with investments.<sup>34</sup> Markets are liquid when traders can buy or sell large quantities, immediately, without causing a substantial price effect. This liquidity is a function of time, price and quantity.<sup>35</sup> In the remainder of this Part, we present a market model that explains the processes by which markets attain efficiency and liquidity.

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31. See Gilson & Kraakman, *supra* note 7, at 554.

32. See *supra* note 11 and accompanying text.

33. For a detailed analysis of the effects of efficient pricing, see generally Kahan, *supra* note 10.

34. See *id.* at 1019–22 (describing the inaccuracies and social costs resulting from reduced liquidity). See generally Yakov Amihud, *Illiquidity and Stock Returns: Cross-Section and Time Series Effects*, 5 J. FIN. MARKETS 31 (2002) (examining the relationship between stock returns and stock liquidity). For discussion on higher transacting costs in the form of larger bid-ask spreads, see Harold Demsetz, *The Cost of Transacting*, 82 Q.J. ECON. 33, 35–36 (1968) (“On the NYSE two elements comprise almost all of transaction cost—brokerage fees and ask-bid spreads.”) and Lawrence R. Glosten & Lawrence E. Harris, *Estimating the Components of the Bid/Ask Spread*, 21 J. FIN. ECON. 123, 138, 141 (1988) (presenting a model analyzing transitory and adverse selection components of the bid-ask spread).

35. Laurie S. Hodrick & Pamela C. Moulton, *Liquidity: Considerations of a Portfolio Manager 1–2* (Dec. 16, 2005) (unpublished manuscript, on file with the *Duke Law Journal*), available at <http://ssrn.com/abstract=449540>.

A. *Efficiency and Liquidity in Financial Markets*

1. *Incorporating Information into Prices.* In efficient markets, information about the value of firms is incorporated quickly and accurately into stock prices.<sup>36</sup> This process involves three different tasks: information production; accuracy verification; and finally, pricing the information. *Information Production* involves searching for currently unknown information that affects prices. *Accuracy verification* involves actions necessary to confirm the reliability of the information source and the credibility of the information. *Pricing information* requires analyzing the information to determine its value, and then trading based on discrepancies between price and value.

Information production involves two different types of information: firm-specific information and general market information. *Firm-specific information* includes a firm's attributes such as management quality, business plans and past record, financial position, and research and development potential. *General market information* includes information about the general conditions in which the firm functions, such as the prospect of competitors, the industry as a whole, and the local and global economy.

Verification of the accuracy of information involves two kinds of information: explicit and implicit information. *Explicit information* includes all types of direct firm-specific and general market information, such as financial reports, conference calls and news. *Implicit information* comprises all activities that indirectly convey information, such as price movements, trading volume, trader identity and order flows.

Pricing information consists of two distinct activities: analyzing information and trading. *Analyzing information* requires analyzing both firm-specific and general market information. Firm-specific information cannot be accurately priced in isolation because one cannot evaluate the future prospects of a corporation without knowledge about the estimated course of the local and global economies. *Trading*, the act by which information is transmitted to the market, can take one of two forms: direct trading, or indirect trading through recommendations and advice to others who trade.

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36. For a comprehensive description of the processes by which markets attain efficiency, see generally Gilson & Kraakman, *supra* note 7.

2. *Providing Liquidity in Trading.* For markets to be liquid there must exist sufficient trading to enable most buyers and sellers to consummate transactions expeditiously. Liquidity is achieved on account of three principal reasons: portfolio adjustments, consumption/investment adjustments, and divergence of opinions.<sup>37</sup> *Portfolio adjustments* provide liquidity when managers change portfolio composition to conform with investors' predetermined risk and return levels. *Consumption/investment adjustments* create liquidity by effecting shifts of funds from investment to consumption and vice versa. *Divergence of opinions* among market players creates liquidity by prompting transactions between market players with different valuations of the same security.<sup>38</sup>

### B. *The Market Players*

We model the capital market as consisting of five main groups: insiders, information traders, liquidity traders, noise traders, and market makers. *Insiders* have access to inside information due to their proximity to the firm; they also have the knowledge and ability to price and evaluate this information. Insiders can produce and price general market information, as well as inside information. Insiders' narrow focus on their own corporation, however, prevents them from exploiting economies of scale and scope in gathering, evaluating and pricing general market information.<sup>39</sup> Moreover, due to their proximity to the firm, insiders cannot objectively assess the value of their own business decisions.<sup>40</sup>

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37. Hans R. Stoll, *Alternative Views of Market Making*, in MARKET MAKING AND THE CHANGING STRUCTURE OF THE SECURITIES INDUSTRY 67, 67–68 (Yakov Amihud et al. eds., 1985) (“[T]rading arises . . . either because the investor has information that leads him to believe the fundamental price of the security has changed or because he desires liquidity to meet consumption or savings objectives or otherwise wishes to rebalance his portfolio.”).

38. Such transactions are due in part to irrational trading inspired by fads and rumors or baseless information. In these cases, the traders (falsely) believe that they possess better valuations of the traded stocks than their counterparts.

39. In addition, insiders suffer difficulties in processing information. See H. Nejat Seyhun, *The Information Content of Aggregate Insider Trading*, 61 J. BUS. 1, 2–3 (1988) (indicating that insiders cannot always distinguish between the effects of firm-specific and economy-wide factors).

40. See Donald Langevoort, *Organized Illusions: A Behavioral Theory of Why Corporations Misperceive Stock Market Investors (and Commit Other Social Harms)*, 146 U. PA. L. REV. 101, 157 n.196 (1997); Jonathan R. Macey & Arnoud W.A. Boot, *Monitoring Corporate Performance: The Role of Objectivity, Proximity and Adaptability in Corporate Governance*, 89 CORNELL L. REV. 356, 357 (2004) (discussing the corporate management monitoring tradeoff between objectivity and proximity).

*Information traders*, the second group, lack access to inside information, but are willing and able to devote resources to gathering and analyzing information as a basis for their investment decisions. Information traders comprise two subgroups: sophisticated professional investors and analysts. *Sophisticated professional investors* comprise a wide range of institutional investors, money managers, and other market professional players, all of whom rely, to varying degrees, on some sort of financial or business analytical products as a basis for their investment decisions. *Analysts* include three subgroups: Sell-side analysts, buy-side analysts, and independent analysts.<sup>41</sup> *Sell-side analysts* are employed by investment banks to follow and evaluate certain stocks. Sell-side analysts disclose their analytical work to the market for free, and do not attempt to profit by trading on their valuations. This coverage of sell-side analysts is essentially a service to the clients of the investment bank. The coverage of sell-side analysts aims at attracting investors to the covered stocks and firms to the investment bank. Accordingly, sell-side analysts indirectly support the investment banking divisions that underwrite IPOs. *Buy-side analysts* are employed by large institutional investors, such as mutual funds, hedge funds and pension funds, to manage investment portfolios. These analysts keep their analytical products confidential and profit through trading based on discrepancies between their valuation and the market price. In performing their work, buy-side analysts use the analytical products of the sell-side analysts as one source of information among the other sources they use. *Independent analysts* are not associated with an investment bank and produce analytical products which they sell to their clients through some method of subscription to their service. We group the whole variety of sophisticated professional investors and the three types of analysts under the category of “information traders.”

Like insiders, information traders have the ability and knowledge to collect, evaluate and price firm-specific and general market information. But unlike insiders, information traders can exploit economies of scale and scope when evaluating and pricing information because of their broader focus on industries and markets. Knowledge gained with respect to one corporation in a particular

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41. See John L. Orcutt, *Investor Skepticism v. Investor Confidence: Why the New Research Analyst Reform Will Harm Investors*, 81 DENV. U. L. REV. 1, 6-10 (2002) (providing an overview of categories of research analysts).

industry can often be used with respect to another, and knowledge pertaining to the economy as a whole is useful in analyzing all corporations.<sup>42</sup>

The third group of market players in capital markets, *liquidity traders*, does not collect and evaluate information; rather, investment by this group reflects the allocation of resources between savings and consumption.<sup>43</sup> Unwilling to devote resources to constant gathering and analysis of new information, rational utility traders follow a strategy of buying and holding a portfolio of stocks (usually buying some index of stocks).<sup>44</sup>

*Noise traders*, the fourth group, act irrationally and follow differing methods of investment either as individuals or as a group.<sup>45</sup> Noise traders often believe that they are in possession of valuable information, and invest *as if* they are information traders. Market participants cannot separate noise traders from true information traders, a task complicated by the wide spectrum of noise trading activity. At the lowest level, there exist *irrational traders*, who follow fads, rumors, and investment strategies that bear no economic rationale, such as chasing random price movements in day trading. At the highest level, one finds *stock pickers*, who collect and evaluate information similarly to information traders and attempt to make economically rational and informed investment decisions. However, they are less efficient than information traders in performing these

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42. Anat R. Admati & Paul Pfleiderer, *Forcing Firms to Talk: Financial Disclosure Regulation and Externalities*, 13 REV. FIN. STUD. 479, 480 (2000); Brian Bushee & Christian Leuz, *Economic Consequences of SEC Disclosure Regulation: Evidence from the OTC Bulletin Board*, 39 J. ACCT. & ECON. 233, 237 (2005).

43. Another group that falls under this category is *arbitraders*, who search for similar assets that are trading for different prices and trade to capture the difference. Arbitraders only care about the relative prices of similar assets. Arbitrage trade is triggered by discrepancies between the prices of the two assets, and the true value of either asset is irrelevant. Because the information about the true value of the corporation is irrelevant for this group, we label them as liquidity traders.

44. See David D. Haddock & Jonathan R. Macey, *A Coasian Model of Insider Trading*, 80 NW. U. L. REV. 1449, 1453 (1986) (demonstrating that, neglecting the impact of managerial salary and motivation, shareholders with diversified portfolios who follow a “buy and hold” strategy are “indifferent about whether the insiders of the firms in which they own shares are banned from trading”).

45. On noise traders in capital markets, see generally J. Bradford De Long et al., *Noise Trader Risk in Financial Markets*, 98 J. POL. ECON. 703 (1990) (modeling an asset market in which the beliefs of noise traders affect prices and earn higher expected returns than those of rational traders, and concluding that the risk produced by noise traders’ unpredictable opinions reduces the attractiveness of arbitrage).

tasks. As a result, stock pickers are “slower” at gathering and analyzing *all* relevant information and the accuracy of their evaluations is inferior to that of information traders. Indeed, stock pickers mostly rely on old information that is already reflected in price, such as published analytical products of sell-side analysts and information from financial websites, television channels, newspapers, and magazines.<sup>46</sup> By avoiding a buy and hold strategy, stock pickers both lose more frequently to informed traders and incur wasteful transaction costs. Thus, although stock pickers seem to be rational in responding to economically relevant information, they are not. Accordingly, we consider them noise traders.<sup>47</sup>

Finally, *market makers* are professionals who facilitate trading and maintain a market for securities by offering to buy or sell securities on a regular basis. They post a buying offer (bid price) and a selling offer (ask price), and serve as the counter party for investors who want to trade. Market makers are well informed about the demand and supply of a security because they use this information to set the bid and ask prices (widely known as the *bid-ask spread*).<sup>48</sup> But they are not as well informed as information traders regarding firm-specific information because they do not invest as much time and effort in collecting and analyzing this information.<sup>49</sup> Given that they

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46. See Sok Tae Kim et al., *Market Structure, Informed Trading, and Analysts' Recommendations*, 32 J. FIN. & QUANTITATIVE ANALYSIS 507, 507 (1997) (finding, based on empirical research, that any valuable information contained in analysts research is reflected in stock prices within five to fifteen minutes of the market opening, and long before the research is released publicly).

47. The classification we use is functional in the sense that some market players will sometime be information traders and sometime noise traders, depending on their actions. Indeed, some noise traders will always be noise traders because of intellectual or educational deficiencies. However, some information traders will try to beat out noise traders in their own game by joining the herd of noise traders and engaging in noise trading.

48. See Stanislav Dolgoplov, *Insider Trading and the Bid-Ask Spread: A Critical Evaluation of Adverse Selection in Market Making*, 33 CAP. U. L. REV. 83 (2004) (arguing that insider trading forces market makers to increase the bid-ask spread, which in turn imposes the social loss of higher transaction costs). For a common definition of the bid-ask spread, see NASD—Glossary of Terms—B, [http://www.nasd.com/Resources/Glossary/NASDW\\_010868](http://www.nasd.com/Resources/Glossary/NASDW_010868) (last visited Feb. 16, 2006) (“[The bid/ask spread is t]he difference between the price at which a Market Maker is willing to buy a security (bid), and the price at which the firm is willing to sell it (ask). The spread narrows or widens according to the supply and demand for the security being traded.”).

49. See I.R.C. Hirst, *A Model of Market-Making with Imperfect Information*, 1 MANAGERIAL & DECISION ECON. 12, 13 (1980) (describing how the “speculator” (information trader) has better information than the “jobber” (market maker)). It is claimed, however, that while market makers on the New York Stock Exchange do not engage in security analysis,

trade largely in response to the buy and sell orders of other market players, yet do not rely on independent valuations, market makers are neither informed traders nor liquidity traders.

### C. *The Pricing Process*

Insiders and information traders detect discrepancies between value and price based on the information they possess. They then trade to capture the value of their informational advantage.<sup>50</sup> When they observe an undervaluation, they buy, thereby raising the price; conversely, when they spot overvaluation they sell, thereby causing the price to drop. Because price changes are always assessed against some calculated value, a trade is triggered when the price change is not justified by currently known information. Given this investment strategy, trading against a party with superior information or based on fraudulent information will result in a loss. Moreover, these risks cannot be diversified away, as *all* trades are triggered by either a price change or the arrival of new information.

Liquidity traders, who trade regardless of new information—i.e., they sell for liquidity or buy for saving—will trade irrespective of the actions of insiders and information traders. If liquidity traders trade in the same manner as do insiders or information traders—i.e., they buy when information traders or insiders buy, or sell when these groups sell—they lose.<sup>51</sup> If liquidity traders trade against insiders or

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NASDAQ market makers do. Ji Chai Lin et al., *External Information Costs and the Adverse Selection Problem: A Comparison of NASDAQ and NYSE Stocks*, 7 INT'L REV. FIN. ANALYSIS 113, 113 (1998). It bears emphasis that we claim neither that market makers are informed nor that they are uninformed as a positive description of the world. We use uninformed market makers only as a simplifying modeling assumption. From our perspective, however, when market makers are informed, we would need a different model in which liquidity traders trade directly with informed traders, and thus losses from trading against a more informed trader are passed directly to liquidity and noise traders. However, the thrust of our arguments in this Article is not altered even if one assumes fully informed market makers.

50. See, e.g., Eugene F. Fama, *Random Walks in Stock Market Prices*, 21 FIN. ANALYSTS J. 55, 75–80 (1965) (describing the process by which market professionals incorporate information into prices).

51. Assume the price of a stock is \$100. Liquidity traders' trading decisions are independent of price. Thus, they will buy and sell at \$100 absent insider trading. Now assume insiders are buying the stock and the price rises to \$110. If liquidity traders are also buying, they will lose as they will have to pay more for the stock. Similarly, when insiders are selling the price will drop to \$90. If liquidity traders are also selling, they will lose as they will have to sell the stock for a lower price.

information traders, they gain.<sup>52</sup> Thus, liquidity traders who follow the strategy of buying and holding a portfolio do not lose, on average, to either insiders or information traders. When they buy a portfolio they lose on some transactions (when they buy together with insiders or information traders) and gain on others (when they buy when insiders or information traders are selling). Likewise, they lose at times and gain at others when they sell the portfolio. On average they earn the market return for the period of their holding.<sup>53</sup> In short, liquidity traders can diversify the risk of trading against more informed traders.<sup>54</sup> Only traders whose trades are triggered by changes in price or changes in information will lose when trading against more informed traders.<sup>55</sup>

Although liquidity traders can diversify away the risk of transacting with more informed traders, they often incur costs associated with illiquidity.<sup>56</sup> In an illiquid market, when a trader wants to sell (or buy) a large quantity of securities she will either have to accept a large drop (or increase) in price or a long execution period. High liquidity, on the other hand, means fast execution of large blocks for a small fee. The main indication of liquidity is the bid-ask spread. Every time liquidity traders trade, they bear the cost of the

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52. Assume the price of a stock is \$100. Liquidity traders would trade regardless of the price. Thus, they will buy and sell at \$100 absent insider trading. Now assume insiders are buying and the price rises to \$110. If liquidity traders are selling, they will gain as they will sell the stock for a higher price. Now assume that insiders are selling and the price drops to \$90. If liquidity traders are buying they will gain as they will have to pay a lower price for the stock.

53. In other words, the “fair play” or “market integrity” rationales do not hold with regard to these investors: they do not expect equal and timely access to information and indeed they are not harmed by not getting it. Robert J. Haft, *The Effect of Insider Trading Rules on the Internal Efficiency of the Large Corporations*, 80 MICH. L. REV. 1051, 1051 (1982) (explaining the “fair play” and the “integrity of the securities markets” rationales); Harry Heller, Chiarella, *SEC Rule 14e-3 and Dirks: “Fairness” versus Economic Theory*, 37 BUS. L.J. 517, 555–56 (1982) (noting that it is doubtful that investors question the integrity of the market due to known differences in information available to investors).

54. The risk of asymmetric information can result from the use of illegal inside information, from fraud (by those who committed the fraud or by those who discovered it ahead of the market), or by legally discovering nonpublic firm-specific or general market information. As long as the asymmetric information affects prices randomly it can be diversified.

55. William K.S. Wang, *Trading on Material Nonpublic Information on Impersonal Stock Markets: Who Is Harmed, and Who Can Sue Whom Under SEC Rule 10b-5?*, 54 S. CAL. L. REV. 1217, 1235–38 (1981).

56. It is clear that informed traders make profits at the expense of someone. In our model, although liquidity traders diversify the risk of asymmetric information, they nonetheless eventually bear the cost of asymmetric information. The market makers who cannot diversify the risk of asymmetric information lose to informed traders and pass these losses to the liquidity traders through the bid-ask spread.

bid-ask spread much like a tax on each transaction. As a result, liquidity traders will either reduce their trading (hold a portfolio for longer periods) to avoid paying the spread too many times, or discount the market price to compensate for bearing the cost of the spread.<sup>57</sup> Therefore, a large bid-ask spread reduces liquidity and increases the cost of capital for firms.

Several factors influence the bid-ask spread, including the total amount of trading and the level of asymmetric information among the traders.<sup>58</sup> The amount of trading directly affects liquidity: the more traders (informed and uninformed) there are the more liquid is the market (and vice versa). Asymmetric information, meanwhile, has an indirect effect on liquidity: market makers, who face the undiversifiable risk of trading with, and losing to, more informed traders, will protect themselves by increasing the bid-ask spread.<sup>59</sup> However, because informed traders will only trade if they stand to make a profit that is greater than the cost imposed upon them by the bid-ask spread, the real cost of the higher bid-ask spread falls on liquidity traders (and noise traders). The effect of asymmetric information on liquidity depends on the number of informed traders and the value of their information. As the number of informed traders increases, and competition among them intensifies, their informational advantage lessens.<sup>60</sup> And the smaller the value of the informational advantage the smaller the bid-ask spread. Thus,

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57. Nicholas L. Georgakopoulos, *Frauds, Markets, and Fraud-on-the-Market: The Tortured Transition of Justifiable Reliance from Deceit to Securities Fraud*, 49 U. MIAMI L. REV. 671, 702–11 (1995).

58. See generally Yan He & Chunchi Wu, *What Explains the Bid-Ask Spread Decline After NASDAQ Reforms?*, 12 FIN. MARKETS, INSTITUTIONS & INSTRUMENTS 347 (2003) (providing evidence that both an decrease in market making costs and an increase in competition contributed to a postreform decline in bid-ask spreads in the NASDAQ); Roger D. Huang & Hans R. Stoll, *The Components of the Bid-Ask Spread: A General Approach*, 10 REV. FIN. STUD. 995 (1997) (identifying order processing, adverse information, and inventory holding cost as the main components of the bid-ask spread); Thomas H. McInish & Bonnie F. Van Ness, *An Intraday Examination of the Components of the Bid-Ask Spread*, 37 FIN. REV. 507 (2002) (reviewing studies demonstrating that asymmetric information and order-processing components affect the bid-ask spread).

59. Michael Welker, *Disclosure Policy, Information Asymmetry, and Liquidity in Equity Markets*, 11 CONTEMP. ACCT. RES. 801, 802 (1995); see also J.C. Bettis et al., *Corporate Policies Restricting Trading by Insiders*, 57 J. FIN. ECON. 191, 191 (2000) (finding that during periods in which corporations prohibit trading by insiders, the bid/ask spread is lower).

60. See Birgül Caramanolis-Çötelli et al., *Are Investors Sensitive to the Quality and the Disclosure of Financial Statements?*, 3 EUR. FIN. REV. 131, 133, 148 (1999) (suggesting that competition among analysts reduces investors' adverse selection costs); He & Wu, *supra* note 58, at 349 (finding greater competition results with increased frequency of quote updates).

liquidity traders are more concerned about liquidity than about accurate pricing.<sup>61</sup>

Because noise traders are active but irrational, their actions are hard to predict. If they act completely randomly they will cancel out the effect of each other on prices, and, on average, they will not lose to insiders or information traders.<sup>62</sup> However, noise traders sometimes act as a herd.<sup>63</sup> They can be bearish or bullish, as a group, with respect to a specific stock, a particular industry, or the market as a whole.<sup>64</sup> Whether they will lose to insiders or information traders depends on the time it takes a stock to reach its estimated “value” as calculated by insiders or information traders. Suppose insiders and information traders believe that a certain stock is overvalued, and thus, sell it. Noise traders who buy the stock will lose if they hold the stock until it eventually drops. But, in the interim period they can earn a positive return if the stock price continues to rise. Indeed, this is why some information traders try to profit by joining noise traders and adopting noise traders’ strategies. Such informed traders hope to outsmart the noise traders and sell the stock before the eventual price drops. As a result, information traders who become noise traders intensify, in the short run, the effects of noise trading. In the long run, however, noise traders will lose, as a group, to insiders or information traders. Moreover, due to their high frequency of trading, they will bear the cost of liquidity reflected by the bid-ask spread.

Market prices result from the actions of all five groups. Insiders and information traders follow market prices and counter deviations from their calculated subjective “value.” Liquidity traders who follow the buy-and-hold strategy do not distort prices because their trades are mostly random relative to information flow and price movements. Noise traders, on account of their irrational investment strategies, distort prices. Thus, the accuracy of stock prices depends on the ability of insiders or information traders to counter the actions of

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61. Liquidity traders are also concerned with shareholders’ expropriation by managers or controlling shareholders. Protection against this risk is the role of corporate law.

62. Randomizing a large number of trades has the same protective effect as buying and holding a portfolio. However, this strategy involves greater transaction costs. Similarly, securities regulation is irrelevant to this strategy.

63. For a survey of literature concerning herding in financial markets, see generally De Long et al., *supra* note 45; David Hirshleifer & Siew Hong Teoh, *Herd Behaviour and Cascading in Capital Markets: A Review and Synthesis*, 9 EUR. FIN. MGMT. 25 (2003); Thomas Lux, *Herd Behaviour, Bubbles and Crashes*, 105 ECON. J. 881 (1995).

64. See De Long et al., *supra* note 45, at 704, 715.

noise traders and to price newly disclosed information.<sup>65</sup> The more skilled information traders or insiders can counter price-value discrepancies caused by noise traders or by newly disclosed information, the more efficient the market is. A perfectly efficient equilibrium, however, is unattainable.<sup>66</sup> Because prices always deviate from value and information traders engage in a continuous alignment of prices and value, the fluctuations of price around value represent some level of inefficiency. Yet, it is precisely this inefficiency that creates an incentive to invest in information and constantly pushes the market to become more efficient.<sup>67</sup>

From this perspective it is clear that efficient pricing is a matter of degree. The larger the deviation between price and value and the longer it takes for prices to revert to value, the less efficient the market is. Thus, it is not appropriate to classify markets as either “efficient” or “inefficient” based on the level of price accuracy. Markets can be efficient at times and inefficient at others depending on the length of time and the degree of deviation between prices and values.<sup>68</sup>

It is more appropriate to classify markets based on whether they have an effective mechanism for correcting price deviations. A market that does *not* have such a mechanism is inefficient to the extent that the pricing is completely random and lacks the ability to cause prices to revert to value. We describe such a market as “ineffective,” as opposed to “inefficient.” A market that has such a mechanism is “efficient” in the sense that it tends to cause prices to revert to value. We describe such a market as “effective.” Indeed, in such a market there will be periods in which noise traders will dominate and information traders or insiders will be unable to counter the price distortions caused by noise traders. As a result, in such a market, large deviations of prices from value will persist for

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65. We follow the seminal model of Sanford J. Grossman & Joseph E. Stiglitz, *On the Impossibility of Informationally Efficient Markets*, 70 AM. ECON. REV. 393, 393–95 (1980).

66. *Id.*

67. See Philip A. Cusick, *Price Effects of Addition or Deletion From the Standard & Poor's 500 Index—Evidence of Increasing Market Efficiency*, 11 FIN. MARKETS, INSTITUTIONS & INSTRUMENTS 349, 349–50 (2002) (supplying evidence that market efficiency increases over time).

68. The market's efficiency also varies with regard to different corporations. See, e.g., Benjamin C. Ayers & Robert N. Freeman, *Evidence That Analyst Following and Institutional Ownership Accelerate the Pricing of Future Earnings*, 8 REV. ACCT. STUD. 47, 63 (2003) (finding evidence that the stock prices of corporations that receive increased analyst coverage reflect future earnings earlier than neglected firms).

long periods. Obviously, the result will be inaccurate pricing. As long as there is a mechanism in place to correct this effect, however, prices will eventually revert to value. In other words, a market can be effective overall while oscillating between efficient and inefficient pricing. Improving the efficiency of the market thus requires enhancing the effectiveness of the mechanism that causes prices to revert to value.

The effectiveness of a corrective mechanism is a function of the costs and risks involved in informed trading. Information traders' and insiders' ability to counter price deviations depends on the risk and cost involved in the process. Searching for, verifying, analyzing, and pricing general market and firm-specific information are costly tasks, and capturing the value of a price deviation is a risky undertaking. Assume that an information trader estimates that the current share price of a hypothetical company, Solid Investment, Inc., is 10 percent lower than its projected value. To capture this deviation, the information trader must buy the share, hold it until the price reaches the projected value, and then sell the share at a profit. Yet the price may not reach the estimated value for many reasons. For example, the information trader may be wrong, noise traders might keep distorting the price for longer than expected, new and unforeseen bad news may arrive, a misstatement about the corporation may be released to the market, or interest rates or oil prices may go up. Thus, the information trader must consider both the size of the deviation and the probability of capturing it (i.e., the expected value of the deviation).

To make a profit, the analyst will compare the costs, which are certain, with the expected profit from the price deviation—the higher the costs, the larger the price deviation necessary to yield a profit. That is, with high costs, information traders will not attempt to capture small deviations, but will rather let prices get farther away from value to increase the expected profit. Alternatively, information traders will decrease their investment in information and focus on general market information or salient pieces of specific information, avoiding attempts to look for fine-tuned information. This strategy will lead information traders to capture only large deviations between price and value. Either response will result in less accurate pricing and a less efficient market. Conversely, when costs are low, information traders will invest in more fine-tuned information and will counter smaller deviations of price. This, in turn, will lead to more accurate prices and more efficient markets.

Similarly, reducing the risk associated with the probability of capturing the calculated price deviation will increase efficiency—the lower the risk, the higher the probability of capturing the price-value deviation. Hence information traders will try to capture smaller price-value deviations. Although some risk elements cannot be lowered because they are an integral part of information trader work (e.g., revelation of unexpected new information), other risk elements can be reduced. Improved information gathering and verification will increase the accuracy of information traders' predictions and reduce the frequency of misleading information, thereby increasing the likelihood of capturing price-value deviations.<sup>69</sup> When information traders take precautions to lower the risk of capturing price-value deviations, however, their costs increase and market efficiency declines. Reducing the costs and risk involved in keeping prices more accurate is thus a primary goal to achieve efficient markets.

Based on this market model, we will demonstrate in the next Part how securities regulation promotes the efficiency and liquidity of financial markets by reducing the risk and costs born by information traders.

## II. SECURITIES REGULATION: ATTAINING EFFICIENT AND LIQUID MARKETS

Given the market model presented above, it is clear that either information traders or insiders should be entrusted with providing efficient pricing and liquidity to financial markets. Liquidity traders and market makers do not respond to information and thus cannot be entrusted with this role. Likewise, noise traders who act irrationally cannot be relied upon to underwrite efficient and liquid financial markets.

As this Part will show, insiders and information traders cannot coexist as price-value correctors. So regulators must choose between these two groups. Securities regulation, by adopting the restriction on insider trading, entrusts information traders with the role of providing efficient and liquid markets. As a result, securities regulation, through disclosure duties and restriction on fraud and manipulation,

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69. Similarly, under normal trading conditions, effective arbitrage will reduce the effect of noise traders and lower the risk involved in capturing price deviations. Ronald J. Gilson & Reinier R. Kraakman, *The Mechanisms of Market Efficiency Twenty Years Later: The Hindsight Bias*, 28 J. CORP. L. 715, 733 (2003).

minimizes the costs and risks that information traders bear. In the paragraphs that follow, we show how the combined effects of securities regulation facilitate a competitive market for information traders, resulting in the promotion of efficient and liquid markets.

*A. Prohibiting Insider Trading: Choosing the Information Traders*

Information traders cannot discern whether price changes are caused by noise traders or by insiders. When noise trading is mixed with insider trading, information traders cannot extract information from volume or price movements, nor can they deduce the identity of the traders.<sup>70</sup> Thus, when regulations permit insiders to trade, they will consistently beat the information traders. Because information traders follow prices and react to information, they will always be on the losing end.<sup>71</sup> Suppose an analyst, based on the information available to her, believes that the price of a certain stock accurately reflects its value. Now suppose that an insider is selling the stock on account of negative private information she possesses, causing the

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70. Professors Gilson and Kraakman argue that the trading volume or price movements may themselves send a message to analysts regarding the nature of the inside information, especially if some analysts can deduce the identity of the insider traders. Gilson & Kraakman, *supra* note 7. They have acknowledged, however, that this method is the least efficient way of achieving efficient pricing because this process of decoding is imprecise and slow. *Id.* at 574–79. We submit that our assumption is more realistic for several additional reasons. First, it is important to note that Gilson and Kraakman’s argument was made regarding a market from which noise traders are absent. The addition of noise traders makes it even more difficult for analysts to isolate informed trading from uninformed trading, which further reduces the efficiency of decoding. Second, empirically, the feasibility of decoding is challenged by the finding that markets do not display “strong efficiency” (i.e., insiders do outperform the market). See, e.g., Joseph E. Finnerty, *Insiders and Market Efficiency*, 31 J. FIN. 1141, 1148 (1976) (demonstrating that, as a population, insiders outperform the market); H. Nejat Seyhun, *Insiders’ Profits, Costs of Trading, and Market Efficiency*, 16 J. FIN. ECON. 189, 197–98 (1986) (finding that insiders realize modest abnormal profits). That is, analysts are unable to detect the nature of the inside information or to deduce the identity of the inside traders during the trade so as to prevent abnormal return to insiders. Moreover, even the information about *already executed and reported* insiders’ trades compounded in the SEC’s *Official Summary* is not always exhausted by analysts. See, e.g., Jeffrey F. Jaffe, *Special Information and Insider Trading*, 47 J. BUS. 410, 427–28 (1974) (suggesting that investors can profit from prompt use of the *Official Summary*’s information). Compare Halbert S. Kerr, *The Battle of Insider Trading vs. Market Efficiency*, 6 J. PORTFOLIO MGMT. 47, 49 (1980) (positing that knowledgeable investors have largely eliminated the opportunity to earn excess return by using the information contained in the *Official Summary*), with Raymond Goldie, *Are Some Insiders More ‘Inside’ Than Others?*, 10 J. PORTFOLIO MGMT. 75 (1983) (pointing out that after correcting for methodological problems, Kerr’s results show that outsiders can use the *Official Summary* to earn excess returns).

71. Haddock & Macey, *supra* note 44, at 1458–59.

stock price to decline. Unaware of the inside information, the analyst will interpret this decline as an undervaluation and buy the stock. The stock will continue to decline, and only after the negative information becomes public will the analyst realize that she bought an overpriced stock. The same is true of positive inside information. In this case, a security's price will go up due to insider buying, and the analyst will assume overvaluation has occurred and sell short,<sup>72</sup> even though the shares are underpriced. Information traders cannot diversify away the risk of trading against insiders, and will always lose when trading against them.<sup>73</sup> Thus, when insider trading is pervasive, information traders will be unable to recoup their investment in information and eventually will exit the market.<sup>74</sup>

The imposition of legal restrictions on insiders changes this outcome. Consider a legal restriction on insider trading that adopts the "disclose or abstain" rule.<sup>75</sup> Under this rule, insiders can either disclose the inside information they possess and trade on this information together with the rest of the market, or abstain from trading until some other legal duty forces them to disclose. Absent an independent reason to withhold nonpublic information, insiders will choose to disclose.<sup>76</sup> Once the information is disclosed, insiders and information traders compete to capture the value of the information. Initially, there will be only a few information traders in the market and they will make abnormal returns on investment in information. In

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72. A short sale occurs when an investor is selling a share she does not own. Assume that the price of a share is \$100 and the investor believes it should trade for only \$60. The investor can borrow the share (for a fee), then sell the share and get \$100. Once the price drops to \$60, she will buy back the share and return it to the lender. The \$40 difference is a profit. Of course, if she is wrong and the price goes up, say to \$150, she will have to buy back the share for a higher price, and thus will lose \$50 on this position.

73. See Walter Bagehot, *The Only Game in Town*, 2 FIN. ANALYSTS J. 12, 13 (1971) (showing that in a model with informed traders, market makers and liquidity traders, market makers always lose to informed traders).

74. See, e.g., Michael J. Fishman & Kathleen M. Hagerty, *Insider Trading and the Efficiency of Stock Prices*, 23 RAND J. ECON. 106, 110–11 (1992) (showing that, in a model with outsiders possessing less precise and more costly information than that of an insider, the number of informed outsiders declines as a function of the relative precision of the insider's information); Hayne E. Leland, *Insider Trading: Should it be Prohibited?*, 100 J. PUB. ECON. 859, 884 (1992) (showing that, in a model with monopolistic insiders possessing more precise information than informed outsiders, the welfare of informed outsiders always declines when the insiders are trading).

75. SEC v. Tex. Gulf Sulphur Co., 401 F.2d 833, 848 (2d Cir. 1968).

76. See Ranga Narayanan, *Insider Trading and the Voluntary Disclosure of Information by Firms*, 24 J. BANKING & FIN. 395, 406–07 (2000) (finding that stringent enforcement of insider trading regulations induces more disclosure by firms).

this period, the market will be less efficient and less liquid in comparison with the preceding stage in which insiders were allowed to trade.<sup>77</sup> Gradually, however, the number of information traders will increase and competition among them will bring down the return on investment in information to a competitive rate, thereby attaining a more efficient and liquid market.<sup>78</sup>

If only a few insiders occasionally violate the restriction and trade on inside information, the information traders' market can still function. Although this limited insider trading somewhat limits their returns, information traders still profit.<sup>79</sup> Accordingly, the level of insider trading sets the boundaries of the information traders market. When insider trading is limited, a competitive information traders' market will develop; when insider trading is extensive, no information traders market will form. This substitution effect between insiders and information traders is the key to understanding the ban on insider trading.

Choosing information traders over insiders through the ban on insider trading is preferable to favoring insiders over information traders. First, insiders enjoy virtual exclusivity over the use of the inside information they possess. This insularity from competition

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77. See, e.g., Rezaul Kabir & Theo Vermaelen, *Insider Trading Restrictions and the Stock Market: Evidence from the Amsterdam Stock Exchange*, 40 EUR. ECON. REV. 1591, 1595–97 (1996) (examining the effect of introducing insider trading restrictions since 1987 on the behavior of the Amsterdam Stock Exchange and finding that stocks became less liquid, and also finding some evidence that the stock market adjusted more slowly to positive earnings news).

78. See Fishman & Hagerty, *supra* note 74, at 118–19 (arguing that insider trading leads to less efficient stock prices). Indeed, empirical studies support the model's prediction. See Utpal Bhattacharya & Hazem Daouk, *The World Price of Insider Trading*, 57 J. FIN. 75, 92–93 (2002) (finding that initial enforcement of insider trading laws is associated with a significant decrease in country-level equity cost of capital); Laura N. Beny, *A Comparative Empirical Investigation of Agency and Market Theories of Insider Trading* 18–19 (Mich. Law & Econ. Research, Working Paper No. 04-004, 2004) (on file with the *Duke Law Journal*), available at <http://ssrn.com/abstract=193070> (finding that “countries with tougher . . . laws against insider trading have more liquid . . . equity markets” and that “countries with lax . . . insider trading laws have less . . . informative stock prices”); Robert M. Bushman et al., *Insider Trading Restrictions and Analysts' Incentives to Follow Firms* 4–5 (unpublished manuscript, on file with the *Duke Law Journal*), available at <http://ssrn.com/abstract=373520> (finding that “the intensity of analyst coverage (average number of analysts covering followed firms within a country) and breadth of coverage (the proportion of domestic listed firms followed by analysts) increase after initial enforcement of insider trading laws” and “that this increase is most prominent in emerging market and non-liberalized countries”).

79. See Jhinyoung Shin, *The Optimal Regulation of Insider Trading*, 5 J. FIN. INTERMEDIATION 49, 63 (1996) (considering the optimal enforcement efforts and costs in a model including insiders, informed market professional, and liquidity traders, and concluding that tolerating some insider trading can be an optimal regulation policy).

allows insiders to manipulate the timing of disclosure—they can either delay the disclosure and compromise market efficiency, or disclose prematurely and damage the firm's business.<sup>80</sup> Information traders, on the other hand, cannot manipulate disclosure. They do not control the timing of disclosure, but rather respond to new information after it has been revealed. Information traders operate in a highly competitive environment, and thus strive to process newly disclosed information to the market as quickly as possible, lest they be beaten by a rival information trader.<sup>81</sup>

Second, information traders can realize economies of scale and scope in uncovering, analyzing and pricing general market information. Knowledge about general economic conditions or a particular industry may be used to analyze many corporations. Similarly, information about a particular corporation may shed light on related corporations, such as suppliers, customers, or competitors. Third, although insiders have a small advantage in *searching* for firm-specific information, information traders are better at *analyzing* and *pricing* this type of information. Although insiders form a single nonobjective valuation of their own business decisions, information traders provide an objective market valuation that reflects many competing independent valuations. Fourth, information traders outperform insiders in providing liquidity to financial markets because of several factors: the superior financial resources information traders have at their disposal; greater divergence of opinions among information traders (which triggers more trading); and strong competition over the exploitation of any informational

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80. Insiders are also much more likely to manipulate the contents of disclosure. See, e.g., Paul Dunn, *The Impact of Insider Power on Fraudulent Financial Reporting*, 30 J. MGMT. 397, 408 (2004) (finding insider trading more likely to occur when power is concentrated in the hands of a few insiders).

81. See John Jacob et al., *Expertise in Forecasting Performance of Security Analysts*, 28 J. ACCT. & ECON. 51, 79 (1999) (hypothesizing, in light of the study's results, that competition among analysts seems to cause underperformers to be replaced); Patricia C. O'Brien, *Forecast Accuracy of Individual Analysts in Nine Industries*, 28 J. ACCT. RES. 286, 303–04 (1990) (suggesting,—based on the results of an empirical study of analysts' forecast accuracy—that analysts compete over the timely incorporation of new information). The overall result of choosing analysts rather than insiders is less information asymmetry between insiders and outsiders. See Richard Frankel & Xu Li, *Characteristics of a Firm's Information Environment and the Information Asymmetry Between Insiders and Outsiders*, 37 J. ACCT. & ECON. 229, 232 (2004) (noting that outside investors in firms with greater analyst coverage face less information asymmetries).

advantage—particularly over public information.<sup>82</sup> This last point is crucial for liquidity traders. For the foregoing reasons, the decision to favor information traders over insiders enhances efficiency.

### *B. Disclosure Duties: Reducing Search Costs*

Once information traders are entrusted with providing efficiency and liquidity to financial markets, they must perform the following tasks: search for information, verify its accuracy and then analyze and price the information. Each of these tasks entails costs. Lowering these costs improves the ability of information traders to counter price deviations.<sup>83</sup> As these costs decrease, the number of information traders operating in the market will increase.<sup>84</sup> Therefore, securities regulation should strive to reduce the cost of gathering, verifying, and pricing information.<sup>85</sup>

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82. Darren T. Roulstone, *Analyst Following and Market Liquidity*, 20 CONTEMP. ACCT. RES. 551, 554 (2003) (arguing that since analysts provide public information, increased analysts' coverage has a positive association with liquidity).

83. See, e.g., Fox et al., *supra* note 11, at 372–73 (finding that mandatory disclosure effectively contributes to share price accuracy); David Gelb & Paul Zarowin, *Corporate Disclosure Policy and the Informativeness of Stock Prices* 19 (June 2000) (unpublished manuscript, on file with the *Duke Law Journal*), available at <http://ssrn.com/abstract=235009> (finding that “enhanced disclosure results in stock prices that are more informative about future earnings, indicating that enhanced disclosure provides information benefits to the stock market”); Paul M. Healy et al., *Do Firms Benefit from Expanded Voluntary Disclosure?* (1995) (unpublished manuscript, on file with the *Duke Law Journal*) (finding that following an increase in voluntary disclosures there is a reduction in undervaluation accompanied by an increase in stock liquidity, analyst following, and institutional holdings).

84. See, e.g., Christine A. Botosan & Mary S. Harris, *Motivations for a Change in Disclosure Frequency and Its Consequences: An Examination of Voluntary Quarterly Segment Disclosures*, 38 J. ACCT. RES. 329, 352 (2000) (increased voluntary disclosure leads to increased analysts following); Brian J. Bushee & Christopher F. Noe, *Corporate Disclosure Practices, Institutional Investors, and Stock Return Volatility*, 38 J. ACCT. RES. 171, 188–90 (2000) (finding that firms with higher AIMR disclosure practices rankings have greater institutional ownership); Mark H. Lang & Russell J. Lundholm, *Corporate Disclosure Policy and Analyst Behavior*, 71 ACCT. REV. 467, 467 (1996) (“[F]irms with more informative disclosure policies have a larger analyst following, more accurate analyst earnings forecasts, less dispersion among individual analyst forecasts and less volatility in forecast revisions.”).

85. See, e.g., Coffee, *supra* note 5, at 722 (arguing that mandatory disclosure is a subsidy to the investment analysts industry that increases analysts activity); Ole-Kristian Hope, *Disclosure Practices, Enforcement of Accounting Standards and Analysts' Forecast Accuracy: An International Study*, 41 J. ACCT. RES. 235, 235 (2003) (finding that “firm-level disclosures are positively related to forecast accuracy, suggesting that such disclosures provide useful information to analysts” and that strong enforcement of accounting standards is associated with higher forecast accuracy); Mark H. Lang et al., *ADRs, Analysts, and Accuracy: Does Cross Listing in the U.S. Improve a Firm's Information Environment and Increase Market Value?*, 41 J. ACCT. RES. 317 (2003) (finding “that firms that cross list on U.S. exchanges have greater analyst

Mandatory disclosure duties reduce the cost of searching for information. Absent mandatory disclosure duties, information traders would engage in duplicative efforts to uncover nonpublic information.<sup>86</sup> The cost of these efforts would be extremely high because information traders, as outsiders, lack access to the management of the firm. Disclosure duties pass these costs to the individual firm. For the firm, the cost of obtaining firm-specific information is rather minimal; indeed, it is a mere by-product of managing the firm.<sup>87</sup> Moreover, securities regulation mandates a specific format for disclosure, which further reduces the costs of analyzing information<sup>88</sup> and comparing it to data provided by other firms.<sup>89</sup>

Additionally, disclosure duties reduce the risk involved in detecting price-value deviations. First, the more information that is disclosed, the lower the risks associated with both insider trading<sup>90</sup> and estimating the fundamental value of the firm. Although information traders may discover some undisclosed information by investment in searching, other undisclosed information would not be revealed even after very costly searches. Given that a corporation

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coverage and increased forecast accuracy than firms that are not cross listed” and “that firms that have more analyst coverage and higher forecast accuracy have higher valuation”); Carol A. Frost et al., *Stock Exchange Disclosure and Market Liquidity: An Analysis of 50 International Exchanges* 29 (Oct. 14, 2002) (unpublished manuscript, on file with the *Duke Law Journal*), available at <http://ssrn.com/abstract=355361> (finding “strong support for the hypothesis that strength of disclosure system (disclosure rules, monitoring and enforcement, and information dissemination) is positively associated with market liquidity, after controlling for stock exchange size, legal system and several other proxies for extent of market development and the information environment”).

86. See Coffee, *supra* note 5, at 733–34 (noting that under mandatory disclosure rules firms avoid the social waste of producing duplicative data).

87. See, e.g., Douglas W. Diamond, *Optimal Release of Information by Firms*, 48 J. FIN. 1071, 1083, 1089 (1985) (demonstrating that when the cost of releasing information to the firm is lower than the aggregate expenditure incurred by investors to acquire the information independently, welfare is enhanced if the firm discloses the information).

88. See Michael J. Fishman & Kathleen M. Hagerty, *The Optimal Amount of Discretion to Allow in Disclosure*, 105 Q.J. ECON. 427, 439–40 (1990) (showing that limiting discretion on the form of disclosure, perhaps by mandating the use of accepted accounting principles, leads to more informative disclosure).

89. See Hope, *supra* note 85, at 235 (finding that “enforcement encourages managers to follow prescribed accounting rules, which, in turn, reduces analysts’ uncertainty about future earnings” and “disclosures [are] more important when analyst following is low and . . . enforcement . . . more important when more choice among accounting methods is allowed”).

90. See Shunlong Luo, *The Impact of Public Information on Insider Trading*, 70 ECON. LETTERS 59, 64 (2001) (finding, based on a proposed model, that accurate public information is detrimental for insider trading).

might avoid disclosure either to promote value or to cover mismanagement, one cannot simply draw a negative inference from nondisclosure. Information traders must actively search for undisclosed information, and if searching will not uncover the information they will be forced to estimate its value. Such estimates are bound to be imprecise, increasing the risk that information traders will fail to capture price or value deviation. Second, by increasing the number and activity level of information traders, disclosure duties lower the effect of noise traders and the associated noise risk.<sup>91</sup> Hence, the net effect of mandatory disclosure duties is to support a competitive information traders' market.<sup>92</sup>

Competition among information traders creates important informational synergies. A vibrant market for information traders produces additional information well beyond that mandated by disclosure duties and makes it available to all investors free of charge. The additional information has two sources. First, a competitive information market generates increased demand for firm-specific information, which in turn provides managers with incentives to make timely and elaborate disclosures beyond what is mandated by law, in an attempt to capture the benefits of increased coverage by information traders.<sup>93</sup> Mandatory disclosure is a prerequisite to the formation of a competitive information traders market, but once such a market exists it will induce many firms to adopt a more timely, elaborate, and fine-tuned disclosure regime than that required by mandatory disclosure duties.<sup>94</sup> Second, in a competitive market,

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91. Nicholas L. Georgakopoulos, *Why Should Disclosure Rules Subsidize Informal Traders*, 16 INT'L REV. L. & ECON. 417, 424 (1996). Additionally, Professor Georgakopoulos argues that disclosure will cause noise traders to reevaluate their mistaken beliefs. *Id.* However, we think that this argument can work both ways: from the noise traders point of view, disclosure might fuel the misvaluations.

92. Several studies support the proposition that corporate disclosure reduces analysts' costs of searching and processing information. Botosan & Harris, *supra* note 84, at 352; Bushee & Noe, *supra* note 84, at 188–90; Lang & Lundholm, *supra* note 84, at 467; Healy et al., *supra* note 83.

93. See Caramanolis-Cötelli et al., *supra* note 60, at 146 (presenting a study of Swiss firms that shows abnormal returns are significantly and positively affected by the rating measure of the informational quality of annual reports, and that a firm's financial disclosure policy plays a signaling role).

94. This might explain the finding that foreign corporations that are under less stringent SEC disclosure requirements do not exhibit greater information asymmetry compared to U.S. corporations. See Andrew W. Alford & Jonathan D. Jones, *Financial Reporting and Information Asymmetry: An Empirical Analysis of the SEC's Information-Supplying Exemption for Foreign*

strong marketing and other pressures will ensure that analytical products that would otherwise be confidential are revealed to the market. Revealed analytical products, or even pieces of analytical products, provide additional information and allow information traders to compare and reevaluate their own analysis against the published analyses, thereby reducing the costs associated with gathering and analyzing the information. Disclosure duties reduce duplication of *search* costs, and to some extent a competitive market for information traders eliminates the duplication in *analysis* costs.

Finally, the effects that disclosure duties have on information traders improve liquidity and thus benefit liquidity traders as well. First, more public disclosure leads to fewer instances of asymmetric information between traders. Second, more public disclosure lowers the expected value of asymmetric information. Indeed, as disclosure improves, informational advantages among traders would have to be gained through insightful analysis of public information, and not from access to inside information.<sup>95</sup> Third, disclosure duties subsidize search costs and facilitate a competitive market for information traders. As competition among information traders intensifies, the ability of each individual information trader to exploit informational advantages diminishes.<sup>96</sup> All these effects reduce the risk that market makers face of trading against more informed traders, which in turn produces a lower bid-ask spread (i.e., high liquidity). Higher liquidity will, in turn, increase trading by liquidity traders and reduce the discount rate that traders apply to the market due to asymmetric information. Consequently, both increased liquidity and lower cost of capital for firms will have a positive effect on the efficiency of the market.

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*Companies*, 4 J. CORP. FIN. 373, 395 (1998) (finding no increase in information asymmetry between foreign firms and those subject to SEC reporting regulations).

95. See Luo, *supra* note 90, at 64 (finding that public information is detrimental for insiders and beneficial for liquidity traders).

96. See Caramanolis-Çötelli et al., *supra* note 60, 133 (arguing that competition among analysts reduces investors' adverse selection problem); Brett Trueman, *The Impact of Analyst Following on Stock Prices and the Implications for Firms' Disclosure Policies*, 11 J. ACCT., AUDITING & FIN. 333, 349 (1996) (showing that there is a positive relation between the number of analysts following a firm and the firm's expected share price, and that this relation is a direct consequence of market participants' inability to observe the number of informed traders in the market).

C. *Restrictions on Fraud and Manipulation: Reducing Verification Costs*

Before they rely on information, information traders must invest resources in verifying its accuracy.<sup>97</sup> The verification process extends to both explicit information and implicit information. Absent restrictions on fraud and manipulation, all information traders would expend resources on verifying the same pieces of information. Of course, such duplicative investigations would be socially wasteful. Moreover, because information traders are outsiders, the verification process is quite costly. Additionally, information traders cannot easily detect distortions of implicit information, such as wash sales and matched orders, on their own.<sup>98</sup> Such a task requires a central organized detection and enforcement system like the SEC.<sup>99</sup> The ban on fraud and manipulation reduces verification costs, because explicit information cannot be misstated, material facts cannot be omitted, and implicit information cannot be manipulated.<sup>100</sup> If a misstatement is made or artificial trading (wash sales, matched orders, etc.) occurs, criminal and civil sanctions will be imposed.<sup>101</sup> It is cheaper to place the burden of verifying the information on the information source, and doing so avoids duplicative expenditures by multiple information traders. Moreover, due to the probabilistic nature of detecting fraud (i.e., the probability of detection is lower than one), criminal liability may constitute a better deterrent than civil liability that is based on

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97. See Mahoney, *supra* note 5, at 630–31.

98. A wash sale is a practice in which a manipulator opens up a few trading accounts and trades, back and forth, between these accounts—being both the seller and the buyer—to create the impression of true trading activity. A matched orders activity is similar to a wash sale, except that the artificial trade takes place between two persons who coordinate the buying and selling by matching their corresponding buy and sell orders. Because the trading is anonymous, analysts cannot detect artificial trades and will assume that real activity is taking place.

99. See Steve Thel, *\$850,000 in Six Minutes—The Mechanics of Securities Manipulation*, 79 CORNELL L. REV. 219, 285 (1994) (“Perhaps the prevention of manipulation . . . ought to be provided by a centralized agency.”).

100. See *R.J. Koeppe & Co. v. SEC*, 95 F.2d 550, 551–53 (7th Cir. 1938) (illustrating how Section 9(a) can be used to curtail improper transactions). See generally Lewis D. Lowenfels, *Sections 9(a)(1) and 9(a)(2) of the Securities Exchange Act of 1934: An Analysis of Two Important Anti-Manipulative Provisions under the Federal Securities Laws*, 85 NW. U. L. REV. 698 (1991).

101. The Securities Exchange Act of 1934 § 9(a)(2), 15 U.S.C. § 78(i) (2000).

actual damages.<sup>102</sup> Improved deterrence reduces the incentive to lie, which, in turn, further reduces precaution cost.

Restrictions on fraud and manipulation also lower the risk associated with capturing price-value deviations. Fraud and manipulation can affect the analyst at two stages: when the analysis is performed and when the prediction is about to materialize. During the preparation of the analytic product, the analyst can take precautions against misstatements by verifying the information. However, it is harder to take precautions after the analytical product is done and a trading position is taken. Assume that an analyst predicts that by the end of the year the price of a certain stock will drop by 20 percent. Assume further that at the end of the year the management of the relevant corporation releases a misstatement with positive “news” that drives the stock price up. Information traders will not be able to capture the value of their investment. To reduce the risk of not capturing price-value deviations, information traders will have to keep verifying all available information constantly. Moreover, even if information traders could invest in precautions and discover the misstatement, the activities of noise traders who relied on the price distortion might ultimately prevent information traders from capturing the price-value deviation. Prohibitions on fraud and manipulation minimize precaution costs and reduce the risk of not capturing the divergence between value and price.

Additionally, restrictions on fraud and manipulation preserve the value of analysts’ products and protect analysts’ reputation. Some analysts rely on and process information, but do not trade. Instead, they sell financial analysis to other investors. If they do not trade, analysts cannot bring a suit against the source of a misstatement, even if they can show that they relied on it.<sup>103</sup> Because fraudulent and misleading statements distort analysts’ predictions and dilute the value of their analysis, investors who purchase the financial analysis are clearly adversely affected by the misstatements. Realizing that analysts’ predictions could be skewed by fraud or misstatements, investors will trust analysts less and adjust downward the price they are willing to pay for their services. Worse yet, the distortions caused

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102. See Daniel R. Fischel & David J. Ross, *Should the Law Prohibit ‘Manipulation’ in Financial Markets?*, 105 HARV. L. REV. 503, 519–21 (1992) (discussing the difficulty of detecting manipulative trades).

103. See *Blue Chip Stamps v. Manor Drug Stores*, 421 U.S. 723, 730–31 (1975) (limiting plaintiffs in 10b-5 fraud actions to actual purchasers and sellers).

by fraud and manipulation will tarnish the analysts' reputation, making it harder for them to recover their costs. Restrictions on fraud and manipulation protect the value of analytical products and the reputation of analysts.

Like mandatory disclosure duties, restrictions on fraud and manipulation also create a virtuous cycle. By reducing information traders' precaution costs, restrictions on fraud and manipulation facilitate entry into the information traders market and thus increase competition among information traders. The enhanced competition will, in turn, increase the probability of detecting misstatements and fraud, and thereby reduce the incentive for corporations to engage in fraud or manipulation. The reduced incentive to release misleading information to the market will further decrease information traders' precaution costs, and so on.

Finally, restrictions on fraud and manipulation also improve liquidity, benefiting liquidity traders. Restrictions on fraud and manipulation reduce the frequency of misstatements and consequently lower the risk of asymmetric information for market makers. This, in turn, will lead market makers to lower the bid-ask spread.<sup>104</sup> Lower spreads will result in higher liquidity, lower cost of capital, and improved efficiency.

#### *D. Avoiding Analysts' Agency Costs: Facilitating Unbiased Analyses*

The ban on insider trading helps information traders recover their investment in information, disclosure duties lower information traders' search costs, and the prohibition on fraud and manipulation reduces information traders' verification costs. Analyzing information is the one task that is not directly facilitated by securities regulation; rather, it is left to the individual analyst's talent and resources.

Although securities regulation does not directly subsidize information analysis, disclosure duties indirectly influence the analysis. As we have noted, competition among information traders creates information spillovers. Some information traders share their analysis with the market to obtain media exposure or to give prospective customers an opportunity to evaluate their skills. The

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104. Dolgoplov, *supra* note 48, at 65; *see also* Mark Klock & D. Timothy McCormick, *The Impact of Market Maker Competition on Nasdaq Spreads*, 34 FIN. REV. 55, 56 (1999) (discussing the five variables that affect spread); Sunil Wahal, *Entry, Exit, Market Makers and the Bid-Ask Spread*, 10 REV. FIN. STUD. 871 (1997).

analytical products that are disclosed for free allow other information traders to evaluate the quality of their own analysis. This process reduces learning costs for all information traders.

The main concern is the agency cost associated with analysis—i.e., biased analyses and curtailed analyst competition.<sup>105</sup> This problem is acute with sell-side analysts. Sell-side analysts create an agency cost in the form of biased analyses, as they must generate income indirectly to make up for the fact that they disclose their analytical product for free.<sup>106</sup>

The vast majority of analysts, however, do not share the problem of sell-side analysts. Buy-side and independent analysts and other professional/institutional investors, who do not publish their analytical products for free, do not generate intentionally biased analyses.<sup>107</sup> The problem for this group is not intentionally biased opinions, but rather short-term analyses and investment decisions that result from the short time horizon used for measuring performance.<sup>108</sup> However, as we will explain, whereas intervention

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105. For a comprehensive and insightful account of the analysts' agency problems, see Carl R. Chen et al., *Are All Security Analysts Equal?*, 25 J. FIN. RES. 415, 415 (2002) (showing that recommendations from analysts are contaminated by their firms' investment banking relations with corporations); Jill E. Fisch & Hillary A. Sale, *The Securities Analyst as Agent: Rethinking the Regulation of Analysts*, 88 IOWA L. REV. 1035, 1041–43 (2003) ("Rather than performing independent analysis, analysts have increasingly served as conduits for management to convey information to securities markets.").

106. See Stephen J. Choi & Jill E. Fisch, *How to Fix Wall Street: A Voucher Financing Proposal for Securities Intermediaries*, 113 YALE L.J. 269, 285–86 (2003) (explaining that analyst must charge a higher initial price for research to recoup the costs before the information is disseminated); Fisch & Sale, *supra* note 105, at 1043–56 (explaining the three types of conflicts of interest that analysts face); see also Zhaoyang Gu & Joanna Shuang Wu, *Earnings Skewness and Analyst Forecast Bias*, 35 J. ACCT. & ECON. 5, 6–8 (2003) (noting the strategic-reporting-bias explanation, establishing it empirically, and offering a complementary explanation to the phenomenon).

107. Professor Paul Griffin conducted a study which "examin[ed] the response of First Call financial analysts to company restatements and corrective disclosures that [led] to an allegation of securities fraud and compar[ed] this with the response of three other informed investor groups—insiders, short sellers, and institutions." Paul A. Griffin, *A League of Their Own? Financial Analysts' Responses to Restatements and Corrective Disclosures*, 18 J. ACCT., AUDITING & FIN. 479, 479 (2003). The study found that, although the latter groups "are unusually active several months ahead of a corrective disclosure event," the analysts respond only after the event. *Id.*

108. See Jane M. Cote & Debra L. Sanders, *Herding Behavior: Explanations and Implications*, 9 BEHAV. RES. ACCT. 20, 20 (1997), (explaining that forecast consensus among analysts is in part a product of limited time). See generally Scott E. Stickel, *Reputation and Performance Among Security Analysts*, 48 J. FIN. 1811 (1992) (measuring analyst performance

through securities regulation is warranted for sell-side analysts, in the case of buy-side analysts, there is no need for similar intervention and the problem should be left to the market. We start with the sell-side analysts.

The choice between information traders and insiders as to who will perform the role of providing efficiency and liquidity to the market entails a choice between two types of agency costs. Specifically, sell-side analysts present a tradeoff between analysts' agency costs and management agency costs. Allowing insider trading aggravates the problem of management agency costs as it forces information traders to exit the market, leaving insiders with no incentive to monitor themselves. On the other hand, restricting insider trading and relying on information traders gives rise to a sell-side analysts' agency cost. Given the close media attention to the problem of sell-side analysis, one might be tempted to argue that management agency costs are lower than sell-side analysts' agency costs.<sup>109</sup> This, however, is not the case.

The management agency cost stems from the governance structure of all publicly traded corporations.<sup>110</sup> It affects all aspects of business operations and is liable to cause problems, such as mismanagement, misreporting, and self-dealing. It also leads to inferior pricing and insufficient liquidity.<sup>111</sup> Corporate law and part of securities regulation are aimed at curtailing management agency cost.

The sell-side analyst agency cost, on the other hand, is a much more limited problem. The sell-side analyst agency cost is a problem of disclosure, and concerns only a small subgroup of informed traders—namely, sell-side analysts—who may produce distorted analyses with respect to certain corporations.<sup>112</sup>

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based upon “(1) forecast accuracy, (2) frequency of forecast issuance, and (3) impact of forecast on security prices.”).

109. See, e.g., Henry G. Manne, *A Free Market Model of a Large Corporation System*, 52 EMORY L.J. 1381, 1390 (2003) (arguing that agency costs are “extremely high” and inefficient in the management context).

110. See Jensen, *supra* note 19, at 323 (discussing the agency costs implicit in the manager/shareholder relationship).

111. Goshen & Parchomovsky, *supra* note 5, at 1254.

112. Among analysts, approximately 30 percent are sell-side analysts, 60 percent are buy-side analysts, and about 10 percent are independent analysts. Fisch & Sale, *supra* note 105, at 1041. Moreover, the 60 percent buy-side analysts proportionally command far more resources than other types of analysts. *Id.*

The agency cost of sell-side analysts can be further reduced through appropriate regulation.<sup>113</sup> The biased analyses and curtailed competition that characterize sell-side analysts may stem from selective disclosure by management,<sup>114</sup> from analysts' desire to promote the business of the investment banker who employs them,<sup>115</sup> or from their own personal investments.<sup>116</sup> Securities regulation mitigates these problems by restricting selective disclosure and mandating equal access to information.<sup>117</sup> Specifically, it requires disclosure of employment relationships and personal or institutional conflicts.<sup>118</sup> In so doing, securities regulation improves the integrity of information analysis.<sup>119</sup>

The problem of the buy-side analysts is more fundamental, but securities regulation cannot remedy it. If the performance of an

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113. See *id.* at 1056–77 (presenting and analyzing the existing and the proposed regulations, and offering an alternative solution).

114. See John C. Coffee, Jr., *Is Selective Disclosure Now Lawful?*, N.Y. L.J., July 31, 1997, at 5 (discussing *United States v. O'Hagan* and describing and analyzing the practice of selective disclosure in which management provides inside information to a group of selective analysts ahead of the market).

115. See Fisch & Sale, *supra* note 105, 1045 (describing the conflict when recommendations are tied to brokerage commissions and underwriting business); Hsiou-wei Lin & Maureen F. McNichols, *Underwriting Relationships, Analysts' Earnings Forecasts and Investment Recommendations*, 25 J. ACCT. & ECON. 101, 101 (1998) (examining “the effect of underwriting relationships on analysts' earnings forecasts and recommendations”); Roni Michaely & Kent L. Womack, *Conflict of Interest and the Credibility of Underwriter Analyst Recommendations*, 12 REV. FIN. STUD. 653, 653 (1999) (“[T]he recommendations by underwriter analysts show significant evidence of bias.”); see also Editorial, *SEC Warns Investors Against Sell-Side Conflicts*, INVESTOR REL. BUS., July 9, 2001, at 3 (discussing an SEC alert describing the conflicts between sell side analyst and “their investment banking bosses”).

116. See Fisch & Sale, *supra* note 105, at 1043–45. (describing the conflict when analysts invest in the companies they cover).

117. See Goshen & Parchomovsky, *supra* note 5, at 1269–73 (analyzing the effects of FD Regulation); Frank Helfin et al., *Regulation FD and the Financial Information Environment: Early Evidence*, 78 ACCT. REV. 1, 1 (2003) (presenting the findings of a study after the implementation of FD Regulation that showed: (1) “improved informational efficiency of stock prices prior to earnings announcements”; (2) “no reliable evidence of change in analysts' earnings forecast errors or dispersion”; and (3) “a substantial increase in the volume of firms' voluntary, forward-looking, earnings-related disclosures”). See generally Robert B. Thompson & Ronald King, *Credibility and Information in Securities Markets after Regulation FD*, 79 WASH. U. L.Q. 615 (2001) (analyzing the effects of FD Regulation).

118. See Fisch & Sale, *supra* note 105, at 1068–69 (discussing Regulation Analyst Certification, 17 C.F.R. § 242 (2002)).

119. See Leslie Boni & Kent L. Womack, *Wall Street Research: Will New Rules Change Its Usefulness?*, 59 FIN. ANAL. J. 25, 29 (2003) (“In summary, the new rules and global research settlement are likely to reduce perceived conflicts of interest.”).

analyst who works for a hedge fund<sup>120</sup> is being evaluated on a quarterly basis, the investment decisions the analyst makes will reflect this short time horizon. Such investment decisions might tend toward the speculative. The tendency to speculate might increase noise trading and cause short-term inefficiencies.<sup>121</sup> Although prices will revert to value in the long run,<sup>122</sup> in the short term excess volatility and distorted prices may exist.<sup>123</sup> The more prevalent short-term analysis is the higher the risk of short-term market inefficiency.

Indeed, financial institutions that can avoid the short-horizon problem can profit at the expense of the short-horizon investors. Overcoming the short-horizon problem, however, is a tricky task. It requires an ability to evaluate analysts' performance *ex ante* (rather than *ex post* based on actual performance) or finding a sufficiently large pool of long-term investors who do not care about short-term profits. Evaluating analysts based on their *ex ante* decisions requires reviewing the same dataset the analyst had, ensuring that no relevant information was ignored, and forming a pricing model that compares all available investment options. One who is capable of performing all these tasks is unlikely to need analytic services in the first place.

Finding long-term investors is complicated as well. Investors compare the performance of their fund with other funds. If one fund is doing better than others in the short term purely due to luck, investors will switch to the "successful" fund.<sup>124</sup> The managers of this fund will make more money and have more resources to invest, while other funds will have less of both. A fund that invests based on long-term considerations might show losses or slow growth for a long time

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120. Hedge funds are private investment vehicles for wealthy individuals or institutional investors. See generally William Fung & David A. Hsieh, *A Primer on Hedge Funds*, 6 J. EMP. FIN. 309 (1999) (describing the history, rationale, and organization of hedge funds).

121. See Andrei Shleifer & Lawrence H. Summers, *The Noise Trader Approach to Finance*, 4 J. ECON. PERSP. 19, 23 (1990) (describing how noise traders may increase demand based on the advice of financial gurus or brokers).

122. See James M. Poterba & Lawrence H. Summers, *Mean Reversion in Stock Prices: Evidence and Implications*, 22 J. FIN. ECON. 27, 28 (1988) (documenting the presence of mean reversion, and studying its effect on investors' portfolio decisions given the investment horizon).

123. See Eugene F. Fama & Kenneth R. French, *Permanent and Temporary Components of Stock Prices*, 96 J. POL. ECON. 246, 248 (1988) (explaining how a shock to expected returns affects the short but not long term); Andrei Shleifer & Robert W. Vishny, *The New Theory of the Firm: Equilibrium Short Horizons of Investors and Firms*, 80 AM. ECON. REV. 148, 151 (1990) (illustrating that price will revert to value in the long run regardless of noise trading).

124. For a colorful description of the securities investment industry and the phenomenon described in the text, see generally NASSIM NICHOLAS TALEB, *FOOLED BY RANDOMNESS: THE HIDDEN ROLE OF CHANCE IN THE MARKETS AND IN LIFE* (2001).

while other funds are showing huge profits and growth. It is not easy to convince investors that these losses are due to a calculated and informed long-term investment strategy, rather than incompetence.<sup>125</sup> Thus, it might be more profitable to follow the trend of short-term investment or speculation.<sup>126</sup>

This is a typical market problem that cannot, however, be remedied through legal intervention. The incentives to solve this problem and make money for long-term investors are in place, and indeed, some institutions have solved this problem through reputation, the use of “patient” money, or private money. As this group of investors grows, the short-term efficiency of the market will improve. In any case, it must be emphasized that whatever the distortions caused due to short-horizon problems, this is the best one can get out of a free market. Any improvement will not come from the law, but rather from education, social norms, and market learning and incentives.

#### *E. Agency Costs and Corporate Law*

In addition to facilitating a competitive market for information traders, securities regulation complements corporate law in reducing management agency costs.<sup>127</sup> First, by restricting insider trading, securities regulation avoids entrusting the role of providing efficiency and liquidity to insiders, thereby preventing the problem of self-

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125. One might be tempted to mention Warren Buffet as such an exception.

126. See Hirshleifer & Teoh, *supra* note 63, at 25 (reviewing studies of herding behavior); Scott E. Stickel, *Reputation and Performance Among Security Analysts*, 48 J. FIN. 1811, 1811 (1992) (charging that All-American analysts are more successful in part because they revise their forecasts more often); Brett Trueman, *Analyst Forecasts and Herding Behavior*, 7 REV. FIN. STUD. 97, 98 (1994) (illustrating how short-term speculation allows analysts to charge higher fees).

127. In the corporate structure there are agency problems between three pairs of groups: shareholders (principals) and managers (agents); minority shareholders (principals) and controlling shareholders (agents); and creditors (principals) and shareholders (agents). REINIER R. KRAAKMAN ET AL., *THE ANATOMY OF CORPORATE LAW: A COMPARATIVE AND FUNCTIONAL APPROACH* 21–22 (2004). In each relationship the agent controls the investment of the principal and due to conflict of interest and information asymmetry, the agent can further her interest at the expense of the principal. Measures designed to resolve these agency problems entail a cost, widely known as agency cost. See Jensen & Meckling, *supra* note 16, at 354–55 (defining agency costs). The primary role of corporate law is to minimize agency costs, most notably by imposing fiduciary duties on the board of directors and the management, and requiring corporate governance mechanisms. See KRAAKMAN ET AL., *supra*, at 22 (explaining each type of agency problem and arguing that “[l]aw can play an important role in reducing agency costs”).

monitoring by insiders. Second, by facilitating a competitive market for information traders, securities regulation provides shareholders with a market-monitoring mechanism that supplements the internal monitoring provided by the board of directors.<sup>128</sup> Indeed, analysts' reports provide the board with valuable information about the performance of the management.<sup>129</sup> Third, a competitive information traders market provides valuable feedback as to the quality of management, and thereby may directly affect the value of management's compensation package. Fourth, analysts' opinions about management quality inform shareholders' votes on corporate resolutions and influence their decisions to buy, hold, or sell the corporation shares. Finally, analysts' signal about management quality also benefits the market for corporate control and suppliers of corporate credit.

Market monitoring also complements courts' judicial oversight of agency problems. Management agency costs can assume one of two forms. The first is intentional *taking*: outright stealing, self-dealing, or excessive compensation. In corporate law, all cases of intentional takings are lumped under the heading of breach of duty of loyalty.<sup>130</sup> The second category of agency cost is *mismanagement*: inefficient investments aimed at "empire building,"<sup>131</sup> value-decreasing

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128. See Kee H. Chung & Hoje Jo, *The Impact of Security Analysts' Monitoring and Marketing Functions on the Market Value of Firms*, 31 J. FIN. & QUANT. ANAL. 493, 493 (1996) (showing that analysts' monitoring and marketing exert a "significant and positive effect on firms' market value"); Doukas et al., *supra* note 23, at 54 (supplying empirical evidence showing that "security analysis acts as a monitor to reduce the agency costs associated with separation of ownership and control"); Marc J. Epstein & Krishna G. Palepu, *What Financial Analysts Want*, 80 STRATEGIC FIN. 48, 50 (1999) (showing results from a survey of 140 star sell-side analysts that found 87 percent of these analysts believe that boards of directors "represent[] the interests of corporate management [and] not the interests of the other stakeholders"); Jeffrey N. Gordon, *Governance Failures of the Enron Board and the New Information Order of Sarbanes-Oxley*, 35 CONN. L. REV. 1125, 1132 (2003) (discussing the dual monitoring roles of the board of directors and market and related institutions); R. Charles Moyer et al., *Security Analyst Monitoring Activity: Agency Costs and Information Demands*, 24 J. FIN. & QUANT. ANAL. 503 (1989) (supplying empirical support for analysts' monitoring role).

129. Gordon, *supra* note 128, at 1132.

130. See, e.g., *Cinerama, Inc. v. Technicolor, Inc.*, 663 A.2d 1156, 1161 (Del. 1995) (discussing undisclosed material conflicts during a merger negotiation as breach of loyalty); *A.P. Smith Mfg. Co. v. Barlow*, 98 A.2d 581, 590 (N.J. 1953) (sustaining a corporate charitable donation); *Globe Woolen Co. v. Utica Gas & Elec. Co.*, 121 N.E. 378, 492 (N.Y. 1918) (discussing manager loyalty in the context of contractual negotiation).

131. See Bernard S. Black, *Bidder Overpayment in Takeovers*, 41 STAN. L. REV. 597, 627 (1989) ("[M]anagers may want to increase the size of their firms and to diversify, even if this reduces the return on the shareholders' investment . . . . Incentives to increase size include

diversifying mergers and takeovers, or distorted business decisions. In corporate law, cases of mismanagement fall under the heading of breach of the duty of care.<sup>132</sup> Cases of intentional takings fascinate the media and the public, but mismanagement is in fact a much more acute problem.<sup>133</sup>

Courts are competent to address breaches of duty of loyalty. Identifying taking or stealing within the corporate context does not involve second-guessing management's business decisions. Once a taking has been disclosed, courts can provide a remedy.<sup>134</sup> On the other hand, courts are ill-suited to handle breaches of the duty of care, as identifying mismanagement requires second-guessing management's business decisions. Indeed, in dealing with mismanagement cases, courts have adopted the "business judgment rule,"<sup>135</sup> according to which courts abstain from second-guessing business decisions except in extreme cases.<sup>136</sup> Moreover, legislators have permitted corporations to exempt directors from monetary damages arising from a breach of their duty of care.<sup>137</sup> Hence, responsibility for handling breaches of the duty of care has moved away from courts to the market.

Market mechanisms and institutions are aimed primarily at restricting mismanagement through competition, whereas regulation of intentional takings is mostly left for courts and social norms.<sup>138</sup> The analysts' market reduces the more crucial type of agency cost, mismanagement. Analysts follow management actions, evaluate managerial decisions, and incorporate this information into stock

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managers' desire for greater prestige and visibility, the desire of the chief executive officer to leave a legacy and not be a mere caretaker, and compensation structures that reward growth in sales and profits. These incentives for growth may lead managers to overinvest, either by expanding their own business or by buying a new business.").

132. See *supra* note 17 and accompanying text.

133. See *supra* note 19 and accompanying text.

134. See Robert B. Thompson & Randall S. Thomas, *Shareholder Litigation: Reexamining the Balance Between Litigation Agency Costs and Management Agency Costs* (Vanderbilt Univ. Law School Law & Econ., Working Paper No. 02-10, 2002) (on file with the *Duke Law Journal*), available at <http://ssrn.com/abstract=336162> (suggesting that, in Delaware, plaintiffs are more likely to succeed in cases involving breaches of the duty of loyalty or self dealing).

135. See *supra* note 21 and accompanying text.

136. See, e.g., *Smith v. Van Gorkom*, 488 A.2d 858, 873 (Del. 1985) (holding that where "there [are] no allegations of fraud, bad faith, or self dealing, or proof thereof . . . it is presumed that directors reached business judgment in good faith").

137. DEL. CODE ANN. tit. 8, § 102(b)(7) (2005).

138. See Rock & Wachter, *supra* note 22, at 1661 (discussing the duty of loyalty and social norms).

prices. Even though it is not their primary role, analysts who follow corporations may also detect fraud, intentional taking, and theft by management.<sup>139</sup> The more developed the analysts market, the more effective it is in reducing agency costs.<sup>140</sup>

Indeed, the distinction between corporate law, whose goal is to reduce corporate agency costs, and securities regulation, the goal of which is to facilitate a competitive market for analysts, is not so clear.<sup>141</sup> Although the essential role of securities regulation is to facilitate a market for information traders, it also contains provisions that aim partially or wholly at improving corporate governance structure.<sup>142</sup> For instance, the proxy rules, which mandate full disclosure before a shareholders' vote,<sup>143</sup> the Williams Act, which mandates specific procedure for tender offers<sup>144</sup> and the Sarbanes-Oxley Act,<sup>145</sup> which mandates certain structures for a board and audit committee and establishes certain procedures to assure the quality of corporate reports,<sup>146</sup> can all be viewed as establishing corporate governance structures and not facilitating a market for information traders.

Several reasons account for the blurred line between securities regulation and corporate law. First, many of what seem to be corporate-governance elements in securities regulation also facilitate a market for information traders. For instance, improved accounting practices reduce information traders' verification costs.<sup>147</sup> Also, the

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139. See, e.g., *Dirks v. SEC*, 463 U.S. 646, 655–56 (1983) (detailing how analysts expose corporate fraud).

140. See *supra* note 128 and accompanying text.

141. See Robert B. Thompson & Hillary A. Sale, *Securities Fraud as Corporate Governance: Reflections upon Federalism*, 56 VAND. L. REV. 859, 860–62 (2003) (explaining how securities fraud litigation serves to regulate corporate governance structure).

142. See Robert B. Thompson, *Collaborative Corporate Governance: Listing Standards, State Law, and Federal Regulations*, 38 WAKE FOREST L. REV. 961, 961 (2003) (providing a view of how the stock exchanges, Delaware, and the federal government can operate together to reduce corporate agency costs).

143. MELVIN ARON EISENBERG, *CORPORATIONS AND OTHER BUSINESS ORGANIZATIONS: CASES AND MATERIALS* 285–88 (8th ed. 2000) (providing an overview of proxy rules).

144. *Id.* at 1136–40.

145. Sarbanes-Oxley Act of 2002, Pub. L. No. 107-204, 116 Stat. 745 (an act aimed at protecting investors and improving the accuracy and reliability of corporate disclosure).

146. See generally Brian Kim, Recent Developments, *Sarbanes-Oxley Act*, 40 HARV. J. LEGIS. 235 (2003) (describing the provisions of the Act).

147. See Neil H. Aronson, *Preventing Future Enrons: Implementing The Sarbanes-Oxley Act of 2002*, 8 STAN. J.L. BUS. & FIN. 127, 136–37 (2002) (discussing the changes in accounting practices anticipated following the Sarbanes-Oxley legislation and the expected increased

requirement that potential acquirers wishing to buy more than 5 percent of the shares must disclose their tender offer intentions protects information traders against a substantial risk of nonpublic “outsider” information.<sup>148</sup> And the opposite is true as well: elements in securities regulation aimed at facilitating a market for information traders also reduce agency cost. For example, the restriction on fraud and manipulation reduces information traders’ verification costs, but also curbs the agency cost that is the source of management’s motive to defraud.<sup>149</sup>

Second, although in theory states compete for the role of providing efficient corporate governance, in practice the only real competition faced by the leading incorporation state, Delaware, is from the federal government.<sup>150</sup> Securities regulation is the federal government’s main tool for averting a race to the bottom in corporate governance issues. Thus, corporate governance issues that the federal government believes are not adequately handled by the states will likely find their way into securities regulation.<sup>151</sup>

This competition illustrates an important tie between securities regulation and corporate law. For capital markets to prosper, shareholder protection is necessary.<sup>152</sup> When shareholder value can

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transparency in corporate reporting). See generally Pankaj Jain et al., *The Effect of the Sarbanes-Oxley Act of 2002 on Market Liquidity* (14th Annual Conference on Fin. Econ. & Accounting, Mar. 2004) (on file with the *Duke Law Journal*), available at <http://ssrn.com/abstract=488142> (a study analyzing market liquidity measures before and after Sarbanes-Oxley and finding that the Act reduced information asymmetry and improved the disclosure and transparency of corporate information).

148. See Goshen & Parchomovsky, *supra* note 5, at 1274–76 (discussing the impact of “outside private information”).

149. See Jennifer H. Arlen & William J. Carrey, *Vicarious Liability for Fraud on Securities Markets: Theory and Evidence*, 1992 U. ILL. L. REV. 691, 699 (pointing out that it is managers who make misstatement not corporations, and thus securities fraud should be viewed as a form of management agency costs, e.g., managers trying to increase their pay through stock manipulation, or to hide their business failures by cooking the books).

150. See EISENBERG, *supra* note 143, at 106 (“[B]ecause of its historical success in . . . [the] market, Delaware is more threatened by the possibility of comprehensive federal intervention.”); Mark J. Roe, *Delaware’s Competition*, 117 HARV. L. REV. 588, 590 (2003) (“Delaware’s chief competitive pressure comes not from the other state but from the federal government.”).

151. See Roe, *supra* note 150, at 600 (“[N]otwithstanding the internal affairs doctrine, the federal government can displace state corporate law, and it has . . . . [T]he securities laws themselves can directly pull corporate law issues away from the states.”).

152. See Bernard S. Black, *The Legal and Institutional Preconditions for Strong Securities Markets*, 48 UCLA L. REV. 781, 783 (2001) (arguing that “two essential prerequisites for strong public securities markets” are “good information about the value of a company’s business” and

easily be expropriated, it is hard for a market for information traders to develop. Sophisticated analytical product about the future performance of the corporation is useless if the public shareholders are not going to receive any of the future profits. Analysts might try to supply monitoring services to guard shareholders against expropriation, but these services are ineffective without substantive rights and effective methods for enforcement. This is especially true in countries where concentrated ownership is coupled with ineffective enforcement in courts.<sup>153</sup> From this perspective, the competition from the federal government can be seen as aiming to preserve the information traders market. If state shareholder protections are ineffective, this will eventually harm the information traders market and consequently the capital market.

Moreover, it should be noted that the reduction in agency costs also benefits corporations. Liquidity traders hold portfolios of shares. Agency costs reduce the value of corporations and thus the total return on a market portfolio. Consequently, liquidity traders discount the shares to reflect the risk of agency costs. This, in turn, increases the cost of capital for corporations. The greater the agency costs, the greater the discount. Improving disclosure to facilitate a competitive market for information traders leads to lower agency costs. As liquidity traders apply lower discounts in response to the lower agency costs, the cost of capital decreases, and the whole market benefits.

In an important article, Professor Paul Mahoney argues against our position that securities regulation should facilitate a market for information traders.<sup>154</sup> In his view, the historic role of securities regulation was to reduce management agency costs, and this should continue to be its appropriate role.<sup>155</sup> Accordingly, securities regulation should focus on mandating the disclosure of clearly

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“confidence that the company’s insiders . . . won’t cheat investors out of most or all of the value of their investment through ‘self-dealing’ transactions . . . or even outright theft”).

153. See Zohar Goshen, *The Efficiency of Controlling Corporate Self-Dealing: Theory Meets Reality*, 91 CAL. L. REV. 393, 435 (2003) (describing Italy as such a case).

154. Paul G. Mahoney, *Mandatory Disclosure as a Solution to Agency Problems*, 62 U. CHI. L. REV. 1047, 1111 (1995) (“The accuracy enhancement model of mandatory disclosure . . . [I]mportant and interesting as it is, has little relevance to real-world mandatory disclosure systems.”).

155. See *id.* at 1051–52 (“The evident purpose of such disclosures is to help the shareholders monitor management’s self-interested behavior. By reducing monitoring costs, disclosure reduces overall agency losses.”).

verifiable information, conservative accounting requirements, management compensation packages, and self-dealings.<sup>156</sup> Because, in Mahoney's view, management agency cost takes the form of fraud, self-dealing, or excessive compensation, a limited disclosure is sufficient to achieve the goal of reducing management agency cost. Mandating the disclosure of soft, forward-looking information, current values accounting, and other detailed pieces of business information is wasteful because, instead of reducing management agency costs, these requirements aim at the elusive goal of achieving efficient markets through mandatory disclosure.<sup>157</sup>

This view, however, is based on an incomplete account of the management agency problem and the role of information traders in reducing it. Professor Mahoney is concerned with breaches of the duty of loyalty, and would like to confine mandatory disclosure to this end. However, although it is true that limited disclosure will still reduce agency cost caused by breach of the duty of loyalty, it will not reduce agency cost caused by breach of the duty of care. Courts are ineffective in monitoring duty-of-care breaches. Only information traders can detect and curtail mismanagement because liquidity traders do not search for information, noise traders are irrational, and insiders are not going to monitor themselves. If disclosure were limited to information concerning stealing or taking, information traders' search costs for all other types of information would increase. Higher search cost would result in fewer information traders and fewer analytical products.

Lowering search costs is crucial to facilitating the development of the information traders market. Given that information traders are concerned with all aspects of business operation, requiring the disclosure only of those transactions that involve self-dealing, management's compensation, and hard information would provide information traders with only partial information. Information traders must also know details about business decisions, different lines of business, and soft, forward-looking information.<sup>158</sup> Thus, even if one

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156. *See id.* at 1105–11 (contrasting “policy prescriptions of the agency cost model with those of the accuracy enhancement model” via SEC disclosure initiatives).

157. *See id.* at 1111 (“The fact that mandatory disclosure began as a means of controlling agency costs does not mean that it should not be used to achieve the goal of accuracy enhancement if it can do so cost-effectively. The hurdles blocking that result, however, seem dauntingly high.”).

158. For empirical evidence indicating that mandatory disclosure does improve analysts' forecast accuracy, see, for example, Afshad J. Irani, *The Effect of Regulation Fair Disclosure on*

thinks that the role of securities regulation should be to minimize agency costs, it must be recognized that this role, too, can be performed by the information traders market.

### III. IMPLICATIONS FOR SECURITIES REGULATION

The analysis hitherto provides a powerful tool for resolving policy debates over key issues in securities regulation. In this Part, we discuss in detail the implications of our theory for two such debates.

#### A. *Mandatory Disclosure*

Probably the most debated issue in securities regulation is whether disclosure duties should be mandatory. Opponents of mandatory disclosure argue that the market gives corporations sufficient incentives to disclose all material information; otherwise, investors will assume the worst and discount the value of their securities.<sup>159</sup> Mandatory disclosure, they argue, is costly and useless<sup>160</sup> because markets are efficient and thus already incorporate all the relevant information.<sup>161</sup> Disclosure, therefore, should be elective.<sup>162</sup>

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*the Relevance of Conference Calls to Financial Analysts*, 22 REV. QUANTITATIVE FIN. & ACCT. 15, 26 (2004).

159. Frank H. Easterbrook & Daniel R. Fischel, *Mandatory Disclosure and the Protection of Investors*, 70 VA. L. REV. 669, 683 (1984); see also Steven A. Ross, *Disclosure Regulation in Financial Markets: Implications of Modern Finance Theory and Signaling Theory*, in ISSUES IN FINANCIAL REGULATION 177 (Franklin Edwards ed., 1979) (providing a signaling model in which good firms have incentives to disclose and investors assume bad news from silence).

160. See, e.g., Barbara Banoff, *Regulatory Subsidies, Efficient Markets, and Shelf Registration: An Analysis of Rule 415*, 70 VA. L. REV. 135, 176–84 (1984) (arguing that improvement in price accuracy through increased underwriter liability is not worthwhile).

161. The classic studies tested the effect of imposing mandatory disclosure laws in the U.S. during the 1930s and concluded that these laws yielded no efficiency gains. George Benston, *Required Disclosure and the Stock Market: An Evaluation of the Securities Exchange Act of 1934*, 63 AM. ECON. REV. 132, 153 (1973); George Stigler, *Public Regulation of Securities Markets*, 37 J. BUS. 117, 122–24 (1964). For a critical review of these studies, see Merritt B. Fox, *Retaining Mandatory Securities Disclosure: Why Issuer Choice Is Not Investor Empowerment*, 85 VA. L. REV. 1335, 1369–95 (1999).

162. A different argument, which is outside the scope of our discussion, is the claim that the mandatory disclosure rules should not be enacted by the (monopolistic) federal government, but rather by an alternative competitive regime for securities regulation (countries, states, stock exchanges, etc.). Under this argument, corporations would be allowed to choose the registration venue that provides them with the preferred level of mandatory disclosure. See Stephen J. Choi & Andrew T. Guzman, *Portable Reciprocity: Rethinking the International Reach of Securities Regulation*, 71 S. CAL. L. REV. 903, 950 (1998) (“If the issuer could choose to comply with the laws of any regimes the issuer would be able to choose a very strict [mandatory disclosure] regime, thereby demonstrating the quality of the issue and increasing the price of the

Proponents of mandatory disclosure counter with various justifications.<sup>163</sup> The gist of these justifications is that information has characteristics that prevent optimal supply; it is a “public good” and hence creates externalities.<sup>164</sup> Most justifications focus on the supply side (the corporation) in explaining why competition will not result in optimal disclosure. First, information disclosed by a corporation provides value to actual or potential competitors, and enables them to evaluate their position vis-à-vis the disclosing corporation and respond to the disclosed information (e.g., stop or accelerate research and development, change marketing or pricing strategy, or enter or exit a market).<sup>165</sup> Second, disclosure provides value to creditors, employees, suppliers and consumers of the disclosing corporation, allowing them to improve their negotiation position vis-à-vis the corporation.<sup>166</sup> Third, the information provides value to prospective investors who are not current shareholders of the corporation, allowing them to better compare the corporation with alternative investments in composing a portfolio that might exclude or include the corporation’s securities.<sup>167</sup> Because the corporation can neither charge for these benefits nor exclude nonpaying parties from using the information, the corporation will underdisclose information.<sup>168</sup> In fact, each corporation would prefer to free ride on the benefit generated by the disclosure of other corporations and minimize its own disclosure. In sum, the misalignment between the private and social value of information justifies mandatory disclosure.

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security.”); Roberta Romano, *Empowering Investors: A Market Approach to Securities Regulation*, 107 YALE L.J. 2359, 2395 (1998) (“[A] state could further offer firms a menu of regimes from which to choose (such as the choice of an extensive disclosure regime, a more limited disclosure regime, and a merit review regime).”).

163. For an overview of these justifications, see KRAAKMAN ET AL., *supra* note 127, at 204–07.

164. For an excellent analysis of this justification, see Fox, *supra* note 161, at 1393–95; Dale A. Oesterle, *The Inexorable March Toward a Continuous Disclosure Requirement for Publicly Traded Corporations: “Are We There Yet?”*, 20 CARDOZO L. REV. 135, 198–201 (1998).

165. Easterbrook & Fischel, *supra* note 159, at 677; Oesterle, *supra* note 164, at 198–99.

166. See Admati & Pfleiderer, *supra* note 42, at 480 (“[S]ince disclosure reveals information to competitors or others who act strategically with the firm, it may cause the firm to lose competitive advantage or bargaining power in various contexts.”).

167. See Oesterle, *supra* note 164, at 200 (“[F]irms who provide information will benefit not only their own shareholders, by augmenting the value of their own stock, but also investors in other firms.”).

168. See Admati & Pfleiderer, *supra* note 42, at 482 (noting that disclosure decisions of each firm do “not take into account the informational spillovers that occur when . . . disclosure is used to value other firms,” rendering the equilibrium outcome inefficient).

These arguments seem to prove too much, however, given that they also support mandating disclosure by closely held corporations. Information regarding corporations that are not publicly traded is also a public good that will be underproduced by the market. If society gains from closing the gap between social and private values through mandatory disclosure, why limit mandatory disclosure to publicly traded corporations? The answer is that imposing mandatory disclosure on publicly traded corporations provides additional benefits such as liquidity, efficient public pricing, and monitoring of management, that are not present in the case of closely held corporations.<sup>169</sup>

It is possible, however, to think of a different justification for mandatory disclosure, one that focuses on sell-side analysts. According to this justification, absent mandatory disclosure, there will be both over- and underinvestment in securities research.<sup>170</sup> On the one hand, because analytical products are also a public good, analysts will underinvest in securities research (i.e., too few corporations will be followed).<sup>171</sup> On the other hand, multiple analysts will make duplicative investments in attempting to find the same pieces of (undisclosed) information about the corporation, leading to social waste.<sup>172</sup> Mandatory disclosure reduces both problems, because it subsidizes search and verification efforts and eliminates duplicative investment.

Our analysis supports this reasoning. It explains why mandatory disclosure is limited to publicly traded corporations and it elucidates the relationship between disclosure and informed trading. Our analysis reveals, however, that the justification for mandatory disclosure should not be limited to the special case of sell-side analysts. Sell-side analysts normally publish their reports for free and

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169. See, e.g., Kin Lo, *Economic Consequences of Regulated Changes in Disclosure: The Case of Executive Compensation*, 35 J. ACCT. & ECON. 285 (2003) (finding that forcing the disclosure of executive compensation has benefited shareholders by inducing corporate governance improvements); Manuel A. Utset, *Towards a Bargaining Theory of the Firm*, 80 CORNELL L. REV. 540, 598–99 (1995) (arguing that mandatory disclosure can help shareholders overcome a problem of strategic disclosure by managers and improve monitoring).

170. See Coffee, *supra* note 5, at 722 (“A mandatory disclosure system can . . . be seen as a desirable cost reduction strategy through which society, in effect, subsidizes search costs to secure both a greater quantity of information and a better testing of its accuracy.”).

171. *Id.* at 731–32.

172. *Id.* at 733–34; Easterbrook & Fischel, *supra* note 159, at 682; Oesterle, *supra* note 164, at 201–02.

expect to benefit indirectly through other business activities.<sup>173</sup> Most information traders, however, use buy-side analysts. Buy-side analysts do not publish their research; nor do they try to sell it. Thus, they do not face the public good problem in securities research. On the contrary, these analysts guard the confidentiality of their product as they attempt to profit from trading. Our model justifies mandatory disclosure from the buy-side perspective as well.

First, mandatory disclosure reduces search cost because it is cheaper for the corporation to disclose than for an outsider to unearth firm-specific information. Indeed, producing firm-specific information is an integral byproduct of managing the business, and the added cost of disclosing it is marginal.<sup>174</sup> Second, some undisclosed pieces of information cannot be discovered even at very high cost. The pricing of such information is based on estimates as to its existence, nature, and value. Such pricing is bound to be imprecise. Third, here too, disclosure by the corporation prevents duplicative investments in (undisclosed) corporate information for all types of information traders. And fourth, mandatory disclosure subsidizes search costs for all information traders. In this case, the public good characteristics of information produce a benefit for the market: the small investment made by the corporation in disclosure of information effects enormous savings in search costs for all information traders.

Our model provides yet another justification for mandatory disclosure. Mandatory disclosure enables information traders to exploit economies of scale and scope in analyzing information. Just as general market information may be used to price the stocks of many firms, information about any individual firm may be used to price the stocks of other corporations that compete or interact with that corporation. It is the disclosure by all the firms in the market that enables information traders to fully realize economies of scale and scope in analyzing information.<sup>175</sup> Hence, the desirability of

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173. See Chen et al., *supra* note 105, at 415–16 (arguing that “analysts can increase investors’ knowledge of the companies, which in turn, is expected to increase the valuation of the company”).

174. For instance, the total sales figure is reported to the top management. To disclose this figure costs very little, whereas this figure is very costly for analysts to obtain otherwise.

175. Admati & Pfleiderer, *supra* note 42, at 513–14 (showing that positive externalities result from information and liquidity spillovers due to improved disclosures by other firms).

mandatory disclosure can best be seen from a general market perspective, not that of the individual firm.<sup>176</sup>

To illustrate this point, assume no mandatory disclosure and a market with one hundred firms. One firm fully discloses and the rest only partially disclose. Information traders cannot use the information they have about the disclosing firm and the general market information to price other firms without investing in search costs for the remaining 99 firms. Given high search costs and limited ability to exploit economies of scale and scope, the market will support very few information traders. With very few information traders, competition will be low, efficiency and liquidity will be low, and no positive externalities will be generated. Assume now that a second firm fully discloses. The search cost for this individual firm will be saved, and the information gained about the general market and the first disclosing firm can be applied to the second firm at a small additional cost. Moreover, the knowledge gained about the second firm might improve the knowledge about the first firm. The increased disclosure will lead to increased savings in search costs, resulting in greater economies of scale and scope. As disclosure improves, more information traders will enter the market and competition will intensify. Intense competition among information traders, in turn, will generate more efficient and liquid markets as well as significant positive externalities for the economy.

More importantly, our model provides a new explanation as to why corporations cannot be trusted to voluntarily provide full disclosure. What will a corporation gain (or lose) from full disclosure? Or, stated differently, what will a corporation gain (or lose) from the existence of a competitive information traders market? The first benefit is improved liquidity for the corporation's securities.<sup>177</sup> Improved liquidity reduces investors' transaction costs and

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176. Professors Bushee and Leuz studied a regulatory change, which became effective in 1999, that mandated compliance with the Securities Exchange Act's reporting requirements for firms on the OTC Bulletin Board. Bushee & Leuz, *supra* note 42. Their study found that firms already filing with the SEC prior to the rule change experienced "positive stock returns and permanent increases in [market] liquidity." *Id.* at 233. This finding is consistent with the positive externalities from disclosure regulation.

177. *See id.* (finding that mandating firms on the OTC Bulletin Board to comply with the Securities Exchange Act of 1934 caused significant increases in market liquidity for the complying firms).

investment risks, thus lowering the corporation's cost of capital.<sup>178</sup> The second benefit is efficient pricing of the corporation's securities. Efficient pricing prevents undervaluation and hence eliminates the risk of an unjustified takeover.<sup>179</sup> It also provides an effective mechanism for measuring managerial efforts and compensation.<sup>180</sup> The third benefit is greater reduction in agency costs through improved monitoring and project choice<sup>181</sup> and increased relational investments.<sup>182</sup>

These effects represent a benefit only for efficient managements, however. For inefficient managements, full disclosure and a competitive information traders market represent threats. For these companies, a competitive information traders market will reflect inefficient management in lower stock prices, rendering the corporation a more likely target for takeovers;<sup>183</sup> expose inefficient management to claims of breach of fiduciary duties;<sup>184</sup> expose inefficient management to proxy fights;<sup>185</sup> limit management's ability to consume and expropriate value from shareholders; and increase pressure from the board of directors.<sup>186</sup>

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178. See Douglas Diamond & Robert Verrecchia, *Disclosure, Liquidity, and the Cost of Capital*, 46 J. FIN. 1325, 1326 (1991) (noting that increased disclosure leads to increased liquidity and lower cost of capital); David Easley & Maureen O'Hara, *Information and the Cost of Capital* 33 (Cornell Univ. Johnson Graduate Sch. of Mgmt. Working Paper, Nov. 2001) (on file with the *Duke Law Journal*), available at <http://ssrn.com/abstract=300715> (presenting a model showing that greater disclosure leads to lower cost of capital).

179. See Merritt B. Fox, *Required Disclosure and Corporate Governance*, 62 LAW & CONTEMP. PROBS. 113, 123 (Summer 1999) (“[R]equired disclosure can help alleviate the problem of poor investment projects much less expensively than hostile takeovers.”).

180. Venky Nagar et al., *Discretionary Disclosure and Stock-Based Incentives*, 34 J. ACCT. & ECON. 283 (2003), studied the relationship between managers' disclosure activities and their stock price-based compensation incentives. The study found that disclosure by firms, measured both by management earnings forecast frequency and by analysts' subjective ratings of disclosure practice, is positively related to the proportion of CEO compensation affected by stock price and to the value of shares held by the CEO. *Id.* at 307.

181. See Merritt B. Fox, *The Political Economy of Statutory Reach: U.S. Disclosure Rules in a Globalizing Market for Securities*, 97 MICH. L. REV. 696, 732 (1998) (arguing that an appropriate level of issuer disclosure is essential to managerial motivation and to a firm's choice of real investment projects).

182. See Diamond & Verrecchia, *supra* note 178, at 1325 (noting that increased disclosure leads to increased holdings of large investors).

183. See Fox, *supra* note 179, at 120 (“Greater disclosure . . . makes the hostile takeover threat more real.”).

184. *Id.* at 118.

185. *Id.* at 126.

186. Gordon, *supra* note 128, at 1131–32.

For these reasons, not all corporations should be expected to provide full disclosure without a mandatory disclosure rule.<sup>187</sup> Opponents of mandatory disclosure respond to these claims by arguing that under an elective disclosure system, investors will assume the worst about the nondisclosing firms and discount their securities.<sup>188</sup> The assume-the-worst argument prompts several responses. First, because of the public-good nature of information, even efficient management may find the gains from full disclosure outweighed by the cost of the disclosure.<sup>189</sup> In such cases, even efficient management will not disclose all available information about the corporation without a mandatory disclosure rule.<sup>190</sup> Second, the ability of management to engage in management buyouts (MBO) transforms the market's reaction to insufficient disclosure (i.e., discounting corporate securities) into a strategic tool that will improve management ability to buy out the corporation for discounted value.<sup>191</sup> Third, management can avoid market discipline even if securities are discounted by relying on retained earnings instead of raising new capital, and adopting antitakeover defenses.

All these responses, although valid, accept the premise that nondisclosing firms will be penalized by the market through excessive discounting of their securities prices. This is the core premise of the assume-the-worst argument. We provide a new response that rejects this premise and sheds additional light on the mandatory disclosure

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187. See W.O. Jung & Young K. Kwon, *Disclosure When the Market is Unsure of Information Endowment of Managers*, 26 J. ACCT. RES. 146, 146 (1988) (suggesting that managers are more likely to disclose when they possess good news).

188. Easterbrook & Fischel, *supra* note 159, at 683; see also Thompson & King, *supra* note 117 (applying this assumption to another context).

189. See Hal S. Scott, *Internalization of Primary Public Securities Markets*, 63 LAW & CONTEMP. PROBS. 71, 76 (Summer 2000) (noting that management sometimes chooses not to disclose "because disclosure would aid competitors").

190. It is true that, in response to analyst demands, many managers do disclose much more information voluntarily than mandated by law. This could be because managers who want to disclose are not deterred by the externalities or because the basic mandated disclosure has already eroded the cost of externalities for all firms.

191. Managers do resort to such pre-MBO tactics. See David Millon, *Why Is Corporate Management Obsessed with Quarterly Earnings and What Should Be Done About It?*, 70 GEO. WASH. L. REV. 890, 911 (2002) (supplying evidence of management manipulation of discretionary accruals in the year preceding the public announcement of management's intention to bid for control of the company); Susan E. Perry & Thomas H. Williams, *Earnings Management Preceding Management Buyout Offers*, 18 J. ACCT. & ECON. 157, 159 (1994) (finding "convincing evidence of manipulation . . . in the year preceding the public announcement" of the MBO bid).

debate. A competitive market of information traders cannot penalize firms that do not provide adequate disclosure by “assuming the worst” about them and excessively discounting their securities, because excessive discounting requires either asymmetric information that leads to a “lemons market,” or collusion among information traders.

For asymmetric information to lead to a “lemons market,” the asymmetry should be between sellers and buyers.<sup>192</sup> Nondisclosure by publicly traded corporations in the secondary market does not create asymmetric information between sellers (current shareholders) and buyers (potential shareholders); rather, both sides are in the dark. The corporation may avoid full disclosure for good reasons (e.g., to protect merger negotiations or valuable R&D results) or for bad reasons (e.g., to hide business failures or management abuses).<sup>193</sup> In such a situation, both sides will attempt to find the true value of the corporation, leading to a market price that reflects their best estimate of the corporation’s value.<sup>194</sup> Given the competition among sellers and among buyers, no one can simply “assume the worst,” and thus the market will not collapse into a “lemons market.”<sup>195</sup> In other words,

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192. A “lemons market” is a market in which asymmetric information exists between sellers and buyers. Since the buyers are not fully informed as to the quality of the products, they discount the price of all products. High quality products will not sell for a price that reflects their quality and will, thus, exit the market. Only “lemons” are left in the market. If producers of high quality products are unable to assure the buyers of their superior quality, they will be treated as “lemons.” See George Akerlof, *The Market for “Lemons”: Quality, Uncertainty and the Market Mechanism*, 84 Q.J. ECON. 488, 495 (1970) (“[T]he presence of people who wish to pawn bad wares as good wares tends to drive out the legitimate business.”); Hayne Leland, *Quacks, Lemons and Licensing: A Theory of Minimum Quality Standards*, 87 J. POL. ECON. 1328, 1239 (1979) (“[I]nformational asymmetry can lead to certain types of market failure.”).

193. See, e.g., Joshua Ronen & Varda (Lewinstein) Yaari, *Incentives For Voluntary Disclosure*, 5 J. FIN. MARKETS 349, 350–51 (2002) (arguing that typically, information with no duty to disclose consists of nonverifiable data, such as a predicted state of the environment; the absence of this type of information cannot be interpreted as bad news); R. Verrecchia, *Discretionary Disclosure*, 5 J. ACCT. & ECON. 179, 180–81 (1983) (discussing the two competing reasons for nondisclosure).

194. This is the setting of the seminal model showing wasteful information searches that was presented by Jack Hirshleifer, *The Private and Social Value of Information and the Reward to Inventive Activity*, 61 AM. ECON. REV. 561 (1971).

195. Competition among analysts is most intense with respect to large corporations whose shares are being followed by many analysts. Yet, no individual analyst can discipline a major corporation whose shares are included in many investors’ portfolios by either discounting share prices by more than is necessary or by refusing to follow the shares.

competitive forces negate the ability of the market to induce managements to provide full disclosure by punishing nondisclosure.<sup>196</sup>

The only way information traders could overcome this problem is by collectively agreeing to assume the worst about nondisclosing corporations. Such an industry-wide agreement to punish corporations for nondisclosure would be a blatant violation of antitrust law.<sup>197</sup> Even absent collusive tactics, if all information traders

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196. Indeed, asymmetric information that can lead to a “lemons market” exists in the IPO market. When the corporation issues securities to the public, nondisclosure creates classic asymmetric information between a seller and buyers. In this case, the ability of the market to discount the price of the securities, and thereby provide the issuer with an adequate incentive to disclose, is high. See Alan Palmiter, *Toward Disclosure Choice in Securities Offerings*, 1999 COLUM. BUS. L. REV. 1, 4 (noting that despite the range of relaxations in the IPO disclosure requirements, there is strong evidence that investor informational demands in securities offerings often compel issuers to disclose “at levels beyond that mandated—as a private, contractual matter”). Indeed, issuers attempt to avoid the “lemons market” by using underwriters, and underpricing the IPOs (sometimes heavily). See Seha M. Tinic, *Anatomy of Initial Public Offerings of Common Stock*, 43 J. FIN. 789, 797–800 (1988) (explaining the use of underpricing as a form of insurance). Why then is disclosure mandated in the IPO stage? The answer that flows out of our model is that disclosure at IPOs helps the secondary market. Immediately after the IPO, there will be trading between sellers and buyers in a competitive market, and until the first duty to disclose kicks in (which usually happens at the end of the first quarter of operation) there will be a period of time during which the secondary market will be in the dark. See Mingsheng Li et al., *Asymmetric Information in the IPO Aftermarket*, 40 FIN. REV. 131, 131 (2005) (finding that the greater the underpricing of an IPO, the lower the aggregate level of asymmetric information, and that the level of asymmetric information is lower immediately after the IPO comes to market compared with its level after a period of seasoning); Raghuram Rajan & Henri Servaes, *Analyst Following of Initial Public Offerings*, 52 J. FIN. 507, 508 (1997) (finding that underpricing is positively related to the number of analysts who are covering the new issues in the IPO aftermarket). Indeed, in light of this view, the SEC policy of relaxing IPOs’ disclosure requirements and providing exemptions when there is no effect of asymmetric information in secondary trading is justified. For instance, private placement according to 144A allows trading only among institutional investors on a designated quoting system because there is minimal asymmetric information among these investors. See Palmiter, *supra*, at 29–85 (detailing all the relaxations in the IPO disclosure requirements and arguing that disclosure has become much less mandatory for IPOs).

An alternative explanation is that there might be an adverse selection of investors in an IPO. Informed and sophisticated investors will avoid the IPO, but the issuer can still attract uninformed investors. Unlike secondary markets in which uninformed investors are protected by the presence of informed investors (i.e., the efficiency of the market), in an IPO there will be no protection. Thus, there is a need to mandate disclosure in IPOs to attract informed investors, avoid adverse selection problems, and thereby protect uninformed investors.

197. See John C. Coffee, Jr., *Gatekeeper Failure and Reform: The Challenge of Fashioning Relevant Reforms*, 84 B.U. L. REV. 301, 351 (2004) (acknowledging less obvious collusive practices “in some gatekeeping professions . . . most notably, auditing”); Butler D. Shaffer, *In Restraint of Trade: Trade Associations and the Emergence of “Self Regulation,”* 20 SW. U. L. REV. 289, 298–99 (1991) (noting the possible unlawfulness embedded in industry wide agreements regulating trade practices).

were to “assume the worst” and discount the shares too much, it would create an incentive for individual information traders to invest in search costs in an attempt to estimate the true value of the corporation. Such individual information traders would be able to buy for a low price (because at the time they buy, all other information traders discount the shares too much) and sell for a high price (because at the time they sell, the true facts will be revealed). All other information traders will be forced to respond by adopting a similar strategy and investing in search costs to form their own estimation of the true value of nondisclosing firms. Hence, competition among information traders will result in all information traders investing in search costs and forming their own individual estimates of the true value of nondisclosing corporations. Because the market cannot punish corporations for insufficient disclosure, it cannot spur inefficient management to fully disclose. Instead of voluntary optimal disclosure from corporations, the result, once again, is highly duplicative investments in search costs by information traders. Every noncooperative firm is thus impeding the development of a competitive market for information traders, leading to fewer information traders and less securities research.

Indeed, once a competitive information traders market is developed, information traders will be able to generate the benefits associated with close analyst coverage, such as efficient pricing, liquidity, and better monitoring of agency costs. Good management seeking to capture these benefits will have an incentive to voluntarily engage in timely and fine-tuned disclosure. Even in a highly developed market, however, mandatory disclosure will remain necessary. First, because information traders face competition from other information traders, their ability to sanction nondisclosure is very limited. Only good managements that stand to benefit from analyst coverage will elect to disclose voluntarily, whereas other managements will disclose only if mandated by law.<sup>198</sup> Second, information traders’ ability to obtain additional disclosure is predicated on the basic disclosure requirement embedded in mandatory disclosure and the legal sanctions for incomplete or misleading information. Third, many small corporations do not enjoy

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198. *But see* Sharon Hannes, *Comparisons Among Firms: (When) Do They Justify Mandatory Disclosure?*, 29 J. CORP. L. 699 (2004) (arguing that many firms will disclose financial information even without mandatory disclosure to enjoy comparative disclosure benefits).

sufficient analyst coverage to generate the benefits that justify voluntary disclosure.<sup>199</sup> Mandatory disclosure rules induce such disclosure by small corporations and corporations with bad management that would otherwise choose not to disclose.

Finally, mandatory disclosure can be justified from the perspective of liquidity traders as well. At first glance, mandatory disclosure duties, insofar as they pertain to firm-specific information, may seem irrelevant to liquidity traders. The buying and selling decisions of liquidity traders are not based on information about individual stocks. Buying and holding a diversified portfolio shelters liquidity traders from the risks of mispricing. If in the absence of disclosure duties, some shares will be traded at a discount and others at a premium, then the holder of a diversified portfolio would receive the correct average price because the two opposing effects will cancel each other out. Even if one were to assume that absent disclosure duties, stock prices would be generally discounted or inflated, this should have no effect on liquidity traders who would then buy a portfolio for a discounted or inflated price and sell it for a correspondingly discounted or inflated price. Similarly, if the absence of disclosure duties increases firm-specific fundamental risk or noise risk, then buying and holding a portfolio will diversify away these risks.

Note, however, that liquidity traders are concerned with securities regulation insofar as it facilitates liquidity and prevents shareholder expropriation. Mandatory disclosure has a positive effect on liquidity. The less disclosure there is, the higher the risk of asymmetric information. A higher risk of asymmetric information implies a larger bid-ask spread, and lower liquidity. Mandatory disclosure also reduces management agency costs, and with those the risk of shareholder expropriation. Indeed, both risks—asymmetric information and agency costs—cannot be diversified by liquidity traders, although liquidity traders can discount overall share prices. This action will increase the cost of capital for all corporations and

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199. See Ravi Bhushan, *Firm Characteristics and Analyst Following*, 11 J. ACCT. & ECON. 255, 256–57 (1989) (examining factors that lead to differences in analysts' following of firms, and concluding that firm size, among other things, influences supply and demand of analysts' coverage); Mark H. Lang et al., *Concentrated Control, Analyst Following, and Valuation: Do Analysts Matter Most When Investors Are Protected Least?*, 42 J. ACCT. RES. 589, 590 (2004) (reporting empirical findings indicating that "analyst coverage is negatively related to the overall level of family/management control of a firm and to whether the family/management group is the largest controlling blockholder of a firm").

reduce allocative efficiency. Mandatory disclosure avoids this chain of actions, thereby promoting allocative efficiency.

*B. Fraud-on-the-Market Theory Revisited*

One of the more important modern developments in securities regulation is the adoption of the fraud-on-the-market theory as a rebuttable presumption of reliance in securities fraud cases. In a common law fraud case the plaintiff must show that there was a misstatement<sup>200</sup> issued by the defendant with scienter,<sup>201</sup> and that the plaintiff relied on the misstatement<sup>202</sup> and suffered damages.<sup>203</sup> To show reliance means to show that the plaintiff read the misstatement and acted based upon it.<sup>204</sup> Such a showing in a securities fraud will of course differ among investors: some read the misstatement and acted upon it; others read it and took no action;<sup>205</sup> still others did not read the misstatement but took independent action. Of course, there are also those who did not even know about the misstatement. If, in a class action, one had to show reliance, then the individual issues would predominate over the common ones and the class could not be certified.<sup>206</sup> To facilitate class actions in securities fraud cases, courts have adopted FOTM as a presumption of reliance.<sup>207</sup> Because the market incorporates information into prices, it will reflect the misstatement in the securities price, and thus reliance on market prices is a substitute for reliance on the misstatement.<sup>208</sup> Consequently, even those who did not know about the misstatement

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200. Rudolph v. Arthur Andersen & Co., 800 F.2d 1040, 1043 (11th Cir. 1986)

201. Ernst & Ernst v. Hochfelder, 425 U.S. 185, 193 (1976); LOUIS LOSS & JOEL SELIGMAN, FUNDAMENTALS OF SECURITIES REGULATION 949–61 (4th ed. 2001).

202. LOSS & SELIGMAN, *supra* note 201, at 1200–10.

203. *Id.* at 1210–19.

204. *See, e.g.*, List v. Fashion Park, Inc., 340 F.2d 457, 462–63 (2d Cir. 1965) (discussing the requirement of reliance in civil cases under Rule 10b-5).

205. *See* Gochnauer v. A.G. Edwards & Sons, 810 F.2d 1042, 1051 (11th Cir. 1987).

206. The requirement that common issues dominate individual issues in a class action lawsuit comes from the Federal Rules of Civil Procedure. FED. R. CIV. P. 23(a)(2), 23(b)(3).

207. *See, e.g.*, Blackie v. Barrack, 524 F.2d 891, 906–08 (9th Cir. 1975) (eliminating the requirement of proving direct reliance).

208. *See* Gebhardt v. ConAgra Foods, Inc., 335 F.3d 824, 831 (8th Cir. 2003) (noting that plaintiffs typically fulfill the transaction causation pleading requirement simply by pleading that defendants perpetrated a fraud on the market as a whole).

but traded during the relevant time of the misstatement are entitled to sue.<sup>209</sup>

Although many supported the adoption of the FOTM presumption,<sup>210</sup> the theory has been under attack since its inception.<sup>211</sup> First, based on the dissent in *Basic, Inc. v. Levinson*<sup>212</sup>—the Supreme Court case that adopted the presumption—commentators argued that markets are not efficient enough to justify the presumption.<sup>213</sup> If the market is inefficient, and thus does not respond to the misstatement, there is no reason to adopt the FOTM presumption. This attack has been recently revived with the growth of behavioral finance and the

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209. See *Nathenson v. Zonagen Inc.*, 267 F.3d 400, 415 (5th Cir. 2003) (noting that to invoke the presumption a plaintiff need only show that the securities at issue traded on an efficient market).

210. See Julie A. Herzog, *Fraud Created the Market: An Unwise and Unwarranted Extension of Section 10(b) and Rule 10b-5*, 63 GEO. WASH. L. REV. 359, 369 (1995) (noting the vast extent to which Fraud-On-The-Market theory has been commended).

211. See Daniel R. Fischel, *Use of Modern Finance Theory in Securities Fraud Cases Involving Actively Traded Securities*, 38 BUS. L. 1, 11 (1982) (arguing that a presumption of reliance should be abandoned); Joseph A. Grundfest, *Disimplying Private Rights of Action Under the Federal Securities Laws—The Commission's Authority*, 107 HARV. L. REV. 961, 972–73 (1994) (“Defendants complain that they are victims of an epidemic of baseless litigation that confuses stock market volatility with securities fraud and that creates substantial liability for companies that provide projections to the market.”).

212. 485 U.S. 224 (1988).

213. In his *Basic* dissent, Justice White noted that

[W]hile the economists’ theories which underpin the fraud-on-the-market presumption may have the appeal of mathematical exactitude and scientific certainty, they are—in the end—nothing more than theories which may or may not prove accurate upon further consideration. . . . Thus, while the majority states that, for purposes of reaching its result it need only make modest assumptions about the way in which ‘market professionals generally’ do their jobs, and how the conduct of market professionals affects stock prices. . . . I doubt that we are in much of a position to assess which theories aptly describe the functioning of the securities industry.

*Id.* at 254–55 (White, J., concurring in part and dissenting in part); see also Ian Ayres, *Back to Basics: Regulating How Corporations Speak to the Market*, 77 VA. L. REV. 945, 967 (1991) (describing the increased attack on the efficient markets hypothesis); Carol R. Goforth, *The Efficient Capital Market Hypothesis—An Inadequate Justification for the Fraud-On-The-Market Presumption*, 27 WAKE FOREST L. REV. 895, 910–11 (1992) (introducing the *Basic* Court’s introduction of the efficient capital market hypothesis (ECMH) into legal doctrine and its rationale for doing so); Jonathan R. Macey & Geoffrey P. Miller, *Good Finance, Bad Economics: An Analysis of the Fraud-On-The-Market Theory*, 42 STAN. L. REV. 1059, 1077–91 (1990) (noting that the efficiency of markets differs with respect to different pieces of information); Jonathan R. Macey et al., *Lessons From Financial Economics: Materiality, Reliance, and Extending the Reach of Basic v. Levinson*, 77 VA. L. REV. 1017, 1018 (1991) (noting that substantial disagreement exists among financial economists about what conclusions empirical tests of market efficiency support).

burst of the high-tech bubble.<sup>214</sup> Second, it was argued that even when markets are efficient, the adoption of the presumption is not justified because it creates overdeterrence,<sup>215</sup> provides damages to nondamaged parties,<sup>216</sup> and distorts productive efficiency.<sup>217</sup>

1. *The Inefficient Market Claim.* The first criticism of the FOTM presumption suffers from two flaws. First, it relies on an incorrect reading of the ruling in *Basic*. Second, our analysis indicates that when markets are effective, yet deviate from efficient pricing, FOTM is especially important. We start with the first flaw. The majority in *Basic* famously stated that one must show “reliance on the integrity of the market price” as a precondition for invoking the FOTM presumption.<sup>218</sup> There are two ways to interpret this

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214. See, e.g., Alon Brav & J.B. Heaton, *Market Indeterminacy*, 28 J. CORP. L. 517, 518–19 (2003) (chronicling the history of uncertainty regarding the stock market’s efficiency); Ferrillo et al., *supra* note 28, at 107–16 (describing the various challenges to the Efficient Market Hypothesis); M.C. Findlay & E.E. Williams, *A Fresh Look at the Efficient Market Hypothesis: How the Intellectual History of Finance Encouraged a Real “Fraud-On-The-Market,”* 23 J. POST KEYNESIAN ECON. 181, 181–82 (2001) (postulating that evidence supporting the efficient market hypothesis was in fact never very strong).

215. Janet C. Alexander, *Rethinking Damages in Securities Class Action*, 48 STAN. L. REV. 1487, 1495 (1996); Donald C. Langevoort, *Capping Damages for Open-Market Securities Fraud*, 38 ARIZ. L. REV. 639, 643 (1996); John A. MacKerron, *The Price Integrity Cause of Action Under Rule 10b-5: Limiting and Extending the Use of the Fraud On The Market Theory*, 69 OR. L. REV. 177, 177–78 (1990); Mahoney, *supra* note 5, at 626–41.

216. Barbara Black, *Fraud on the Market: A Criticism of Dispensing With Reliance Requirements In Certain Open Market Transactions*, 62 N.C. L. REV. 435, 460 (1984); Frank Easterbrook & Daniel Fischel, *Optimal Damages in Securities Cases*, 52 U. CHI. L. REV. 611, 642 (1985); Langevoort, *supra* note 215, at 646. See Michael Y. Scudder, *The Implications of Market-Based Damages Caps in Securities Class Action*, 92 NW. U. L. REV. 435, 442, 465 (1997) (describing the windfall nature of securities damages in FOTM class action lawsuits following the enactment of the Private Securities Litigation Reform Act of 1995).

217. See Marcel Kahan, *Games, Lies, and Securities Fraud*, 67 N.Y.U. L. REV. 750, 761 (1992) (noting that the FOTM presumption allows companies to be subjected to liability for competitory and negotiatory lies); Jonathan R. Macey & Geoffrey P. Miller, *The Fraud on the Market Theory Revisited*, 77 VA. L. REV. 1001, 1015 (1991) (arguing that securities fraud liability may destroy company’s property interest in information); Charles H. Steen, *The Econometrics of Fraud-On-The-Market Securities Fraud*, 4 J.L. ECON. 11, 36–37 (1994) (arguing against the effect of withholding investors from placing their capital at risk, which in turn would induce the market’s process of efficiently allocating resources to their best use).

218. See *Basic*, 485 U.S. at 226 (“We must also determine whether a person who traded a corporation’s shares on a securities exchange after the issuance of a materially misleading statement by the corporation may invoke a rebuttable presumption that, in trading, he relied on the integrity of the price set by the market.”); *id.* at 249–50 (“[I]t is not inappropriate to apply a presumption of reliance supported by the fraud-on-the-market theory.”).

statement.<sup>219</sup> The first, putting the premium on the term “price,” requires that plaintiffs who seek to invoke the presumption must show that they accepted the market price as an accurate reflection of value. Under this interpretation, integrity of market price is synonymous with accurate pricing. The second interpretation, emphasizing the term “market,” does not require the plaintiff to show reliance on the accuracy of the price, but rather focuses on the integrity of the process by which the market sets prices. That is, the second interpretation requires a showing of what we call an effective market—a market with a corrective price mechanism.

To understand the difference between the two interpretations, consider a case of short selling. Under the first interpretation, plaintiffs who sold short cannot invoke the FOTM presumption because the act of selling short, by definition, indicates that they did not consider the market price an accurate reflection of value.<sup>220</sup> The second interpretation leads to a radically different result. Although selling short indicates that the seller was of the opinion that the security was overpriced, the decision to sell does not demonstrate that the seller deemed the market ineffective. On the contrary, a short seller must rely on the effectiveness of the market, because the profitability of selling short is premised on the belief that the price would eventually revert to value. A careful reading of the majority’s opinion in *Basic* reveals that the second interpretation is the correct one.<sup>221</sup> The first interpretation is the product of substituting for a

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219. For an excellent analysis of *Basic* and its interpretations, see Donald C. Langevoort, *Theories, Assumptions, and Securities Regulation: Market Efficiency Revisited*, 140 U. PA. L. REV. 851, 903 (1992); see also Note, *Recent Cases: Tort Law—Indirect Reliance—New Jersey Supreme Court Rejects Fraud-On-The-Market Theory—Kaufman v. i-start Corp.*, 754 A.2d 1188 (N.J. 2000), 114 HARV. L. REV. 2550, 2553 (2001) (noting the distinction between two informational efficiency and fundamental efficiency aspects of the ECMH: “informational efficiency means that stock prices will reflect certain classes of existing information,” whereas “fundamental efficiency posits that, conditioned on the information available, stock prices will reflect the present value of corporations’ expected underlying profits”).

220. The short-seller example was provided by the minority in *Basic*, 485 U.S. at 251, and ruled on in *Zlotnick v. TIE Communications*, 836 F.2d 818, 824 (3d Cir. 1988) (a short-seller is not entitled to the presumption of reliance).

221. This conclusion is apparent from the example that the majority in *Basic* provides for rebutting the presumption of reliance:

For example, a plaintiff who believed that Basic’s statements were false and that Basic was indeed engaged in merger discussions, and who consequently believed that Basic stock was artificially underpriced, but sold his shares nevertheless because of other unrelated concerns, e.g., potential antitrust problems, or political pressures to divest from shares of certain businesses, could not be said to have relied on the integrity of a price he knew had been manipulated.

direct reading of the *Basic* majority view the minority's misreading of the majority view.<sup>222</sup>

If one accepts the first interpretation, the question of whether markets are efficient is relevant to the adoption of the FOTM presumption. Indeed, those attacking the presumption on the grounds of market inefficiency contend that *Basic* supports the first interpretation.<sup>223</sup> If, however, the correct reading of *Basic* is as we argue, then the issue of efficiency does not affect the validity of the presumption,<sup>224</sup> because the presumption only requires a showing of an effective, not efficient, market.<sup>225</sup>

As for the second flaw, our model shows that when markets are effective but inefficient it is especially desirable to provide optimal conditions to information traders, because information traders constitute the best mechanism for correcting market inefficiencies.

*Basic*, 485 U.S. at 249. Clearly, this is a unique example. It requires that the investor *knew* of the true facts and was *forced* to trade due to very rare reasons ("potential antitrust problems, or political pressures"). Why does the investor have to know the true facts? Is it not enough just to think that the stock is overpriced? Why does the sale have to be forced? Langevoort, *supra* note 219, at 857 n.156. Why not use the much simpler example of a short seller provided by the minority? Because the majority does not accept the interpretation that reliance on the integrity of the market price requires accepting the price as the true value of the security. Indeed, in *In re Western Union Securities Litigation*, 120 F.R.D. 629, 637 (D.N.J. 1988), the court found *Zlotnick's* validity "somewhat questionable in light of *Basic*." Similarly, in *Deutschman v. Beneficial Corp.*, 132 F.R.D. 359, 371 (D. Del. 1990), the court held that, although options traders are betting on price movements, they are entitled to the presumption of reliance. For scholars supporting this interpretation, see, for example, Daniel R. Fischel, *Efficient Capital Markets, the Crash, and the Fraud on the Market Theory*, 74 CORNELL L. REV. 907, 918–22 (1989); Langevoort, *supra* note 219, at 857 & n.156.

222. See Justice Byron White's description of the majority's opinion. *Basic*, 485 U.S. at 255–56 (White, J., concurring in part and dissenting in part). Justice White provided the following examples for rebutting the reliance presumption:

[A] plaintiff who decides, months in advance of an alleged misrepresentation, to purchase a stock; one who buys or sells a stock for reasons unrelated to its price; one who actually sells a stock "short" days before the misrepresentation is made—surely none of these people can state a valid claim under Rule 10b-5.

*Id.* at 251 (White, J., concurring in part and dissenting in part). These examples are based on the fact that the investor did not accept the price as a true reflection of value. For scholars supporting this interpretation, see, for example, Jonathan R. Macey, *The Fraud on the Market Theory: Some Preliminary Issues*, 74 CORNELL L. REV. 923, 925–26 (1989).

223. See, e.g., Macey, *supra* note 222, at 225–26.

224. "By accepting this rebuttable presumption, we do not intend conclusively to adopt any particular theory of how quickly and completely publicly available information is reflected in market price." *Basic*, 485 U.S. at 249 n.28.

225. "For purposes of accepting the presumption of reliance in this case, we need only believe that market professionals generally consider most publicly announced material statements about companies, thereby affecting stock market prices." *Id.* at 247 n.24.

Effective and efficient markets imply the existence of a sufficiently competitive market for information traders, which is beating noise traders and capable of producing accurate pricing. In such a market, information traders already enjoy low verification costs, which the FOTM presumption protects. On the other hand, when markets are effective and inefficient the implication is that information traders cannot effectively correct market prices because of increased noise trading and limitations on arbitrage. In such a market, the probability of profiting from misstatements is high because noise traders would amplify the effect of misstatements on price and information traders would not be able to prevent price fluctuations. Under these conditions, information traders are exposed to high risk (low likelihood of capturing price or value deviations and large potential damages) and must bear very high verification cost, leading to limited price correction activity. Abolishing the FOTM presumption would further increase the probability of fraudulent statements, making it even harder for information traders to spot and correct deviations of price from value. Thus, in an effective but inefficient market, it is imperative to employ the FOTM presumption to increase information traders' activity and thereby more swiftly return to efficiency.<sup>226</sup>

2. *The Efficient Market Claims.* The second attack on the FOTM presumption stems from the opposite assumption—that markets are efficient. Assume, therefore, that the market is efficient and does reflect misstatements in price. To deter misstatements, the offender should be forced to pay the damage created by the misstatement multiplied by a factor that takes account of the fact that the probability of capture is lower than one. The argument is that because the only damage from misstatements is precaution costs, the use of the FOTM presumption excessively penalizes violators.<sup>227</sup> Overcompensation results when all investors trading in the market are compensated, including liquidity traders who randomly traded while prices reflected the misstatement. Liquidity traders, however, do not invest in precautionary measures because they do not invest in information; nor do they suffer directly from misstatements. If fraud randomly distorts prices, then buying and selling a portfolio should

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226. Here we do not address the question of the appropriate damage measure, as it deserves a separate discussion.

227. See Mahoney, *supra* note 5, at 625, 626–41 (discussing fraud in secondary securities markets).

cancel out the effects of fraud.<sup>228</sup> Moreover, even if fraud leads to an overall inflation or deflation in the market, liquidity traders will not be harmed because they will buy and sell portfolios for similarly inflated or deflated prices.<sup>229</sup> Thus, the argument goes, compensating liquidity traders gives them a windfall and overcharges the offender.

Moreover, the argument posits that due to the overdeterrence, management will reduce the amount of voluntary disclosure it provides to the market, thereby decreasing the free information available to information traders.<sup>230</sup> Instead of releasing information to the market as management receives it without verification, management will release only a limited amount of verified information. The substitution of reduced verification costs (disclosing limited amount of verified information) for reduced search costs (disclosing large amounts of unverified information) is harmful to information traders because it is much more costly to information traders to discover new pieces of firm-specific information than it is to verify disclosed pieces of information. Overdeterrence leading to a limited amount of voluntary information will thus increase the costs for information traders because they will have to invest in searching rather than in verification.

*a. The Current Responses.* Several responses have been offered to the foregoing argument. The first is that sometimes fraud increases the risk of buying a portfolio in an inflated market and selling it in a deflated market. This is a risk that cannot be diversified and liquidity traders will respond to it by reducing the amount of their trading or by discounting stock prices in general.<sup>231</sup> Both actions are harmful. Reduced liquidity is harmful to liquidity traders, and discounted prices are harmful to corporations raising capital.<sup>232</sup> Although this argument is theoretically solid, in practice it is highly unlikely that the cumulative effect of individual frauds will affect markets in a way that will increase the probability of buying in an inflated market and selling in a deflated market.<sup>233</sup>

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228. *Id.*

229. *Id.*

230. *Id.* at 650–55.

231. Georgakopoulos, *supra* note 57, at 702–11; A.C. Pritchard, *Markets as Monitors: A Proposal to Replace Class Actions with Exchanges as Securities Fraud Enforcers*, 85 VA. L. REV. 925, 938–40 (1999).

232. Georgakopoulos, *supra* note 57, at 702–11; Pritchard, *supra* note 231, at 945.

233. Georgakopoulos, *supra* note 57, at 702–11; Pritchard, *supra* note 231, at 940–941.

A variation on this response does not focus on fraud increasing undiversifiable risk. Rather, it argues that, although liquidity traders do not invest based on information, they do care about information insofar as it affects liquidity.<sup>234</sup> That is, liquidity traders care about transaction costs in the form of high bid-ask spreads. The presence of misstatements creates opportunities for asymmetric information, as information traders investing in precautions will have greater likelihood of discovering misstatements. Greater information asymmetries will cause market makers to increase the bid-ask spread. Accordingly, even if liquidity traders buy and hold a portfolio they will still bear the cost of high bid-ask spreads. Although this argument has merit, it does not explain why liquidity traders receive compensation in FOTM cases. Compensating information traders alone will reduce information traders' incentive to invest in precautions, thereby reducing asymmetric information. In other words, if it is the behavior of information traders that can either amplify or diminish the problem, why not compensate only information traders? Indeed, the conclusion of this argument is that private enforcement relying on the FOTM presumption should be replaced with public enforcement by the stock exchanges.<sup>235</sup>

A different response admits that the FOTM presumption creates a windfall for liquidity traders, but argues that nevertheless it does not overdeter. Because fraud requires scienter and is therefore a culpable offense, there is nothing wrong with imposing punitive damages on offenders.<sup>236</sup> Critics of this response point out that it fails to recognize that, in practice, the class action mechanism employed in securities cases does not distinguish between negligent and fraudulent misstatements.<sup>237</sup> As a result, vis-à-vis potentially negligent (rather

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234. Georgakopoulos, *supra* note 57, at 703–07.

235. See Pritchard, *supra* note 231, at 938–40 (discussing the social costs of fraud on liquidity).

236. See Marilyn F. Johnson et al., *In re Silicon Graphics, Inc.: Shareholder Wealth Effects Resulting From the Interpretation of the Private Litigation Reform Act's Pleading Standard*, 73 S. CAL. L. REV. 773, 781 (2000) (“[T]he corporation being sued neither bought nor sold its securities and, accordingly, did not gain from the fraud. Nonetheless, fraud on the market suits allow investors to recover their losses from the corporation based on its managers’ misstatements . . . . Thus, class actions are a potential punitive sanction that should provide a substantial deterrent to fraud.”).

237. See Kevin R. Johnson, *Liability for Reckless Misrepresentations and Omissions under Section 10(b) of the Securities Exchange Act of 1934*, 59 U. CIN. L. REV. 667, 674–75 (1991) (“[C]ourts have been less than precise in defining what exactly constitutes a reckless misrepresentation . . . . The result is that actual and potential parties to Section 10(b) and Rule

than fraudulent) offenders, the use of the FOTM presumption does result in overdeterrence. We note, however, that some argue that the Private Securities Litigation Reform Act of 1995 has improved the functioning of class actions, resulting in better correlation between fraud and liability both in courts and in private settlements.<sup>238</sup> Indeed, if courts could accurately identify all cases of fraud (consistently exempting negligent managements) and award accurate compensation in all those cases, the problem of overdeterrence would disappear.

*b. The Proposed Model's Responses.* We now draw on our market model to provide new justifications for the FOTM presumption. In the following discussion, we begin by highlighting the full range of harms fraudulent statements impose on financial markets. We show that in addition to precaution costs, fraud increases liquidity costs and exacerbates management agency costs. We then explain how the FOTM presumption helps information traders mitigate those costs. Second, we analyze the effect of the FOTM presumption on voluntary disclosure of information by firms. We conclude that there is no reason to assume that managements will respond to the FOTM doctrine by reducing disclosure. Finally, we discuss the appropriate liability standard in fraud cases. We submit that although in theory negligence outperforms scienter, in the real world, where litigation is driven by class actions, it makes sense to require scienter.

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10b-5 actions cannot predict with any degree of certainty how a trier of fact will characterize challenged conduct and thus whether it may serve as the basis for liability. Nor can actors in securities transactions ensure that they take the steps necessary to minimize the potential for liability.”); Johnson *et al.*, *supra* note 236, at 782–83 (noting the vagueness of the scienter criterion).

238. See, e.g., David S. Escoffery, Note, *A Winning Approach to Loss Causation Under Rule 10B-5 in Light of the Private Securities Litigation Act of 1995*, 68 FORDHAM L. REV. 1781, 1782–83 (2000) (discussing the effect of the Act on courts’ approaches to loss causation); Jeffrey L. Oldham, *Taking “Efficient Markets” Out of the Fraud-On-The-Market Doctrine After the Private Securities Litigation Reform Act*, 97 NW. U. L. REV. 995, 1030 (2003) (discussing the effects of the Act on FOTM presumption); Michael A. Perino, *Did the Private Securities Litigation Reform Act Work?*, 2003 U. ILL. L. REV. 913, 947–50 (noting that there is statistically significant evidence, however, that suggests that the Act improved overall case quality at least in the circuit that most strictly interprets one of the Act’s key provisions); Elliott J. Weiss, *Complex Litigation At the Millennium: Pleading Securities Fraud*, 64 LAW. & CONTEMP. PROBS. 5, 5–9 (Spring/Summer 2001) (describing the positive effects of the Act upon the filing of frivolous class action lawsuits).

*i. Full Range of Damages.* Our model offers a superior justification for the FOTM presumption by focusing on the pricing process of the market. As a starting point, we emphasize that without the FOTM presumption, a plaintiff in a fraud case must show both reliance on the misstatement and actual trading in shares affected by the manipulation. Not all information traders trade, however. Some information traders trade directly, such as institutional investors or money management entities, whereas others, especially analysts, sell investment advice to third parties who do the trading. Still other analysts disclose their product to the market for free, allowing noise traders to trade based on this information. Although there may be inappropriate incentives to sue when the plaintiff's holding is significant, information traders who trade can sue and prove reliance. On the other hand, information traders who do not directly trade fail to satisfy the precondition of a trade and thus will be barred from bringing a suit. Moreover, all other investors who rely on the analysts' product and traded will, as well, be barred from bringing a suit because they will not be able to show reliance on the misstatement—even though the analytical product was affected by it. This implies that, to protect the value of the analyst's product, the FOTM presumption must apply to all traders who rely on the analytical product. Indeed, aside from the general difficulty of distinguishing types of traders, it remains puzzling why liquidity traders receive compensation. To resolve this puzzle, it is imperative to realize that the harm from fraud is not restricted to precaution costs. Fraud inflicts additional harms in the form of higher liquidity costs and increased management agency costs.

Consider liquidity costs first. Fraud engenders asymmetric information and thus increases precaution costs for information traders. As a result, when fraud is pervasive, the number of information traders drops and competition among them diminishes. Reduced competition among information traders increases the risk faced by market makers, who then increase the bid-ask spread to reflect the higher probability of fraud. The FOTM presumption helps liquidity traders recover their losses. Because it gives them the right to receive compensation, the FOTM presumption prompts liquidity traders to maintain their volume of trading and avoid discounting overall prices. Neglecting to compensate for these damages will not adequately deter misstatements.

Moreover, even if information traders and those who rely on their analytical products are compensated, information traders will

still be harmed if liquidity traders are not compensated. High bid-ask spreads and reduced trading by liquidity traders will erode information traders' potential profits.

Fraud inflicts yet another harm in the form of increased management agency costs.<sup>239</sup> Management's incentives to issue misstatements are related to the quality of the corporate business operation and management's pursuit of personal benefits. Management might lie to avoid disclosing mismanagement or theft, to increase its compensation through manipulation of share prices, to generate profits through insider trading, or to facilitate issuing new shares for inflated prices. These activities create substantial management agency costs: they decrease corporate assets and dissipate the corporation's value, distort efficient allocation of capital, and frustrate the efficient operation of markets by harming information traders and liquidity traders. The greater the likelihood of fraud, the greater the potential for increased management agency costs. The management agency costs are borne by all other market participants: information traders, liquidity traders, and noise traders. If management agency costs are significant, investors will discount overall prices, increasing the cost of capital for all corporations. Moreover, the increased likelihood of fraud will further decrease the effectiveness with which information traders monitor management. This too will reduce the efficiency of the market and further increase the cost of capital. The FOTM presumption facilitates the filing of class actions, increases the likelihood of detection, and provides compensation for the whole range of damages resulting from fraud. Improved deterrence boosts information traders' activity, which in turn further reduces management agency costs.<sup>240</sup>

*ii. Verification Cost Versus Search Cost?* Our analysis also demonstrates that the argument that the FOTM presumption will lead management to decrease voluntary disclosure and thereby raise information traders' search costs is incorrect. Management disclosure decisions are shaped by two competing threats: liability for inaccurate

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239. See Pritchard, *supra* note 231, at 937-38 (examining the costs of reduced managerial accountability).

240. We do not address the question of whether liability should be imposed on the individual managers as opposed to the corporation itself. This question is analyzed in an excellent article by Professors Arlen & Carrey, *supra* note 149, who support the imposition of liability on managers.

disclosure and liability for nondisclosure. Although liability for nondisclosure is limited, there is no reason to assume that managements will respond to the FOTM doctrine by reducing disclosure. Because the risk of overdeterrence only applies to honest (although potentially negligent) management and not to dishonest management, it is an empirical question whether management will resort to defensive overdisclosure or underdisclosure. Indeed, one empirical study of the effects of the endorsement of the FOTM doctrine found both that there was an increase in voluntary disclosure of bad news and that companies with bad news warned investors on a more timely basis.<sup>241</sup>

Moreover, management discloses more information than mandated by securities regulation because information traders create demand for information. As information traders wield more influence over firms, they will be able to induce more fine-tuned and timely disclosure. True, information traders cannot prevent management from reducing the level of disclosure. But overdeterrence is irrelevant to inefficient managements that lack incentives to disclose in the first place; it only applies to efficient management that wishes to disclose information. Efficient management that chooses to reduce disclosure runs the risk of losing all the benefits that accrue from analyst coverage, such as accurate pricing, liquidity, and reduced agency costs. Again, it is an empirical question whether the loss of these benefits outweighs the overdeterrence effect and thus negates the incentive to underdisclose.<sup>242</sup>

*iii. The Appropriate Standard of Review under Class Action.* A different overdeterrence argument maintains that, although in theory courts are supposed to apply a scienter standard in cases of fraud, in

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241. Given that the study found no change in the behavior of companies with good news, the findings support the view that FOTM doctrine did not reduce voluntary disclosure, but the other way around. Sunil Dutta & Jacob Nelson, *Shareholder Litigation and Market Information: Effects of the Endorsement of the Fraud-on-the-market Doctrine on Market Information* (March 1997) (unpublished manuscript, on file with the *Duke Law Journal*), available at <http://ssrn.com/abstract=69036>. Other studies support the same conclusion. See Jennifer Francis et al., *Shareholder Litigation and Corporate Disclosures*, 1994 J. ACCT. RES. 137, 137-40 (finding that while disclosure does not deter litigation it may reduce the severity of litigation); Douglas Skinner, *Why Firms Voluntarily Disclose Bad News*, 1994 J. ACCT. RES. 38, 38-39 (1994) (finding that firms facing large negative earnings surprises are more likely to make preemptive earnings-related disclosures).

242. *Id.*

practice they apply a negligence standard.<sup>243</sup> Consequently, plaintiffs can collect damages even from corporations that are not guilty of fraud or recklessness.<sup>244</sup> In response to the overcompensation problem, some scholars have argued for the abolition of the FOTM presumption, and with it the class action mechanism.

Although we do not dispute that courts at times mistakenly apply a negligence standard in fraud cases, we argue that negligence may in fact be the appropriate standard in this case. Relative to a scienter rule, a negligence rule has several effects: (a) increasing the number of lawsuits filed; (b) lowering the cost of judicial decisionmaking; (c) increasing verification costs for the corporation; (d) reducing verification costs for information traders; and (e) delaying disclosure of information to the market. We next elaborate on each effect.

We begin our analysis with the number of lawsuits. Given that a scienter rule sets a higher bar for successful suits relative to negligence, one would expect an increase in the number of filings under a negligence regime. Furthermore, a negligence rule also lowers the cost of litigation, as it requires plaintiffs to prove (and courts to adjudicate) violations of an objective standard of the duty of care, compared with a scienter rule that requires proof of willfulness or recklessness.

Insofar as verification costs are concerned, a negligence regime embodies a tradeoff between expenditures on verification by firms and investment in verification by information traders.<sup>245</sup> From the standpoint of corporations, a negligence rule raises verification costs. Relative to scienter, negligence forces management to take more precautions to verify the accuracy of the information that it discloses to the market. Accordingly, management will spend more resources verifying information before releasing it to the market. In contrast, a negligence regime will effect a cost savings for information traders because the added investment in verification by corporations will eliminate some of the verification efforts undertaken by information traders. But the two effects will not necessarily cancel each other out.

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243. See Johnson et al., *supra* note 236, at 782–83 (noting that the scienter standard is notoriously amorphous). Although the scienter standard is somewhat more stringent than negligence, even in theory it is difficult to say how much more, and it is nearly impossible in practice.

244. See, e.g., Joseph A. Grundfest, *Why Disimply?*, 108 HARV. L. REV. 727, 742–43 (1995) (supplying evidence indicating that between 22 percent and 60 percent of securities suits are settled for nuisance value).

245. ROBERT COOTER & THOMAS ULEN, *LAW AND ECONOMICS* 302–13 (3d ed. 2000).

Savings for information traders will likely outweigh added verification costs for the corporation. First, as we explained, managers, as insiders, can verify information more cost-effectively than information traders. Second, because all information traders invest in verification costs, the added investment by the corporation eliminates duplicative investment for the information traders.<sup>246</sup>

As for the timing of disclosure, a negligence regime should be expected to cause some delay in the release of information to the market. The delay is due to the fact that management might need to spend more time verifying the information before it releases it to the public. Because the information that information traders receive from firms will be more accurate and the verification process shorter, the delay in disclosure on the corporations' side will likely be offset by speedier pricing.

How do these effects net out? It seems that the benefits from imposing additional verification duties on corporations outweigh the costs associated with a negligence regime. A negligence rule substitutes duplicative verification investments by information traders for a single and cheaper verification investment by the corporation. Because the corporation is the least cost avoider, efficiency prescribes imposing the cost of avoidance on the corporation.<sup>247</sup> The negligence rule balances between the precautions taken by corporations and those taken by information traders. It reflects the fact that there are misstatements that the corporation can more cost-effectively prevent and misstatements that information traders can more easily detect.

But if a negligence standard is indeed superior to scienter, why not modify the Securities Exchange Act to specifically provide for a negligence standard? We do not support such a change. Because experience teaches that courts sometimes overenforce the statutory standard (e.g., by sometimes imposing liability based on negligence instead of scienter), lowering the statutory standard to negligence might generate a tidal wave of strike suits. The enactment of a negligence standard coupled with the retaining of the class action mechanism might cause a slide toward a strict liability standard. In theory, a strict liability regime would force corporations to invest in precautions that would eliminate all misstatements while relieving

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246. It should be emphasized, however, that there are misstatements that it will be easier for the information traders to detect relative to the corporation. Otherwise strict liability should be the norm.

247. COOTER & ULEN, *supra* note 245, 306–11.

information traders of the need to take any precautions whatsoever.<sup>248</sup> Given that some misstatements may be detected more cost-effectively by information traders, such a one-sided regime would be clearly excessive. Moreover, the imposition of a strict liability regime would not completely eliminate all verification costs in practice, as some information traders might wish to spearhead class actions against corporations that failed to meet the heightened standard. Worst of all, the number of frivolous suits under a strict liability regime would be very high and both corporations and the courts would incur significant expenses dealing with such suits.

The high-scienter standard of review achieves an efficient balance because the agency cost problems embodied in the class action mechanism<sup>249</sup> ensure that the actual standard will slide to the appropriate level—negligence.<sup>250</sup> First, this balance preserves the use of private enforcement and its deterrent effects without overburdening the corporations. Indeed, one empirical study shows that the most important element in a successful system of securities regulation is the existence of private enforcement.<sup>251</sup> Second, although the legal enforcement achieved by blurring the distinction between scienter and negligence underdeters fraud, on the one hand, and occasionally awards undeserved damages, on the other, the market provides the additional sanction needed for appropriately deterring fraud. Apart from the settlement payment, corporations guilty of fraud must also bear the more important sanction of a drop in share price.<sup>252</sup> Indeed, the market judges the merits of private law suits

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248. *Id.* at 302–04.

249. John C. Coffee, *Understanding the Plaintiff's Attorney: The Implications of Economic Theory for Private Enforcement of Law through Class and Derivative Actions*, 86 COLUM. L. REV. 669, 673–77 (1986).

250. On the balance between procedure and evidence on the one hand, and the substantive liability standard in achieving optimal deterrence in enforcement, see Richard A. Bierschbach & Alex Stein, *Overenforcement*, 93 GEO. L.J., No. 6, 1–5 (forthcoming 2005), available at <http://www.law.uchicago.edu/Lawecon/workshop-papers/Stein.pdf>.

251. Rafael La-Porta et al., *What Works in Securities Law?* at 21–22 (Tuck Sch. of Bus., Working Paper No. 03-22, 2003) (on file with the *Duke Law Journal*), available at <http://ssrn.com/abstract=425880>.

252. Dale O. Cloninger & Edward Waller, *Corporate Fraud, Systematic Risk, and Shareholder Enrichment*, 29 J. SOCIO-ECON. 189, 189 (2000) (noting that the size of the share price reactions following the disclosure of illegal activity generally exceeds the actual fines, fees and penalties that the firms eventually experience).

against corporations by adjusting share prices and thereby provides more fine-tuned deterrence against fraud.<sup>253</sup>

In sum, the FOTM presumption is an essential legal tool that facilitates the development of a market for information traders and reduces precaution costs, liquidity costs, and management agency costs. The FOTM presumption improves the effectiveness of the market and leads to improved efficiency and liquidity.

### CONCLUSION

In this Article, we have provided a general theory that explains how securities regulation promotes efficient and liquid markets. We demonstrated that the essential role of securities regulation is to facilitate and maintain a competitive market for information traders. Of the various groups of investors operating in the financial market, information traders are best suited to provide the financial market with accurate pricing and adequate liquidity. Recognizing this fact, securities regulation elects to create market conditions that would enable information traders to perform these tasks. The ban on insider trading shields information traders from competition by insiders and hence allows them to recoup their investment in information. Mandatory disclosure rules reduce information gathering costs. And the ban on fraud and manipulation lowers the cost of verifying data for information traders.

The model presented in this Article enabled us to take positions on several important issues in securities regulation. First, we have shown that mandatory disclosure is warranted because a competitive market of information traders cannot provide all listed corporations with adequate incentives for full disclosure. Second, we have demonstrated that disclosure duties should apply to soft information as well as hard information in order to reduce management agency costs. Third, we have established that the fraud-on-the-market

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253. Charman Loh & R.S. Rathinasamy, *Do All Securities Class Actions Have the Same Merit? A Stock Market Perspective*, 6 REV. PAC. BASIN FIN. MARKETS & POL'Y 167, 167 (2003).

[An] examination of 290 Rule 10(b)-5 lawsuits . . . yielded two important results. First, stocks of the defendant companies, in the aggregate, experience significant declines around the time of the first filing of lawsuits. Second, not all cases have the same merit, for among the reasons that prompted the filing of class-action litigation, only four groups—those that involve accounting irregularities, fraud, making overly optimistic statements, and failure to disclose negative news—result in the most significant filing-date stock declines.

*Id.*

presumption is justified not only when markets are efficient, but also (and perhaps especially) when markets are inefficient; the presumption is necessary to support the information traders, who are the most effective price-correcting mechanism.