

THE ESSENTIAL ROLE OF SECURITIES REGULATION

ZOHAR GOSHEN[†] AND GIDEON PARCHOMOVSKY^{††}

Abstract

This Article posits that the essential role of securities regulations 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. Consequently, the Article refutes the conventional wisdom that securities regulation protects the common investor; properly understood, securities regulation is not a consumer protection law. 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. By protecting information traders, securities regulations enhance efficiency and liquidity in financial markets. Furthermore, by protecting information traders, securities regulation represents the highest form of market integrity by ensuring accurate pricing and superior liquidity to all investors. In this way, securities regulation improves the allocation of resources in the economy.

Our analysis reveals that securities regulation's essential role is to facilitate a competitive market for 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 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 undercut the ability of information traders to recoup their investment in information and thereby drive information traders out of the market.

Moreover, a competitive market for information traders reduces management agency costs. While courts can discern fraud or illegal transfers, they are ill-equipped to evaluate the quality of business decisions. Judicial oversight can curtail breaches of the duty of loyalty but not breaches of the duty of care; the tasks of curbing breaches of the duty of care and restraining inefficient investments are performed by information

[†] Professor of Law, Columbia Law School.

^{††} Professor of Law, University of Pennsylvania Law School.

For invaluable comments and criticisms we thank Jennifer Arlen, Avi Bell, Jack Coffee, Rob Daines, Stanislav Dolgoplov, Mel Eisenberg, Merritt Fox, Yair Galil, Vic Goldberg, Jeff Gordon, Guy Halfteck, Henry Hansmann, Vic Kahana, Donald Langevoort, Shmulik Leshem, Tamara Lothian, Louis Lowenstein, Paul Mahoney, Curtis Milhaupt, Katharina Pistor, Ed Rock, Roberta Romano, Alex Raskolnikov, Hillary Sale, Guhan Subramanian, and Josh Wilkenfeld. For excellent research assistance we thank Mustapha Cheaib, Sean McEldowney, Yaad Rotem, Avital Sealman-Tene and Jeffrey Unger.

traders.

Our account has important implications for several policy debates. First, our account supports the system of mandatory disclosure. We show that, while 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 the 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.

A General Theory of Securities Regulation

INTRODUCTION	3
I. THE MARKET MECHANISM.....	9
A. <i>Efficiency and Liquidity in Financial Markets</i>	10
1. Incorporating Information Into Prices	10
2. Providing Liquidity in Trading	11
B. <i>The Market Players</i>	11
C. <i>The Pricing Process</i>	14
II. SECURITIES REGULATION:	
ATTAINING EFFICIENT AND LIQUID MARKETS	20
A. <i>Prohibiting Insider Trading: Choosing</i> <i>Information traders</i>	20
C. <i>Restrictions on Fraud and Manipulation:</i> <i>Reducing Verification Costs</i>	27
D. <i>Avoiding Analysts' Agency Costs:</i> <i>Facilitating Unbiased Analyses</i>	29
E. <i>Agency Costs and Corporate Law</i>	33
III. IMPLICATIONS FOR SECURITIES REGULATION	38
A. <i>Mandatory Disclosure</i>	38
B. <i>Fraud-on-the-Market Theory Revisited</i>	47
1. The Inefficient Market Claim	49
2. The Efficient Market Claims.....	52
a. <i>The Current Responses</i>	52
b. <i>The Proposed Model's Responses</i>	54
i. Full Range of Damages	54
ii. Verification Cost Versus Search Cost?	56
iii. The Appropriate Standard of Review under Class Action.....	57
SUMMARY.....	60

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.¹ Securities regulation is not a consumer protection law.

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) (noting that 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) ("Prospectuses 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); H.R. REP. NO. 73-1383, pt. 2 (1934) (same). Some commentators criticized 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 (1988) (criticizing

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.² Accepting this assumption, however, raises the important question: how precisely does securities regulation promote market efficiency? Surprisingly, this pivotal question has never been fully answered.³ This Article seeks to redress this critical omission by providing a unifying general theory that explicates and clarifies the essential role of securities regulation.⁴

The main thesis of this Article posits that the role of securities regulations 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. While 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.⁵

The two main determinants of market efficiency are share price accuracy and financial liquidity.⁶ More accurate share prices and more liquid trading enhance the efficiency of financial markets.⁷ Given the importance of incorporating information

the monolithic view of investors' protection).

² See Jeffrey N. Gordon & Lewis A. Kornhauser, *Efficient Markets, Costly Information, and Securities Research*, 60 N.Y.U. L. REV. 761, 802 (1985).

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 and transactions involving nonfungible assets.

⁵ See, John C. Coffee, Jr., *Market Failure and the Economic Case for a Mandatory Disclosure System*, 70 VA. L. REV. 717, 728-729 (1984) (focusing on sell-side analysts while justifying mandatory disclosure); Paul Mahoney, *Precaution Costs and the Law of Fraud in Impersonal Markets*, 78 VA. L. REV. 623 (1992) (focusing on informed traders while criticizing the fraud on the market theory); Zohar Goshen & Gideon Parchomovsky, *On Insider Trading, Markets, and "Negative" Property Rights in Information*, 87 VA. L. REV. 1229, 1250-1251 (2001) (focusing on analysts while justifying the restriction on insider trading).

⁶ See generally Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. FIN. 383 (1970) (stating the importance of share price accuracy); Jonathan R. Macey & David D. Haddock, *Shirking at the SEC: The Failure of the National Market System*, 1985 U. ILL. L. REV. 315, 325-326 (1985) (explaining the importance of liquidity); Francis A. Longstaff, *Optimal Portfolio Choice and the Valuation of Illiquid Securities*, 14 REV. FIN. STUD. 407, 407-408 (2001) (noting the importance of liquidity). Cf. Ken Nyholm, *Estimating the Probability of Informed Trading*, 25 J. FIN. RES. 485, 504 (2002) (noting that low volume stocks are found to be much slower than high volume stocks in adapting quotes to new full-information levels).

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

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 non-public 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 comprised of *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 trading skills.⁸ In light of the inability of noise traders to promote market efficiency and the indifference of liquidity traders to accurate pricing,⁹ 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 benefit 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 only 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 regulations enhance efficiency and liquidity in financial markets. This

⁸ Another group—Market Makers—is added later in the Article in order to simplify the model. See *infra* Part I (B).

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

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

The law of securities regulation may be divided into three broad categories: disclosure duties, restrictions on fraud and manipulation, and restrictions on insider trading.¹² Each category facilitates the activities of information traders in a distinct way. Disclosure duties reduce their information gathering costs.¹³ Restrictions on fraud and manipulation simultaneously lower information traders' cost of verifying the credibility of information, and improve their ability to make accurate predictions.¹⁴ 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, and thereby drive information traders out of the market.¹⁵ 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 power to further its interests at the expense of those of shareholders.¹⁶ 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).¹⁷ Disclosure duties help reveal management actions. Although breaches

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., Merritt B. Fox, et al., *Law, Share Price Accuracy and Economic Performance: The New Evidence*, 102 MICH. L. REV. 3 (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. LIT. 688 (1997); Victor Brudney, *Insiders, Outsiders, and Informational Advantages Under the Federal Securities Laws*, 93 HARV. L. REV. 322, 341 (1979); John F. Barry III, *The Economics of Outside Information and Rule 10b-5*, 129 U. PA. L. REV. 1307, 1316 (1981); Frank H. Easterbrook & Daniel R. Fischel, *Auctions and Sunk Costs in Tender Offers*, 35 STAN. L. REV. 1, 11 (1982).

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).

¹⁴ See *infra* Part III(C).

¹⁵ Goshen & Parchomovsky, *supra* note 5.

¹⁶ See Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure*, 3 J. FIN. ECON. 305, 354-355 (1976).

¹⁷ See, e.g., *Graham v. Allis-Chalmers Mfg. Co.*, 188 A.2d 125, 130 (Del. 1963); Principles of Corporate Governance § 4.01; 2 MODEL BUS. CORP. ACT ANN. § 8.30 at 937-938 (1990); STEPHEN M.

of the duty of loyalty attract greater media attention,¹⁸ breaches of the duty of care are much more prevalent and their social cost is much higher.¹⁹ While courts can discern fraud or illegal transfers, they are ill-equipped to evaluate the quality of business decisions.²⁰ 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.²¹ Thus, the task of curbing breaches of the duty of care is largely left to the market and to social norms.²² Intense coverage by analysts—a subgroup of information traders—is the most effective antidote to management agency costs.²³ 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,

BAINBRIDGE, CORPORATION LAW AND ECONOMICS 286-304 (Foundation Press 2002).

¹⁸ See, e.g., the media intervention in the proceedings of Enron's scandal: *US Cr. Denies*[http://web2.westlaw.com/result/documenttext.aspx?RS=WLW4.09&VR=2.0&SV=Split&FN=top&MT=NewsAndBusiness&DB=FINNEWS&Method=TNC&Query=TI\(MEDIA+%26+ENRON\)&RLTDB=CLID_DB844239&Rlt=CLID_ORYRLT3644239&Cnt=DOC&DocSample=False&n=2&Cxt=RL&SCxt=WL&SS=CNT&Service=Search&FCL=False&CMD=None&EQ=search&CFID=1&bLinkedCiteList=False&Dups=False&PPT=SDU_1&RP=%2fresult%2fdocumenttext.aspx&origin=Search](http://web2.westlaw.com/result/documenttext.aspx?RS=WLW4.09&VR=2.0&SV=Split&FN=top&MT=NewsAndBusiness&DB=FINNEWS&Method=TNC&Query=TI(MEDIA+%26+ENRON)&RLTDB=CLID_DB844239&Rlt=CLID_ORYRLT3644239&Cnt=DOC&DocSample=False&n=2&Cxt=RL&SCxt=WL&SS=CNT&Service=Search&FCL=False&CMD=None&EQ=search&CFID=1&bLinkedCiteList=False&Dups=False&PPT=SDU_1&RP=%2fresult%2fdocumenttext.aspx&origin=Search) - *Enron Request For Hearing Transcripts* Oster Dow Jones (10/1/03), available at http://web2.westlaw.com/welcome/NewsAndBusiness/default.wl?TF=1&TC=7&MT=NewsAndBusiness&RS=WLW4.09&VR=2.0&SV=Split&FN=_top.

¹⁹ See Michael Jensen, *The Agency Costs of Free Cash Flow, Corporate Finance and Takeovers*, 76 AM. ECON. REV. 323 (1986); Michael Jensen *Eclipse of the Public Corporation*, (1989), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=146149.

²⁰ Mark J. Roe, *Corporate Law's Limits*, 31 J. LEGAL STUDIES (2002).

²¹ See, e.g., *Kamin v. American Express Co.*, 383 N.Y.S.2d 807 (Sup. Ct. 1976), *aff'd* 387 N.Y.S.2d 993 (App. Div. 1976); *Norlin Corp. v. Rooney, Pace Inc.*, 744 F.2d 255 (2d Cir. 1984); *Gearhart Indus. Inc. v. Smith Int'l Inc.*, 741 F.2d 707 (5th Cir. 1984); *In re Spering*, 71 Pa. 11 (1872); *Hunter v. Roberts, Throp & Co.*, 83 Mich. 63, 47 N.W. 131 (1890); *Berwald v. Mission Dev. Co.*, 185 A.2d 480, 482-83 (Del. 1962).

²² See Edward B. Rock & Michael L. Wachter, *Islands of Conscious Power: Law, Norms, and Self-Governing Corporation*, 149 U. PA. L. REV. 1619, 1623 (2001).

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

our account supports a system of mandatory disclosure.²⁴ We show that while 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. While 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 non-public information lies with management. Thus, information traders being part of a competition among and between equally uninformed sellers and buyers cannot induce optimal disclosure from corporations by “assuming the worst” about corporations that provide suboptimal disclosure. Since 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 information²⁵ and self-dealing by management.²⁶ These calls are predicated on the view that securities regulation should only be concerned with minimizing agency costs, not with achieving accurate pricing. However, it seems 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 presumption even when markets are inefficient.²⁷ Recently, several scholars have argued that the finding of certain behavioral economics studies, which showed that markets are *inefficient*, eliminated the theoretical justification for the fraud-on-the-market presumption.²⁸ 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, and relatedly, our analysis rejects the argument that courts should abolish the fraud-on-the-market presumption when markets *are* efficient, and reinstate, in its

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)

²⁷ See *infra* the text following note 218.

²⁸ See *infra* the text following note 214. See also Paul A. Ferrillo, Frederick C. Dunbar, & David Tabak, *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, 107-116 (2004).

stead, common law reliance.²⁹ Critics of the fraud-on-the-market presumption have claimed that it over-deters voluntary disclosure by management as it forces corporations to compensate not only information traders who relied on misstatements, but also liquidity traders who were unharmed by the misstatements.³⁰ We show that once the full scope of the harm from misstatements is taken into consideration, no over-deterrence 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.

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 regulations 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.

I. THE MARKET MECHANISM

Efficient markets are characterized by accurate pricing and high liquidity.³¹ Accurate pricing is essential for achieving efficient allocation of resources in the economy.³² Accurate pricing is also important for 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.³³ Liquid markets benefit the economy by reducing the cost of transacting and the risk associated with investments.³⁴ Markets are liquid when traders can buy or sell large quantities, immediately, without causing substantial price effect. Liquidity of markets is a function of time, price and quantity.³⁵ In the remainder of this Part, we present a market model

²⁹ See *infra* the text following note 227.

³⁰ Mahoney, *supra* note 5.

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

³² See *supra* note 11.

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

³⁴ See Kahan, *supra* note 10, at 1019-1022; Yakov Amihud, *Illiquidity and Stock Returns: Cross-Section and Time Series Effects*, 5 J. FIN. MARKETS 31 (2002). For discussion on higher transacting costs in the form of larger bid/ask spreads, see Lawrence R. Glosten & Lawrence E. Harris, *Estimating the components of the Bid/Ask Spread*, 21 J. FIN. ECON. 123 (1998); Harold Demsetz, *The Cost of Transacting*, 82 Q.J. ECON. 33, 35-36 (1968).

³⁵ Laurie S. Hodrick & Pamela Moulton, *Liquidity* (2003), available at <http://>

that explains the processes by which markets attain efficiency and liquidity.

A. *Efficiency and Liquidity in Financial Markets*

1. Incorporating Information into Prices

For markets to be efficient, information about the value of firms must be incorporated quickly and accurately into stock prices.³⁶ This process involves three different tasks: production of information; verification of its accuracy; and finally, pricing the information. *Production of information* involves searching for currently unknown information that affects prices. *Verification of accuracy* involves actions necessary to confirm the reliability of the information source and the credibility of the information. *Pricing information* requires analyzing the information in order to determine its value, and then trading based on discrepancies between price and value.

Production of information involves two different types of information: firm specific information and general market information. *Firm specific information* includes information about various attributes of the firm, such as the quality of its management, its business plans and past record, its financial position, and the probability of success of the firm's R&D efforts. *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* includes all types of activities that indirectly convey information, such as price movements, volume of trading, identity of traders 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: one cannot evaluate the future prospects of a corporation without knowledge about the estimated course of the local and global economies. *Trading* is the act by which information is transmitted to the market. Trading can take on one of two forms: direct trading or indirect trading through recommendations and advice to others who trade.

papers.ssrn.com/sol3/papers.cfm?abstract_id=449540.

³⁶ For a comprehensive description of the processes by which markets attain efficiency, see 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.³⁷ *Portfolio adjustments* provide liquidity through changes in the composition of portfolios that are intended to bring them in conformity with investors' predetermined levels of risk and return. *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 market players with lower valuations to transact with investors with higher valuations.³⁸

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 evaluate this information and to price it. Insiders can produce and price general market information, as well as inside information. However, their nearly exclusive focus on the corporation they are managing prevents them from exploiting economies of scale and scope in gathering, evaluating and pricing general market information.³⁹ Moreover, due to their proximity to the firm, insiders cannot objectively assess the value of their own business decisions.⁴⁰

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 are comprised of two subgroups: sophisticated professional investors and analysts. *Professional sophisticated investors* are comprised of a wide range of institutional investors, money managers, and other market professional players, all of which rely, with varying degrees, on some sort of

³⁷ Hans R. Stoll, *Alternative Views of Market Making*, in MARKET-MAKING AND THE CHANGING STRUCTURE OF THE SECURITIES INDUSTRY 67, 68 (Yakov Amihud et. al., eds., Lexington Books 1985).

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 (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 Mislead Stock Market Investors (and Commit Other Social Harms)*, 146 U. PA. L. REV. 101, 157 & N. 196 (1997); Jonathan R. Macey and Arnoud W.A. Boot, *Monitoring Corporate Performance: The Role of Objectivity, Proximity and Adaptability in Corporate Governance*, 89 CORNELL L. REV. 356 (2004)..

financial or business analytical products as a basis for their investment decisions. *Analysts* include three sub-groups: Sell-side Analysts, Buy-side Analysts, and Independent Analysts.⁴¹ *Sell-side Analysts* are employed by investment banks to follow certain stocks and evaluate them. Sell-side analysts disclose their analytical work to the market for free, and do not attempt to profit by trading on their valuations. The 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 initial public offerings (IPOs). *Buy-side analysts* are employed by large institutional investors, such as mutual funds, hedge funds and pension funds, to manage investment portfolios. Buy-side 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 make use of 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. In contrast to insiders, information traders, on account of their broader focus on industries and markets, can exploit economies of scale and scope in evaluating and pricing information. Knowledge gained with respect to one corporation in a particular industry can often be used with respect to another, and knowledge pertaining to the economy as a whole is useful in analyzing all corporations.⁴²

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.⁴³ Unwilling to devote resources to

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, 6-13 (2002) (providing an overview of categories of research analysts).

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*, J. ACCT. & ECON. (forthcoming).

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. Since the information about the true value of the corporation is irrelevant for this group, we label them as liquidity traders.

constant gathering and analysis of new information, liquidity traders, if rational, follow a strategy of buying and holding a portfolio of stocks (usually buying some index of stocks).⁴⁴

Noise traders, the fourth group, act irrationally, following differing methods of investment either as individuals or as a group.⁴⁵ 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. Indeed, there are different levels of noise trading. On the one end, there exist *irrational traders*, who follow fads, rumors, and investment strategies that bear no economic rational, such as chasing random movements of price in day trading. On the other end, one can find *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 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,⁴⁶ information placed on financial websites, information broadcasted on financial TV channels and other analyses published in newspapers and magazines. Avoiding a buy-and-hold-a-portfolio 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 in fact are not. Accordingly, we consider them noise traders.⁴⁷

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

⁴⁴ See David D. Haddock & Jonathan R. Macey, *A Coasian Model of Insider Trading*, 80 NW. U. L. REV. 1449, 1453 (1986).

⁴⁵ On noise traders in capital markets, see J. Bradford De Long, Andrei Shleifer, Lawrence H. Summers, & Robert J. Waldmann, *Noise Trader Risk in Financial Markets*, 98 J. POL. ECON. 703 (1990).

⁴⁶ See, Sok Tae Kim, Ji-Chai Lin, and Myron B. Slovin, *Market Structure, Informed Trading, and Analysts' Recommendations*, 32 J. FIN. & QUANTITATIVE ANALYSIS, 507 (1997) (finding, based on empirical research, that any valuable information contained in analysts research is reflected in stock prices within 5 to 15 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.

supply of a security as they use this information to set the bid and ask prices (widely known as the “bid/ask spread”).⁴⁸ 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 firm specific information.⁴⁹ Given that their trading is mostly triggered by the buy and sale orders placed by other market players, on the one hand, and that they do not rely on independent valuations, on the other, market-makers are neither informed traders nor liquidity traders.

C. The Pricing Process

Insiders or 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.⁵⁰ When they observe an under-valuation, they buy, thereby raising the price; conversely, when they spot over-valuation they sell, thereby causing the price to drop. Since 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

⁴⁸ See Roger D. Huang & Hans R. Stoll, *Dealer versus Auction Markets: A Paired Comparison of Execution Costs on NASDAQ and the NYSE*, 41 J. FIN. ECON. 313, 322-326 (1996); Stanislav Dolgopolov *The Relationship Between Insider Trading and the Bid-Ask Spread: A Critical Evaluation of the “Adverse Selection” Model* (2003), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=440380. For a common definition of the bid/ask spread, see <http://www.nasdr.com/glossary/b.asp> (“[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 (1980). It is claimed, however, that while market makers on the New York Stock Exchange do not engage in security analysis, NASDAQ market makers do. See 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 (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 (1965) (describing the process by which market professionals incorporate information into prices).

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.⁵¹ If liquidity traders trade against insiders or information traders, they gain.⁵² 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.⁵³ In short, liquidity traders can diversify the risk of trading against more informed traders.⁵⁴ Only traders whose trades are triggered by changes in price or changes in information will lose when trading against more informed traders.⁵⁵

Although liquidity traders can diversify away the risk of transacting with more informed traders, doing so is not cost free.⁵⁶ Liquidity traders do care about liquidity (i.e., the ability to execute large transactions quickly without affecting the price of the

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.

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 drop 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 (1982) (explaining the “fair play” and the “market integrity” rationales); Harry Heller, *Chiarella, SEC Rule 14e-3 and Dirks: “Fairness” versus Economic Theory*, 37 BUS. LAW. 517, 555-556 (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 non-public firm specific or general market information. As long as the asymmetric information affects prices randomly it can be diversified.

⁵⁵ William 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 (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.

stocks traded). If markets are illiquid it means that 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 bid/ask spread much like a tax on each transaction. Therefore, 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.⁵⁷ Therefore, a large bid/ask spread reduces liquidity and increase the cost of capital for firms.

The size of the bid/ask spread is influenced by, among other factors, the total amount of trading and the level of asymmetric information among the traders.⁵⁸ The effect of the amount of trading on liquidity is direct: the more traders (informed and uninformed) there are the more liquid is the market (and vice versa). The effect of asymmetric information on liquidity is indirect: 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.⁵⁹ However, since 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, the information advantage they have lessens.⁶⁰ And the smaller the value of the informational advantage the smaller the bid/ask spread. Thus, liquidity traders are more concerned

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, 702-711 (1995).

⁵⁸ See generally Thomas H. McNish & Bonnie F. Van Ness, *An Intraday Examination of the Components of the Bid-Ask Spread*, 37 FIN. REV. 507 (2002); Roger D. Huang & Hans R. Stoll, *The Components of the Bid-Ask Spread: A General Approach*, 10 REV. FIN. STUD. 995 (1997); Yan He & Chunchi Wu, *What Explains the Bid-Ask Spread Decline After NASDAQ Reforms?*, 12 FIN. MARKETS, INSTIT. & INSTRUM. 347 (2003) (providing evidence that both an decrease in market making costs and an increase in competition contributed to a post-reform decline in bid/ask spreads in the NASDAQ).

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

⁶⁰ See Birgül Caramanolis-Çötelli, Lucien Gardiol, Rajna Gibson-Asner, & Nils S. Tuchschnid, *Are Investors Sensitive to the Quality and the Disclosure of Financial Statements?*, 3 EUR. FIN. REV. 131 (1999) (suggesting that competition among analysts reduces investors' adverse selection problem); He & Wu, *supra* note 58.

about liquidity than about accurate pricing.⁶¹

Noise traders are active but irrational. As a result, 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.⁶² However, noise traders sometimes act as a herd.⁶³ They can be bearish or bullish, as a group, with respect to a specific stock, a particular industry, or the market as a whole.⁶⁴ 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 over-valued, 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. Needless to say that 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 are the result of 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 noise traders and to price newly disclosed information.⁶⁵ The better 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.⁶⁶

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 regulations are irrelevant to this strategy.

⁶³ For a survey of literature concerning herding in financial markets, see David Hirshleifer & Siew Hong Teoh, *Herd Behaviour and Cascading in Capital Markets: A Review and Synthesis*, 9 EUR. FIN. MGMT. 25 (2003); De Long et al., *supra* note 45; Thomas Lux *Herd Behavior, Bubbles and Crashes* 105 ECON. J. 881-896 (1995).

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

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 (1980).

⁶⁶ *Id.*

Prices always deviate from value and information traders engage in a continuous process of aligning price and value. Clearly, 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.⁶⁷

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.⁶⁸

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” in the sense that the pricing is completely random, lacking the ability to cause prices to revert to value. We label 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 label 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 long periods. Obviously, the result will be inaccurate pricing. However, as long as there is a mechanism in place to correct this effect, 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. The ability of information traders or insiders 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. Capturing the value of a price deviation is a risky undertaking. Assume that an information trader estimates that the current share price of *Solid Investment, Inc.* is ten 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

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, INSTIT. & INSTRUM. 349 (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 (2003) (finding evidence that the stock prices of corporations that receive increased analyst coverage reflect future earnings earlier than neglected firms).

sell the share at a profit. However, the price may not reach the estimated value for many reasons: 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; interest rates or oil prices may go up; etc. 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 rather let prices get farther away from value in order 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. While some risk elements cannot be lowered since they are an integral part of the 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.⁶⁹ It must be borne in mind, however, that precautions taken by information traders to lower the risk involved in capturing price/value deviation increase their cost and consequently reduce market efficiency. 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 regulations promote the efficiency and liquidity of financial markets by reducing the risk and costs born by information traders

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

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 will be shown below, 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, chose to entrust information traders with the role of providing efficient and liquid markets. Once this choice was made, securities regulation, through disclosure duties and restriction on fraud and manipulation, 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.⁷⁰ Thus, when insiders are permitted to trade, they

⁷⁰ It is noteworthy that Gilson & Kraakman, *supra* note 7, have argued 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. However, they have acknowledged that this method is the least efficient way of achieving efficient pricing because this process of “decoding” is imprecise and slow. *Id.* at 574-579. 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 (1976); H. Nejat Seyhun, *Insiders’ Profits, Costs of Trading and Market Efficiency*, 16 J. FIN. ECON. 189 (1986). 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 (1974) (suggesting that investors can profit from prompt use of the *Official Summary’s* information). *Compare*, Halbert Kerr, *The Battle of Insider Trading vs. Market Efficiency*, 6 J. PORT. MGT. 47 (1980) (positing that knowledgeable investors have largely eliminated the opportunity to earn excess return by using the information contained in the *Official Summary*), *with* Goldie & Ambachtsheer, *Are Some*

will consistently beat the information traders. Since information traders follow prices and react to information, they will always be on the losing end.⁷¹ 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 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 sell short,⁷² assuming overvaluation has occurred only to realize that she sold under-priced shares. Information traders cannot diversify away the risk of trading against insiders, and will always lose when trading against them.⁷³ Thus, when insider trading is pervasive, information traders will be unable to recoup their investment in information and eventually will exit the market.⁷⁴

The imposition of legal restrictions on insiders changes this outcome. Consider a legal restriction on insider trading that adopts the "disclose or abstain" rule.⁷⁵ 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 non-public information, insiders will choose to disclose.⁷⁶ Once the information is

Insiders More 'Inside' Than Others? Comment, 10 J. PORT. MGT. 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 1458-1459.

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 (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 Fishman & Kathleen Hagerty, *Insider Trading and the Efficiency of Stock Prices*, 23 RAND J. ECON. 106 (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 Leland, *Insider Trading: Should it be Prohibited?*, 100 J. PUBLIC ECON. 859 (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. Texas Gulf Sulphur Co., 401 F.2d 833 (2d Cir. 1968), *cert. denied*, 394 U.S. 976 (1969) & *cert. denied*, 404 U.S. 1004 (1971).

⁷⁶ Ranga Narayanan, *Insider Trading and the Voluntary Disclosure of Information by Firms*, 24 J.

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 this period, the market will be less efficient and less liquid in comparison with the preceding stage in which insiders were allowed to trade.⁷⁷ 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.⁷⁸

If only a few insiders occasionally violate the restriction and trade on inside information, the information traders market can still function. Such limited insider trading diminishes to some extent the expected return of information traders, but leaves them a sufficient return to remain operative.⁷⁹ 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 the opposite alternative for several reasons. First, insiders enjoy virtual exclusivity over the use of the inside information they possess. This insularity from

BANKING & FIN. 395 (2000) (finding that stringent enforcement of insider trading regulations induces more disclosure by firms).

⁷⁷ See, e.g., Rezaul Kabir & Theo Vermaelen, *Insider Trading Restrictions and the Stock Market: Evidence from the Amsterdam Stock Exchange*, 40 EURO. ECON. REV. 1591 (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 118-119 (arguing that insider trading leads to less efficient stock prices). Indeed, empirical studies support the model's prediction. See Robert M. Bushman, Joseph D. Piotroski, & Abbie J. Smith, *Insider Trading Restrictions and Analysts' Incentives to Follow Firms*, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=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"); Laura N. Beny, *A Comparative Empirical Investigation of Agency and Market Theories of Insider Trading*, (2004), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=193070 (finding that "countries with more lax insider trading laws have less liquid equity markets" and "that in countries with tougher insider trading laws stock prices are more informationally efficient"); Utpal Bhattacharya & Hazem Daouk, *The World Price of Insider Trading*, 57 J. FIN. 75 (2002) (finding that initial enforcement of insider trading laws is associated with a significant decrease in country-level equity cost of capital).

⁷⁹ See Jhinyoung Shin, *The Optimal Regulation of Insider Trading*, 5 J. FIN. INTERMEDIATION 49 (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).

competition 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.⁸⁰ 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.⁸¹

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. While 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 on account of: 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 advantage—particularly over public information.⁸² This last point is crucial for liquidity traders. For the foregoing reasons, the decision to favor information traders over insiders enhances efficiency.

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 (2004).

⁸¹ *See* Patricia C. O’Brien, *Forecast Accuracy of Individual Analysts in Nine Industries*, 28 J. ACCT. RES. 286, 303-304 (1990) (suggesting—based on the results of an empirical study of analysts’ forecast accuracy—that analysts compete over the timely incorporation of new information); John Jacob, Thomas Z. Lys, & Margaret A. Neale, *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). 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).

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

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.⁸³ As these costs get lower, the number of information traders operating in the market will increase.⁸⁴ Therefore, securities regulations should strive to reduce the cost of gathering, verifying, and pricing information.⁸⁵

Mandatory disclosure duties reduce the cost of searching information. Absent mandatory disclosure duties, information traders would engage in duplicative efforts to

⁸³ See, e.g., Fox et al., *supra* note 11 (finding that mandatory disclosure effectively contributes to share price accuracy); David Gelb & Paul Zarowin, *Corporate Disclosure Policy and the Informativeness of Stock Prices*, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=235009 (finding that “enhanced disclosure results in stock prices that are more informative about future earnings, indicating that greater disclosure provides information benefits to the stock market”); Paul M. Healy, Krishna Palepu, & Amy P. Hutton, *Do Firms Benefit from Expanded Voluntary Disclosure?*, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=55451 (1995) (finding that following an increase in voluntary disclosures there is a reduction in under-valuation accompanied by an increase in stock liquidity, analyst following, and institutional holdings).

⁸⁴ See, e.g., Mark H. Lang & Russell J. Lundholm, *Corporate Disclosure Policy and Analyst Behavior*, 71 ACCT. REV. 467 (1999) (“[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.”); Christine Botosan & Mary Stanford-Harris, *Motivations for Changes in Disclosure Frequency and Its Consequences: An Examination of Voluntary Quarterly Segment Disclosures*, 38 J. ACCT. RES. (2000) (increased voluntary disclosure leads to increased analysts following); Brian J. Bushee & Christopher F. Noe, *Corporate Disclosure Practices, Institutional Investors, and Stock Return Volatility*, (2000), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=255991 (finding that firms with higher AIMR disclosure practices rankings have greater institutional ownership).

⁸⁵ See, e.g., Coffee, *supra* note 5 (arguing that mandatory disclosure is a subsidy to the investment analysts industry that increases analysts activity); Mark H. Lang, Karl V. Lins, & Darius P. Miller, *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 coverage and increased forecast accuracy relative to firms that are not cross listed” and “that firms that have more analyst coverage and higher forecast accuracy have a higher valuation”); Ole-Kristian Hope, *Disclosure Practices, Enforcement of Accounting Standards and Analysts' Forecast Accuracy: An International Study*, 41 J. ACCT. RES. 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); Carol A. Frost, Elizabeth A. Gordon, & Andrew F. Hayes, *Stock Exchange Disclosure and Market Liquidity: An Analysis of 50 International Exchanges*, (2003), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=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”).

uncover non-public information.⁸⁶ The cost of these efforts would be extremely high since 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 byproduct of managing the firm.⁸⁷ Moreover, securities regulations mandate a specific format of disclosure, which further reduces the costs of analyzing information⁸⁸ and comparing it to data provided by other firms.⁸⁹

Additionally, disclosure duties reduce the risk involved in detecting price/value deviations. First, the more information is disclosed, the lower the risks associated with both insider trading⁹⁰ and estimating the fundamental value of the firm.⁹¹ Some undisclosed information may be found by information traders through investment in searching. But other undisclosed information would not be revealed even by extremely costly searches. Given that a corporation might avoid disclosure either to promote value or to cover mismanagement, one cannot simply draw a negative inference from non-disclosure. Therefore, information traders must actively search for undisclosed information. However, if searching will not uncover the information they will be forced to estimate its value. Such estimates are bound to be imprecise, and thus the risk of failing to capture price/value deviation faced by information traders is increased. Second, by increasing the number and activity level of information traders, disclosure duties lower the effect of noise traders and the associated noise risk.⁹² Hence, the net

⁸⁶ See Coffee, *supra* note 5, at 733-734.

⁸⁷ See, e.g., Douglas W. Diamond, *Optimal Release of Information by Firms*, 48 J. FIN. 1071 (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 Michael Fishman & Kathleen Hagerty, *The Optimal Discretion to Allow in Disclosure*, 105 Q.J. ECON. 427 (1990) (showing that limiting discretion on the form of disclosure (e.g., mandating the use of accepted accounting principles) leads to more informative disclosure).

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

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

⁹¹ Donal Byard & Kenneth Shaw, *Corporate Disclosure Quality and Properties of Analysts’ Information Environment*, 18 J. ACCT., AUDITING & FIN. 355 (2003) (finding—based on a study that examined how the quality of corporate disclosures impacts the precision of information that financial analysts incorporate into their forecasts of annual earnings—that higher quality disclosures increase the precision of analysts’ common and idiosyncratic information); Carol Simon, *The Effect of the 1933 Securities Act on Investor Information and the Performance of New Issues*, 79 AM. ECON. REV. 295 (1989) (finding that the dispersion of abnormal returns (investors’ forecast errors) is significantly lower following the Securities Act); Merritt B. Fox, *Measuring Share Price Accuracy*, 1 BERKELEY BUS. L.J. 113 (2004) (noting that more information leads to lower risk in valuation).

⁹² Nicholas L. Georgakopoulos, *Why Should Disclosure Rules Subsidize Informal Traders*, 16 INT’L

effect of mandatory disclosure duties is to support a competitive information traders market.⁹³

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 for all investors free of charge. The additional information has two sources. First, the increased demand for firm specific information generated by a competitive information traders market will provide 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.⁹⁴ Mandatory disclosure is a prerequisite for the formation of a competitive information traders market, but once such 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.⁹⁵ Second, although there are strong incentives to keep analytical products confidential, in a competitive market more analytical products will be revealed to the market, especially for marketing reasons. 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 for all information traders. While disclosure duties reduce duplication of *search* costs, a competitive market for information traders eliminates to some extent 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.⁹⁶

REV. L. & ECON. 417, 424 (1996). Additionally, Georgakopoulos argues that disclosure will cause noise traders to reevaluate their mistaken beliefs. However, we think that this argument can work both ways: from the noise traders point of view, disclosure might fuel the misvaluations.

⁹³ Support for the proposition that corporate disclosure reduces analysts' costs of searching and processing information can be found in the positive correlation documented by several studies between analysts following and disclosure. See *supra* note 84 and Healy et al., *supra* note 83.

⁹⁴ Caramanolis-Çötelli et al., *supra* note 60 (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).

⁹⁵ 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 Alford & Jonathan Jones, *Financial Reporting and Information Asymmetry: An Empirical Analysis of the SEC's Information-Supplying Exemption for Foreign Companies*, 4 J. CORP. FIN.: CONTRACTING, GOVER. & ORG. 373 (1998).

⁹⁶ Luo, *supra* note 90 (finding that public information is detrimental for insiders and beneficial for

Third, disclosure duties subsidize search costs and facilitate competitive market for information traders. As competition among information traders intensifies, the ability of each individual information trader to exploit informational advantages diminishes.⁹⁷ All these effects reduce the risk of trading against more informed traders faced by market makers, resulting in a lower bid/ask spread (i.e., high liquidity). Higher liquidity will, in turn, increase trading by liquidity traders and reduce the discount rate they 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.

C. Restrictions on Fraud and Manipulation: Reducing Verification Costs

Information traders invest resources in verifying the accuracy of information. Verification is a precautionary measure taken by information traders before they rely on information.⁹⁸ 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.⁹⁹ Such a task requires a central organized detection and enforcement system, as found in the SEC.¹⁰⁰ The ban on fraud and manipulation reduces verification costs. Explicit information cannot be misstated, material facts cannot be omitted, and implicit information cannot be manipulated.¹⁰¹ If

liquidity traders).

⁹⁷ See Caramanolis-Çötelli et al., *supra* note 60 (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 (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).

⁹⁸ See Mahoney, *supra* note 5.

⁹⁹ 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 wash sales, although the artificial trade is taking place between two persons who coordinate the buying and selling, back and forth, between them, by matching their corresponding buy and sell orders. Because the trading is anonymous, analysts cannot detect artificial trade and will assume that real activity is taking place.

¹⁰⁰ See Steve Thel, *\$850,000 in Six Minutes—The Mechanics of Securities Manipulation*, 79 CORNELL L. REV. 219, 285 (1994).

¹⁰¹ See L. 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); *Koeppel & Co. v. S.E.C.* 95 F.2d 550 (7th Cir. 1938).

a misstatement or artificial trading (wash sales, matched orders, etc.) is made, criminal and civil sanctions will be imposed.¹⁰² Naturally, 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 actual damages.¹⁰³ 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: First, when the analysis is performed, and second, when the prediction is about to materialize. At the stage in which the analyst is preparing her analytic product, she 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 twenty 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. Consequently, all the information traders will have to keep verifying all available information constantly in order to reduce the risk of not capturing price/value deviations. 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 of 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.¹⁰⁴ Yet, fraudulent and misleading statements distort the predictions of analysts, and consequently, dilute the value of the analysis they produce. And investors who buy financial analysis from analysts are clearly adversely affected by misstatements that skew analysts’ predictions. 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.

¹⁰² The Securities Exchange Act of 1934 § 9(a)(2), 15 U.S.C. §§ 789-7811 (1988)

¹⁰³ See Daniel R. Fischel & David J. Ross, *Should the Law Prohibit ‘Manipulation’ in Financial Markets?*, 105 HARV. L. REV. 503 (1991).

¹⁰⁴ See *Blue Chip Stamps v. Manor Drug Stores*, 421 U.S. 723, 730-731 (1975).

Worse yet, the distortions caused 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, and, hence, benefit 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.¹⁰⁵ Lower spreads will result in higher liquidity, lower cost of capital, and improved efficiency.

D. Avoiding Analysts' Agency Costs: Facilitating Unbiased Analyses

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

While information analysis is not directly subsidized by securities regulations, it is indirectly influenced by disclosure duties. As we have noted, competition among information traders creates information spillovers. Some information traders share their analysis with the market in order to get media exposure or to give prospective customers an opportunity to evaluate their skills. The 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.

Insofar as analysis is concerned, however, the main concern is the agency cost associated with it—i.e., biased analyses and curtailed analysts' competition.¹⁰⁶ This

¹⁰⁵ Mark Klock & D. Timothy McCormick, *The Impact of Market Maker Competition on Nasdaq Spread*, FIN. REV. Nov. 1999, at 55; Sunil Wahal Entry, *Exit, Market Makers and the Bid-Ask Spread*, 10 REV. FIN. STUD. 871 (1997); Dolgoplov, *supra* note 48, at 64-65.

¹⁰⁶ For a comprehensive and insightful account of the analysts' agency problems, see Jill E. Fisch & Hillary A. Sale, *The Securities Analyst as Agent: Rethinking the Regulation of Analysts*, 88 IOWA L. REV. 1035, 1041 (2003); Carl R. Chen, Kam C. Chan, & Thomas L. Steiner, *Are All Security Analysts Equal?*,

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.¹⁰⁷

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.¹⁰⁸ The problem for this group is not intentionally biased opinions, but rather short-term analyses and investment decisions that result from the short-term horizon used for measuring performance.¹⁰⁹ However, as we will explain below, while intervention 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 regarding 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 and insiders will not 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.¹¹⁰ However, this is not the case.

The management agency cost stems from the governance structure of all publicly

25 J. FIN. RES. 415 (2002) (showing that recommendations from analysts are contaminated by their firms' investment banking relations with corporations).

¹⁰⁷ See Stephen J. Choi & Jill E. Fisch, *How to Fix Wall Street: A Voucher Financing Proposal for Securities Intermediaries*, 113 YALE L. J. 269, 285-286 (2003); Fisch & Sale, *supra* note 106, at 1043-1056; see also Zhaoyang Gu & Joanna Shuang Wo, *Earning Skewness and Analyst Forecase Bias*, 35 J. ACCT. & ECON. 5 (2003) (noting the strategic-reporting-bias explanation, establishing it empirically, and offering a complementary explanation to the phenomenon).

¹⁰⁸ Paul Griffin, *A League of Their Own? Financial Analysts' Responses to Restatements and Corrective Disclosures*, 18 J. ACCT., AUDITING & FIN. 479 (2003) studied the response of First Call financial analysts to company restatements and corrective disclosures that lead to an allegation of securities fraud and comparing the sell-side analysts response with the response of three other informed investor groups—insiders, short sellers, and institutions. The study found that, while the latter groups are unusually active several months ahead of a corrective disclosure event, the analysts respond only after the event.

¹⁰⁹ See S.E. Stickel *Reputation and Performance among Security Analysts*, 48 J. FIN. 1811-1836 (1992); Jane Cote & Debra Sanders *Herding Behavior: Explanation and Implication* (1997), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2884.

¹¹⁰ See, e.g., Henry G. Manne, *A Free Market Model of a Large Corporation System*, 52 EMORY L. J. 1381, 1387-1390 (2003).

traded corporations.¹¹¹ 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.¹¹² 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.¹¹³

The agency cost of sell-side analysts can be further reduced through appropriate regulation.¹¹⁴ The biased analyses and curtailed competition that characterize sell-side analysts may stem either from selective disclosure by management¹¹⁵ or from analysts' desire to promote the business of the investment banker who employs them¹¹⁶ or their own personal investments.¹¹⁷ Securities regulation mitigates these problems by restricting selective disclosure and mandating equal access to information.¹¹⁸ Specifically, it requires disclosure of employment relationships and personal or institutional conflicts.¹¹⁹ By so doing, securities regulation improves the integrity of

¹¹¹ See Michael Jensen, *The Agency Costs of Free Cash Flow, Corporate Finance and Takeovers*, 76 AM. ECON. REV. 323 (1986).

¹¹² Goshen & Parchomovsky, *supra* note 5.

¹¹³ Among analysts, approximately 30% are sell-side analysts, 60% are buy-side analysts, and about 10% are independent analysts. See Fisch & Sale, *supra* note 106, at nn.18-19. Moreover, the 60% buy-side analysts proportionally command far more resources than other types of analysts.

¹¹⁴ See Fisch & Sale, *supra* note 106, part III. (presenting and analyzing the existing and the proposed regulation, and offering an alternative solution).

¹¹⁵ See John C. Coffee, Jr., *Is Selective Disclosure Now Lawful?*, 1997 N.Y. L. J. 5 (describing and analyzing the practice of selective disclosure in which management provides inside information to a group of selective analysts ahead of the market).

¹¹⁶ See Fisch & Sale, *supra* note 106, at part II.B. (describing the conflict); Hsiou-wei Lin & Maureen F. McNichols, *Underwriting Relationships, Analysts' Earnings Forecasts and Investment Recommendations*, 25 J. ACCT. & ECON. 101 (1998); Roni Michaely & Kent L. Womack, *Conflict of Interest and the Credibility of Underwriter Analyst Recommendations*, 12 REV. FIN. STUD. 653 (1999); see also Editorial Staff, *SEC Warns Investors Against Sell-Side Conflicts*, INVESTOR REL. BUS. Sept. 7, 2001, at 1.

¹¹⁷ See Fisch & Sale, *supra* note 106, at part II.A. (describing the conflict).

¹¹⁸ See Goshen & Parchomovsky, *supra* note 5, at 1269-1273 (analyzing the effects of FD Regulation); 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); Frank Helfin, K. Subramanyam, & Yuan Zhang, *Regulation FD and the Financial Information Environment: Early Evidence*, 78 ACCT. REV. 1 (2003) (presenting the finding 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).

¹¹⁹ See Fisch & Sale, *supra* note 106, at 1068-1069.

information analysis.¹²⁰

The problem of the buy-side analysts is more fundamental, but securities regulation cannot remedy it. If the performance of an analyst who works for a hedge fund¹²¹ is being evaluated on a quarterly basis, the investment decisions she makes will reflect this short horizon. Such investment decisions might tend toward the speculative. The tendency to speculate might increase noise trading and cause short-term inefficiencies.¹²² Although prices will revert to value in the long run,¹²³ in the short term excess volatility and distorted prices may exist.¹²⁴ 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. If one is capable of performing all these tasks, she 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.¹²⁵ 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 while other funds are showing huge profits and growth. It is not easy to convince investors that these losses are due to a calculated informed long-term investment strategy, rather than

¹²⁰ 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. . .").

¹²¹ 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).

¹²² See Shleifer & Summers, *The Noise Trader Approach to Finance*, 4 J. ECON. PERSP. 19 (1990).

¹²³ See Poterba & Summers, *Mean Reversion in Stock Prices: Evidence and Implications*, 22 J. FIN. ECON. 27 (1988) (documenting the presence of mean reversion, and studying its effect on investors' portfolio decisions given the investment horizon).

¹²⁴ See Fama & French, *Permanent and Temporary Components of Stock Prices*, 96 J.P.E. 246 (1988); Shleifer & Vishny, *The New Theory of the Firm: Equilibrium Short Horizons of Investors and Firms*, 80 AM. ECON. REV. 148 (1990).

¹²⁵ For a colorful description of the securities investment industry and the phenomenon described in the text, see NASSIM NICHOLAS TALEB, *FOOLED BY RANDOMNESS: THE HIDDEN ROLE OF CHANCE IN THE MARKETS AND IN LIFE* (Texere, New York, 2001).

incompetence.¹²⁶ Thus, it might be more profitable to follow the trend of short-term investment/speculation.¹²⁷

However, this is a typical market problem that cannot be remedied through legal intervention. The incentives to solve this problem and make money are in place, and indeed, some institutions 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 we 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.¹²⁸ First, by restricting insider trading, securities regulation avoids entrusting the role of providing efficiency and liquidity to insiders, thereby preventing the problem of self-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.¹²⁹ Indeed, analysts’ reports provide the board with valuable information

¹²⁶ One might be tempted to mention Warren Buffet as such an exception.

¹²⁷ Brett Trueman, *Analyst Forecast and Herding Behavior*, 7 REV. OF FIN. STUD. 97-124 (1994); Hirshleifer & Teoh, *supra* note 63; S.E. Stickel, *Reputation and Performance among Security Analysts*, 48 J. OF FIN. 1811-1836 (1992).

¹²⁸ In the corporate structure there are three agency problems between three pairs of groups: shareholders (principals) and managers (agents); minority shareholder (principals) and controlling shareholders (agents); and creditors (principals) and shareholders (agents). *See, e.g.*, Reinier R. Kraakman, Paul Davies, Henry Hansmann, Gerard Hertig, Klaus J. Hopt, Hideki Kanda, & Edward B. Rock, *The Anatomy of Corporate Law—A Comparative and Functional Approach*, 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 354-355. 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., *id.*

¹²⁹ *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 (1996) (showing that analysts’ monitoring and marketing exert a significant and positive effect on firms’ market value); R. Charles Moyer, Robert E. Chatfield, & Phillip M. Sisneros, *Security Analyst Monitoring Activity: : Agency Costs and Information Demands*, 24 J. FIN. & QUANT. ANAL. 503 (1989) (supplying empirical support for analysts’ monitoring role); Doukas et al., *supra* note 23, (supplying empirical evidence showing that security analysis acts as a monitor to reduce the agency costs associated with separation of ownership and

about the performance of the management.¹³⁰ 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, excessive compensation, etc. In corporate law, all cases of intentional takings are lumped under the heading of breach of duty of loyalty.¹³¹ The second category of agency cost is *mismanagement*: inefficient investments aimed at "empire building,"¹³² value-decreasing diversifying mergers and takeovers, distorted business decisions, etc. In corporate law, cases of mismanagement fall under the heading of breach of duty of care.¹³³ Cases of intentional takings fascinate the media and the public, but mismanagement is in fact a much more acute problem.¹³⁴

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. Thus, once a taking has been disclosed courts can provide a remedy.¹³⁵ Courts, on the other hand, are ill-suited to handle breaches of duty of care, as identifying mismanagement requires second guessing management's business decisions. Indeed, in dealing with mismanagement cases, courts have adopted the

control); Jeffrey N. Gordon, *Governance Failures of the Enron Board and the New Information Order of Sarbanes-Oxley*, 35 CONN. L. REV. 1125, 1132 (2003); 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% of these analysts believe that boards of directors are doing a poor job monitoring corporate performance).

¹³⁰ Gordon, *supra* note 129, at 1132.

¹³¹ See, e.g., *A.P. Smith Mfg. Co. v. Barlow*, 98 A.2d 581 (N.J. 1953); *Cinerama, Inc. v. Technicolor, Inc.*, 663 A.2d 1156 (Del. 1995); *Globe Woolen Co. v. Utica Gas & Elec. Co.*, 121 N.E. 378 (N.Y. 1918).

¹³² See Beranrd 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 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.").

¹³³ See *supra* note 17.

¹³⁴ See *supra* note 19.

¹³⁵ See Robert B. Thompson & Randall S. Thomas, *Shareholder Litigation: Reexamining the Balance Between Litigation Agency Costs and Management Agency Costs*, (2002) available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=336162 (suggesting that, in Delaware, plaintiffs are more likely to succeed in cases involving breaches of the duty of loyalty).

“business judgment rule,”¹³⁶ according to which courts abstain from second guessing business decisions except in extreme cases.¹³⁷ Moreover, legislators have permitted corporations to exempt directors from monetary damages arising from a breach of their duty of care.¹³⁸ Hence, responsibility for handling breaches of duty of care was moved away from courts to the market.

Market mechanisms and institutions are aimed primarily at restricting mismanagement through competition, while regulation of intentional takings is mostly left for courts and social norms.¹³⁹ The more crucial type of agency cost, mismanagement, is reduced through the analysts market. Analysts follow management actions, evaluate managerial decisions, and incorporate this information into stock prices. Even though it is not their primary role, analysts who follow corporations might also detect fraud, intentional taking, and theft by management.¹⁴⁰ The more developed the analysts market, the more effective it is in reducing agency costs.¹⁴¹

Indeed, the distinction between corporate law, whose goal is to reduce corporate agency costs, and securities regulation, whose goal is to facilitate a competitive market for analysts, is not so clear.¹⁴² While the essential role of securities regulation is to facilitate a market for information traders, it does contain provisions that aim partially or wholly at improving corporate governance structure.¹⁴³ For instance, the proxy rules which mandate full disclosure before a shareholders’ vote,¹⁴⁴ the Williams Act which mandates specific procedure for tender offers¹⁴⁵ and the Sarbanes-Oxley Act¹⁴⁶ which mandates certain structures for a board and audit committee and establishes certain procedures to assure the quality of corporate reports,¹⁴⁷ 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 the seemingly corporate governance elements in

¹³⁶ See *supra* note 21 and the accompanying text.

¹³⁷ See, e.g., *Smith v. Van Gorkom*, 488 A.2d 858 (1985).

¹³⁸ Delaware General Corporation Law § 102(b)(7), 8 DEL. CODE ANN. (1999).

¹³⁹ See Rock & Wachter, *supra* note 22.

¹⁴⁰ See, e.g., *Dirks v. SEC*, 463 U.S. 646 (1983) (an analysts exposing corporate fraud).

¹⁴¹ See *supra* note 129 and the accompanying text.

¹⁴² See Robert B. Thompson & Hillary A. Sale, *Securities Fraud as Corporate Governance: Reflections upon Federalism*, 56 VAND. L. REV. 859 (2003)(explaining how securities fraud litigation serves to regulate corporate governance structure).

¹⁴³ See Robert B. Thompson, *Collaborative Corporate Governance: Listing Standards, State Law, and Federal Regulations*, 38 WAKE FOREST L. REV. 961 (2003) (providing a view of how the stock exchanges, Delaware, and the federal government can operate together to reduce corporate agency costs).

¹⁴⁴ MELVIN A. EISENBERG, *CORPORATIONS AND OTHER BUSINESS ORGANIZATIONS: CASES AND MATERIALS* 285-288 (8th ed. unabridged, Foundation Press, 2000).

¹⁴⁵ *Id.* at 1136-1140.

¹⁴⁶ Sarbanes-Oxley Act of 2002, Pub. L. No. 107-204, 116 Stat. 745 (2002).

¹⁴⁷ See generally Brian Kim, *Sarbanes-Oxley Act*, 40 HARV. J. LEGIS. 235 (2003).

securities regulation also facilitate a market for information traders. For instance, improved accounting practices reduce information traders' verification cost,¹⁴⁸ and limiting potential acquirers to buying no more than 5% of the shares without disclosing their tender offer intentions protects information traders against a substantial risk of non-public “outsider” information.¹⁴⁹ And the opposite is true as well: elements in securities regulation that aimed at facilitating a market for information traders also reduces 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.¹⁵⁰

Second, while in theory the role of providing efficient corporate governance was left for competition among states, in practice the only real competition that the leading incorporation state—Delaware—is facing comes from the Federal Government.¹⁵¹ The main tool the federal government can employ to intervene in corporate governance issues to avert the threat of a race to the bottom is that of securities regulation. Thus, corporate governance issues that the federal government believes were not adequately handled by the states will likely find their way into securities regulation.¹⁵²

This competition illustrates an important tie between securities regulation and corporate law. For capital markets to prosper, shareholders protection is necessary.¹⁵³ When shareholders can 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 they are ineffective without substantive rights and effective methods for enforcement. This is especially so in countries where concentrated

¹⁴⁸ See Pankaj Jain, Jang-Chul Kim, & Zabihollah Rezaee, *The Sarbanes-Oxley Act of 2002 and Market Liquidity*, (finding that the Sarbanes-Oxley Act reduced information asymmetry and improved the disclosure and transparency of corporate information), available at http://web2.kelley.iu.edu/FEA/FEA_Papers/30_Session_V_Accounting.pdf; Neil H. Aronson, *Preventing Future Enrons: Implementing The Sarbanes-Oxley Act of 2002*, 8 STAN. J. L. BUS. & FIN. 127, 136-137 (2002) (discussing the changes in accounting practices anticipated following the Sarbanes-Oxley legislation and the expected increased transparency in corporate reporting).

¹⁴⁹ See Goshen & Parchomovsky, *supra* note 5, at 1274-1276.

¹⁵⁰ See, Jennifer H. Arlen & William J. Carrey, *Vicarious Liability for Fraud on Securities Markets: Theory and Evidence*, 1992 U. ILL L. REV. 691, that were the first to notice 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).

¹⁵¹ See Eisenberg, *supra* note 144, at 101-107; Mark J. Roe, *Delaware's Competition*, 117 HARV. L. REV. 588 (2003); **Kahan & Kamar, Stanford law review**.

¹⁵² See Roe, *supra* note 151.

¹⁵³ See Bernard S. Black, *The Legal and Institutional Preconditions for Strong Securities Markets*, 48 UCLA L. REV. 781 (2001).

ownership is coupled with ineffective enforcement in courts.¹⁵⁴ From this perspective, the competition from the federal government can be seen as aiming to preserve the information traders market. If state shareholders 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 will discount the shares to reflect the risk of agency costs. This, in turn, would increase 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 will apply lower discounts in response to the lower agency costs, the cost of capital will decrease, and the whole market will benefit.

In an important article, Paul Mahoney argued against our position that securities regulations should facilitate a market for information-traders.¹⁵⁵ In his view, securities regulations' historic role was to reduce management agency costs, and this should continue to be their appropriate role.¹⁵⁶ Accordingly, securities regulations should focus on mandating the disclosure of hard core verifiable information, conservative accounting requirements, management compensation packages, and self-dealings.¹⁵⁷ Since, in Mahoney's view, management agency cost takes the form of either 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 illusive goal of achieving efficient markets through mandatory disclosure.¹⁵⁸

This view, however, is based on an incomplete account of the management agency problem and the role of information traders in reducing it. Mahoney is concerned with breaches of duty of loyalty, and would like to confine mandatory disclosure to this end. However, while it is true that limited disclosure will still reduce agency cost of the breach-of-duty-of-loyalty type, it will not reduce agency cost of the breach-of-duty-of-care type. Courts are ineffective in monitoring duty of care breaches. Only information traders can detect and curtail mismanagement. Liquidity traders do not search for

¹⁵⁴ 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).

¹⁵⁵ Paul G. Mahoney, *Mandatory Disclosure as a Solution to Agency Problems*, 62 U. CHI. L. REV. 1047 (1995).

¹⁵⁶ See *id.* at 1051-1052.

¹⁵⁷ See *id.* at 1105-1111.

¹⁵⁸ See *id.*

information, noise traders are irrational, and insiders are not going to monitor themselves. If disclosure were limited to information concerning stealing and 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. As information traders are concerned with all aspects of business operation, disclosing only transactions that involve self-dealing, management's compensation, and hard information would only provide information traders with partial information. Information traders must also know details about business decisions, different lines of business, and soft, forward-looking information.¹⁵⁹ Thus, even if one 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 regulations. In this Part, we discuss in detail the implications of our theory to 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.¹⁶⁰ Mandatory disclosure, they argue, is costly and useless¹⁶¹ because markets are efficient and thus already incorporate all the relevant information.¹⁶² Disclosure, therefore,

¹⁵⁹ 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 the Relevance of Conference Calls to Financial Analysts*, 22 REV. QUANT. FIN. & ACCOUNT. 15 (2004).

¹⁶⁰ Steven A. Ross, *Disclosure Regulation in Financial Markets: Implication of Modern Finance Theory and Signaling Theory*, in ISSUES IN FINANCIAL REGULATION (Franklin Edwards, ed. 1979) (providing a signaling model in which good firms have incentives to disclose and investors assume bad news from silence); Frank H. Easterbrook & Daniel R. Fischel, *Mandatory Disclosure and the Protection of Investors*, 70 VA. L. REV. 669 (1984).

¹⁶¹ See, e.g., Barbara Banoff, *Regulatory Subsidies, Efficient Markets, and Shelf Registration: An Analysis of Rule 415*, 70 VA. L. REV. 135, 176-184 (1984) (arguing that improvement in price accuracy through increased underwriter liability is not worthwhile).

¹⁶² 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 Stigler, *Public Regulation of*

should be elective.¹⁶³

Proponents of mandatory disclosure have countered by offering various justifications for mandatory disclosure.¹⁶⁴ The gist of these justifications is that information has characteristics that prevent optimal supply: it is a “public good” and hence creates externalities.¹⁶⁵ 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 R&D, change marketing or pricing strategy, enter or exit a market).¹⁶⁶ 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.¹⁶⁷ 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.¹⁶⁸ Since the corporation can neither charge for these benefits nor exclude nonpaying parties from using the information, the corporation will under-disclose information.¹⁶⁹ 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.

Securities Markets, 37 J. BUS. 117, 122-124 (1964); George Benston, *Required Disclosure and the Stock Market: An Evaluation of the Securities Exchange Act of 1934*, 63 AM. ECON. REV. 132 (1973). For a critical review of these studies, see Merritt B. Fox, *Retaining Mandatory Disclosure: Why Issuer Choice is not Investor Empowerment*, 85 VA. L. REV. 1334, 1369-1395 (1999).

¹⁶³ 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 Roberta Romano, *Empowering Investors: A Market Approach to Securities Regulation*, 107 YALE L.J. 2359 (1998); Stephen J. Choi & Andrew T. Guzman, *Portable Reciprocity: Rethinking the International Reach of Securities Regulation*, 71 S. CAL. L. REV. 903 (1998).

¹⁶⁴ See Kraakman et al., *supra* note 128, at 204-207, for an overview of these justifications.

¹⁶⁵ For an excellent analysis of this justification, see Fox, *supra* note 162; Dale A. Oesterle, *The Inexorable March Toward a Continuous Disclosure Requirement: “Are We There Yet?”*, 20 CARDOZO L. REV. 135, 198-201 (1998).

¹⁶⁶ Oesterle, *supra* note 165, at 198-199; Easterbrook & Fischel, *supra* note 160, at 677.

¹⁶⁷ See Admati & Pfleiderer, *supra* note 42, at 480.

¹⁶⁸ See Oesterle, *supra* note 165, at 200.

¹⁶⁹ 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, since they also support mandating disclosure by closely held corporations. Information regarding non-publicly traded corporations is also a “public good” that will be under-produced 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 lacking in the case of closely held corporations.¹⁷⁰

It is possible, however, to think of a different justification that supports mandatory disclosure, one that focuses on sell-side analysts. According to this justification, absent mandatory disclosure, there will be both too little and too much investment in securities research.¹⁷¹ On the one hand, since analytical products are also a public good analysts will under-invest in securities research (i.e., too few corporations will be followed).¹⁷² On the other hand, analysts will make duplicative investment in attempting to find the same pieces of (undisclosed) information about the corporation, which leads to social waste.¹⁷³ Mandatory disclosure reduces both problems: it subsidizes search and verification efforts and eliminates duplicative investment.

This reasoning is supported by our analysis. 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 expect to benefit indirectly through other business activities.¹⁷⁴ 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. Mandatory disclosure, however, is justified by our model 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.

¹⁷⁰ See, e.g. Manuel A. Utset, *Towards a Bargaining Theory of the Firm*, 80 CORNELL L. REV. 540, 598-599 (1995) (arguing that mandatory disclosure can help shareholders overcome a problem of strategic disclosure by managers and improve monitoring); 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).

¹⁷¹ See Coffee, *supra* note 5.

¹⁷² *Id.* at 731-732.

¹⁷³ *Id.* at 733-734; Oesterle, *supra* note 165, at 210-202; Easterbrook & Fischel, *supra* note 160, at 682.

¹⁷⁴ See *supra* note 106.

Indeed, producing firm specific information is an integral byproduct of managing the business and the added cost of disclosing it is marginal.¹⁷⁵ Second, some undisclosed pieces of information could not be discovered even at very high cost. The pricing of such information will be based on estimates as to its existence, nature, and value. Such pricing is bound to be imprecise. Third, here too, disclosure by the corporation will prevent duplicative investments in (undisclosed) corporate information for all types of information traders. Fourth, here too, 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 an enormous saving 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 realize fully economics of scale and scope in analyzing information.¹⁷⁶ Hence, the desirability of mandatory disclosure can best be seen from a general market perspective, not that of the individual firm.¹⁷⁷

To illustrate this point, assume no mandatory disclosure and a market with 100 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 cost and limited ability to exploit economies of scale and scope, the market will support only 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 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

¹⁷⁵ 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.

¹⁷⁶ Admati & Pfleiderer, *supra* note 42 (showing that positive externalities result from information and liquidity spillovers due to improved disclosures by other firms).

¹⁷⁷ Bushee & Leuz, *supra* note 42, 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. 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. This finding is consistent with the positive externalities from disclosure regulation.

improve the knowledge about the first firm. The more firms disclose, the greater will be the savings in search costs and greater economies of scale and scope will be realized. 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 gain is improved liquidity for the corporation's securities.¹⁷⁸ Improved liquidity reduces investors' transaction costs and investment risks, thus lowering the corporation's cost of capital.¹⁷⁹ The second gain is efficient pricing of the corporation's securities. Efficient pricing prevents under-valuation and hence eliminates the risk of an unjustified takeover.¹⁸⁰ It also provides an effective mechanism for measuring managerial efforts and compensation.¹⁸¹ The third gain is greater reduction in agency costs through improved monitoring and project choice¹⁸² and increased relational investments.¹⁸³

However, these effects represent a benefit only for efficient managements. For inefficient managements full disclosure and a competitive information traders market represent threats. A competitive information traders market will: reflect inefficient management in lower stock prices and thereby render the corporation a more likely target for takeovers;¹⁸⁴ expose inefficient management to claims of breach of fiduciary

¹⁷⁸ *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).

¹⁷⁹ Douglas Diamond & Robert Verrecchia, *Disclosure, Liquidity, and the Cost of Capital*, 46 J. FIN. 1325 (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* (presenting a model showing that greater disclosure leads to lower cost of capital), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=300715.

¹⁸⁰ See Merritt B. Fox, *Required Disclosure and Corporate Governance*, 62 L. & CONTEMP. PROBS. 113 (1999).

¹⁸¹ 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 firms' disclosures, measured both by management earnings forecast frequency, by and analysts' subjective ratings of disclosure practice, are positively related to the proportion of CEO compensation affected by stock price and to the value of shares held by the CEO.

¹⁸² Merritt B. Fox, *The Political Economy of Statutory Reach: U.S. Disclosure Rules in 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).

¹⁸³ Diamond & Verrecchia, *supra* note 179 (noting that increased disclosure leads to increased holdings of large investors).

¹⁸⁴ See Fox, *supra* note 180.

duties;¹⁸⁵ expose inefficient management to proxy fights;¹⁸⁶ limit management ability to consume and expropriate value from shareholders; and increase pressure from the board of directors.¹⁸⁷

For these reasons, not all corporations should be expected to provide full disclosure without a mandatory disclosure rule.¹⁸⁸ Opponents of mandatory disclosure respond to these claims by arguing that under an elective disclosure system, investors will assume the worst about the non-disclosing firms and discount their securities.¹⁸⁹ The assume-the-worst argument prompted 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.¹⁹⁰ In such cases, even efficient management will not disclose all available information about the corporation without a mandatory disclosure rule.¹⁹¹ 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 buyout the corporation for discounted value.¹⁹² Third, management can avoid market discipline even if securities are discounted by relying on retained earnings instead of raising new capital, and adopting anti-takeover defenses.

All these responses, while valid, accept the premise that non-disclosing firms will be penalized by the market through excessive discounting of their securities prices. This is the core premise of the "investors will assume the worst" argument. We provide a new response that rejects this premise and sheds new light on the mandatory disclosure debate. A competitive market of information traders cannot penalize firms that do not

¹⁸⁵ *Id.*

¹⁸⁶ *Id.*

¹⁸⁷ See Gordon, *supra* note 129.

¹⁸⁸ See W. O. Jung & Young K. Kwon, *Disclosure When the Market is Unsure of Information Endowment of Managers*, 26 J. ACCT. RES. 146 (1988) (suggesting that managers are more likely to disclose when they possess good news).

¹⁸⁹ See Easterbrook & Fischel, *supra* note 160, at 683; see also Thompson & King, *supra* note 118 (applying this assumption to another context).

¹⁹⁰ See Hal S. Scott, *Internalization of Primary Public Securities Markets*, 63 L. & CONTEMP. PROB. 71, 76 (2000) (noting that management sometimes chooses not to disclose because disclosure would aid competitors).

¹⁹¹ It is true that, in response to analyst demands, many managers do disclose much more information voluntarily than mandated by law. Indeed, it might 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.

¹⁹² Managers do resort to such pre-MBO tactics. See Susan E. Perry & Thomas H. Williams, *Earnings Management Preceding Management Buyout Offers*, 18 J. ACCT. & ECON. 157 (1994); 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).

provide adequate disclosure by "assuming the worst" about them and excessively discounting their securities. 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.¹⁹³ However, non-disclosure by publicly traded corporations in the secondary market does not create asymmetric information between sellers (current shareholders) and buyers (potential shareholders); 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).¹⁹⁴ 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.¹⁹⁵ 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."¹⁹⁶ In other words, competitive forces negate the ability of the market to induce managements to provide full disclosure by punishing non-disclosure.¹⁹⁷

¹⁹³ 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 Akerlof, *The Market for "Lemons": Quality, Uncertainty and the Market Mechanism*, 84 Q.J. ECON. 488 (1970); Leland, *Quacks, Lemons and Licensing: A Theory of Minimum Quality Standards*, 87 J. POL. ECON. 1328 (1979).

¹⁹⁴ See, e.g., R. Verrecchia, *Discretionary Disclosure*, 1983 J. ACCT. & ECON. 179 (discussing the two competing reasons for non-disclosure); Joshua Ronen & Varda (Lewinstein) Yaari, *Incentives For Voluntary Disclosure*, 4 J. FIN. MARKETS 309, 311 (2001) (arguing that typically, information with no duty to disclose consists of non-verifiable data, such as a predicted state of the environment; the absence of this type of information cannot be interpreted as bad news).

¹⁹⁵ 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).

¹⁹⁶ 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.

¹⁹⁷ Indeed, asymmetric information that can lead to a "lemons market" exists in the IPO market. When the corporation issues securities to the public, non-disclosure 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 (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

The only way information traders could overcome this problem is by collectively agreeing to assume the worst about non-disclosing corporations. However, such an industry-wide agreement to punish corporations for non-disclosure is a blatant violation of antitrust law.¹⁹⁸ In the absence of collusive tactics, if all information traders 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 will 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). Since such information traders will consistently beat other information traders, all other information traders will be forced to respond by adopting a similar strategy and invest in search costs to form their own estimation of the true value of non-disclosing 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 non-disclosing corporations. Thus, the market cannot punish corporations for insufficient disclosure and thus cannot spur inefficient management to fully disclose. Instead of getting voluntary optimal disclosure from corporations, we are

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 will kick-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 Raghuram Rajan & Henri Servaes, *Analyst Following of Initial Public Offering*, 52 J. FIN. 507 (1997) (finding that underpricing is positively related to the number of analysts who are covering the new issues in the IPO aftermarket); Mingsheng Li, Thomas McInish, & Udomask Wongchoti, *Asymmetric Information in the IPO Aftermarket*, (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), available at <http://207.36.165.114/Denver/Papers/Evolution%20of%20asymmetric%20information%20after%20firms%20go%20public.pdf>. 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* (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 because this will attract informed investors, avoid adverse selection problems, and thereby protect uninformed investors.

¹⁹⁸ Butler D. Shaffer, *In Restraint of Trade: Trade Associations and the Emergence of “Self Regulation”*, 20 SW. U. L. REV. 289, 298-299 (1991) (noting the possible unlawfulness embedded in industry wide agreements regulating trade practices); 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).

back to highly duplicative investments in search costs by information traders. Every non-cooperative 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. However, even in that stage, mandatory disclosure will remain necessary. First, because information traders face competition, their ability to sanction non-disclosure is very limited. Only good managements that stand to benefit from analyst coverage will elect to disclose voluntarily, while other managements will disclose only if mandated by law. 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 sufficient analyst coverage to generate the benefits that justify voluntary disclosure.¹⁹⁹ Mandatory disclosure rules will be required to 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 right average price since the two opposing effects will cancel each other out. Even if one were to assume that absent disclosure duties stock prices, in general, would be discounted or inflated, this should have no effect on liquidity traders as they would now buy a portfolio for a discounted/inflated price and sell it for a correspondingly discounted/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.

¹⁹⁹ See Mark H. Lang, Karl V. Lins, & Darius P. Miller, *Concentrated Control, Analyst Following, and Valuation: Do Analysts Matter Most When Investors Are Protected Least?*, 42 J. ACCT. RES. 589 (2003) (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); Ravi Bhushan, *Firm Characteristics and Analyst Following*, 11 J. ACCT. RES. 255, 256-257 (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).

Note, however, that liquidity traders are concerned with securities regulations insofar as they facilitate liquidity and prevent shareholder expropriation. Mandatory disclosure has a positive effect on liquidity. The less disclosure there is, the higher the risk of asymmetric information. A higher the risk of asymmetric information implies a larger bid/ask spread, and lower liquidity. Mandatory disclosure also reduces management agency costs and with it the risk of shareholder expropriation. Indeed, both risks—*asymmetric information and agency costs*—cannot be diversified by liquidity traders, but they can discount overall share prices. This action will increase the cost of capital for all corporations and 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 (“FOTM”) 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 misstatement²⁰⁰ issued by the defendant with scienter,²⁰¹ and that the plaintiff relied on the misstatement²⁰² and suffered damages.²⁰³ To show reliance means to show that the plaintiff read the misstatement and acted based on it.²⁰⁴ 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,²⁰⁵ 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 will predominate over the common ones and the class could not be certified.²⁰⁶ To facilitate class actions in securities fraud cases, courts have adopted the FOTM as a presumption of reliance.²⁰⁷ Since 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.²⁰⁸

²⁰⁰ See *Rudolph v. Arthur Andersen & Co.*, 800 F.2d 1040, 1043 (11th Cir. 1986), *cert. denied*, 480 U.S. 946 (1987).

²⁰¹ See *Ernst & Ernst v. Hochfelder*, 425 U.S. 185, 193 (1976); LOUIS LOSS & JOEL SELIGMAN, *FUNDAMENTALS OF SECURITIES REGULATION* 949-961 (4th ed., 2001).

²⁰² LOSS & SELIGMAN, *supra* note 201, at 1200-1210.

²⁰³ See *id.* at 1210-1219.

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), *cert. denied*, 382 U.S. 811 (1965).

²⁰⁵ See *Gochnauer v. A. G. Edwards & Sons*, 810 F.2d 1042 (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 (9th Cir. 1975), *cert. denied*, 429 U.S. 816 (1976).

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

Consequently, even those who did not know about the misstatement but traded during the relevant time of the misstatement are entitled to sue.²⁰⁹

While the adoption of the FOTM by the courts was supported by many,²¹⁰ it has also been under attack since its inception.²¹¹ First, based on the dissent in *Basic, Inc. v. Levinson*²¹²—the Supreme Court case that adopted the presumption—it was argued that markets are not efficient enough to justify the presumption.²¹³ If a market is inefficient, and thus does not accurately reflect the misstatement, there is no reason to substitute reliance for a FOTM presumption. This attack has been recently revived with the growth of behavioral finance and the burst of the high-tech bubble.²¹⁴ Second, it was argued that even when markets are efficient the adoption of the presumption is not

perpetrated a fraud on the market as a whole).

²⁰⁹ *Nathenso 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 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. 727 (1995) (criticizing the ease at which frivolous lawsuits are brought and enormous litigation costs generated by the FOTM).

²¹² 485 U.S. 224 (1988).

²¹³ In *Basic*, the court 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 254-255; see also Carol R. Goforth, *The Efficient Capital Market Hypothesis – An Inadequate Justification for the Fraud-On-The-Market Presumption*, 27 WAKE FOREST L. REV. 895, 910-911 (1992); Jonathan R. Macey & Geoffrey P. Miller, *Good Finance, Bad Economics: An Analysis of the Fraud-On-The-Market Theory*, 42 STAN. L. REV. 1059, 1077-1091 (1990) (noting that the efficiency of markets differs with respect to different pieces of information); Jonathan R. Macey, Geoffrey P. Miller, Mark L. Mitchell, & Jeffrey M. Netter, *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); Ian Ayres, *Back to Basics: Regulating How Corporations Speak to the Market*, 77 VA. L. REV. 945, 967 (1991).

²¹⁴ See, e.g., Alon Brav & J. B. Heaton, *Revisiting the Mechanisms of Market Efficiency: Market Indeterminacy*, 28 IOWA J. CORP. L. 517, 518-519 (2003); Ferrillo, et al., *supra* note 28, at 107-116 (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 (2001) (postulating that evidence supporting the efficient market hypothesis was in fact never very strong).

justified because it creates over-deterrence,²¹⁵ provides damages to non-damaged parties,²¹⁶ and distorts productive efficiency.²¹⁷

1. The Inefficient Market Claim

The first criticism of the FOTM 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, the FOTM is especially important. We will 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.²¹⁸ There are two ways to interpret this statement.²¹⁹ The first, putting the premium on the term “price,” requires that a plaintiff who seeks to invoke the presumption must show that she accepted the market price as an accurate

²¹⁵ See Mahoney, *supra* note 5; Janet C. Alexander, *Rethinking Damages in Securities Class Action*, 48 STAN. L. REV. 1487, 1495 (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, 177-178 (1990); Donald C. Langevoort, *Capping Damages for Open-Market Securities Fraud*, 38 ARIZ. L. REV. 639, 643 (1996).

²¹⁶ See 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; 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 actions lawsuits following the enactment of the Private Securities Litigation Reform Act of 1995).

²¹⁷ See 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); Marcel Kahan, *Games, Lies, and Securities Fraud*, 67 N.Y.U. L. REV. 750, 761 (1992) (noting that the Fraud-On-the-market presumption allows companies to be subjected to liability for competitively and negotiatory lies); 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 250 (“In summary . . . [I]t is not inappropriate to apply a presumption of reliance supported by the fraud-on-the-market theory”).

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 aspects of the ECMH: informational efficiency and fundamental efficiency: informational efficiency means “that stock prices will reflect certain classes of existing information;” “fundamental efficiency posits that, conditioned on the information available, stock prices will reflect the present value of corporations’ expected underlying profits”).

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 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, a plaintiff who sold short cannot invoke the FOTM presumption since the act of selling short, by definition, indicates that she did not consider the market price an accurate reflection of value.²²⁰ 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 as 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.²²¹ The first interpretation is the product of substituting for a direct reading of the *Basic* majority view the minority’s misreading of the majority view.²²²

²²⁰ The short seller example was provided by the minority judge in *Basic*, 485 U.S. at 251, and ruled on in *Zlotnick v. TIE Communications*, 836 F.2d 818 (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.

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? Is it not enough just to distrust the price? See Langevoort, *supra* note 219, at n.156. Why not use the much simpler example of a short seller provided by the minority judge? Because the majority judges do 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 Sec. Litig.*, 120 F.R.D. 629, 637 (D.N.J. 1988) the court founds 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, *e.g.*, Langevoort, *supra* note 219, at n.156 and accompanying text; Daniel R. Fischel, *Efficient Capital Markets, the Crash, and the Fraud on the Market Theory*, 74 CORNELL L. REV. 907 (1989).

²²² See Justice Byron White’s description of the majority’s opinion. *Basic*, 485 U.S. at 255-256. The minority judge 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

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.²²³ If, however, the correct reading of *Basic* is as we argue, then the issue of efficiency does not affect the validity of the presumption.²²⁴ For the presumption only requires a showing of an effective, not efficient, market.²²⁵

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. When markets are effective and efficient, it implies that there exists a sufficiently competitive market for information traders which is winning over noise traders and capable of producing accurate pricing. In such a market, information traders already enjoy low verification cost which the FOTM presumption protects. On the other hand, when markets are effective and inefficient it implies that due to increased noise trading and limitations on arbitrage, information traders cannot effectively correct market prices. 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/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 in order to increase information traders' activity and thereby improving the speed and quality of reverting to efficiency.²²⁶

“short” days before the misrepresentation is made—surely none of these people can state a valid claim under Rule 10b-5.

Id. at 251. 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, e.g.*, 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.

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”. Majority opinion, *Basic*, 485 U.S. at 249.

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”. Majority opinion, *Basic*, 485 U.S. at 247.

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

2. The Efficient Market Claims

The second attack on the FOTM presumption is based on a very different argument. It stems from the assumption that markets are efficient. Assume, therefore, that the market is efficient and does reflect misstatements in price. To deter misstatements, the offender must 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 the only damage from misstatements is precaution costs, and if so, the use of the FOTM presumption excessively penalizes violators.²²⁷ Indeed, if one assumes that the only relevant damage from misstatements comes in the form of precaution costs, then the argument is correct. The overcompensation is due to the fact that compensation is awarded to all investors who traded in the market, including liquidity traders who randomly traded while prices reflected the misstatement. Liquidity traders, however, do not invest in precautionary measures since 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 cancel out the effects of fraud.²²⁸ Moreover, even if fraud leads to an overall inflated or deflated market, liquidity traders will not be harmed because they will buy and sell portfolios for similarly inflated or deflated prices.²²⁹ Thus, the argument goes, compensating liquidity traders gives them a windfall and over-charges the offender.

Moreover, the argument posits that due to the over-deterrence management will reduce the amount of voluntary disclosure it provides to the market, thereby decreasing the free information available to information traders.²³⁰ 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 between reducing search costs (disclosing large amount of unverified information) and reducing verification costs (disclosing limited amount of verified information) is harmful to information traders. The argument is that it is much more costly for information traders to discover new pieces of firm specific information than it is to verify disclosed pieces of information. Over-deterrence 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

²²⁷ See Mahoney, *supra* note 5, at 625, 626-641.

²²⁸ *Id.*

²²⁹ *Id.*

²³⁰ *Id.* at 650-655.

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.²³¹ Both actions are harmful. Reduced liquidity is harmful to liquidity traders, and discounted prices are harmful to corporations raising capital.²³² 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.²³³

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.²³⁴ 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 should be replaced with public enforcement by the stock exchanges.²³⁵

A different response admits that the FOTM presumption creates a windfall for liquidity traders but argues that nevertheless it does not over-deter. Since fraud requires scienter, and is therefore a culpable offense, there is nothing wrong with imposing punitive damages on offenders.²³⁶ This response was criticized for failing to recognize

²³¹ See A.C. Pritchard, *Markets as Monitors: A Proposal to Replace Class Actions with Exchanges as Securities Fraud Enforcers*, 85 VA. L. REV. 925, 938-940 (1999); Georgakopoulos, *supra* note 49, at 702-711.

²³² See Pritchard, *supra* note 231, at 945; Georgakopoulos, *supra* note 57.

²³³ See Pritchard, *supra* note 231, at 940-941; Georgakopoulos, *supra* note 57.

²³⁴ See Georgakopoulos, *supra* note 57, at 703-707.

²³⁵ See Pritchard, *supra* note 231.

²³⁶ See Marilyn F. Johnson, Karen K. Nelson, & A.C. Pritchard, *In re Silicon Graphics Inc.: Shareholder Wealth Effects Resulting From the Interpretation of the Private Litigation Reform Act's Pleading Standards*, 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

that in practice the class action mechanism employed in securities cases does not distinguish between negligent and fraudulent misstatements.²³⁷ As a result, vis-à-vis potentially negligent offenders (rather than fraudulent), the use of FOTM does result in over-deterrence. It should be noted, 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.²³⁸ 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 over-deterrence would disappear.

b. The Proposed Model's Responses

i. Full Range of Damages

Our model offers a superior justification for the FOTM by focusing on the pricing process of the market. As a starting point, it should be emphasized that without the FOTM presumption, a plaintiff in a fraud case must show: (a) reliance on the misstatement; and (b) 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, 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. Putting aside the problem of inappropriate incentives to sue when the plaintiff's holding is insignificant, information traders who trade can potentially sue and prove reliance. On the other hand, information traders who did not directly trade do not satisfy the

deterrent to fraud.”).

²³⁷ See, Johnson *et al.*, supra note 236, at 782-83 (noting the vagueness of the scienter criterion); 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 (1991) (“courts 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 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.”).

²³⁸ See, e.g., Elliott J. Weiss, *Complex Litigation At the Millennium: Pleading Securities Fraud*, 64 L. & CONTEMP. PROB. 5 (2001) (describing the positive effects of the Act upon the filing of frivolous class action lawsuits); Michael A. Perino, *Did the Private Securities Litigation Reform Act Work?*, 2003 U. ILL. L. REV. 913, 947-950 (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); 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); 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 (2000).

precondition of a trade and thus will be barred from bringing a suit. Moreover, all other investors who relied 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, in order to protect the value of the analyst's product, the FOTM must apply to all traders who relied on analytical product. Indeed, aside from the difficulty of distinguishing one group from the others, 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 will drop and competition among them will diminish. Reduced competition among information traders increases the risk faced by market makers, who will increase the bid/ask spread to reflect the higher probability of frauds. The FOTM presumption helps liquidity traders recover their losses. By giving them the right to receive compensation, the FOTM presumption prompts liquidity traders to abstain from reducing the volume of their trading and discounting overall prices. Neglecting to compensate for these damages will not adequately deter misstatements.

Moreover, even if information traders and those who relied on their analytical products are compensated, information traders will still be harmed if liquidity traders are not compensated. Information traders' potential profits will be eroded due to high bid/ask spreads and reduced trading by liquidity traders.

Fraud inflicts yet another harm in the form of increased management agency costs.²³⁹ The incentives to issue misstatements by management are related to the quality of the corporate business operation and/or management's pursuit of personal benefits. Management might lie to avoid disclosing mismanagement or stealing, to increase their 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 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, and thereby increase 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

²³⁹ See Pritchard, *supra* note 231, at 937-938.

reduce the efficiency of the market and further increase the cost of capital. The FOTM 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.²⁴⁰

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 disclosure and liability for non-disclosure. Although liability for non-disclosure is limited, there is no reason to assume, that managements will respond to the FOTM doctrine by reducing disclosure. Since the risk of over-deterrence only applies to honest (although potentially negligent) management and not to dishonest management, it is an empirical question whether management will resort to defensive over-disclosure or under-disclosure. 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 warn investors on a more timely basis.²⁴¹

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 over-deterrence 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. However, efficient management that chooses to reduce disclosure runs the risk of losing all the benefits accruing from analyst coverage, such as accurate pricing, liquidity, and reduced agency costs. Again, it is an empirical

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 Jennifer H. Arlen & William J. Carrey, *Vicarious Liability for Fraud on Securities Markets: Theory and Evidence*, 1992 U. ILL L. REV. 691, 692 (supporting the imposition of liability on managers).

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. See Sunil Dutta & Jacob Nelson, *Shareholder Litigation and Market Information: Effects of the Endorsement of the Fraud-on-the-market Doctrine on Market Information*, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=69036. Other studies support the same conclusion. See D. Skinner, *Why Firms Voluntarily Disclose Bad News*, 1994 J. ACCT. RES. 38 (finding that firms facing large negative earnings surprises are more likely to make preemptive earnings-related disclosures); J. Francis, D. Philbrick, & K. Schipper, *Shareholder Litigation and Corporate Disclosure*, 1994 J. ACCT. RES. 137 (finding that while disclosure does not deter litigation it may reduce the severity of litigation).

question whether the loss of these benefits outweighs the over-deterrence effect and thus negates the incentive to under-disclose.²⁴²

iii. The Appropriate Standard of Review under Class Action

A different over-deterrence argument maintains that, although, in theory, courts are supposed to apply a scienter standard in cases of fraud, in practice they apply a negligence standard.²⁴³ Consequently, plaintiffs can collect damages even from corporations that are not guilty of fraud or recklessness.²⁴⁴ In response to the overcompensation problem, some scholars have argued for the abolition of the FOTM presumption, and with it the class action mechanism.

While 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 (a) increases the number of lawsuits filed; (b) increases verification costs for the corporation; (c) reduces verification costs for information traders; (d) delays disclosure of information to the market; and (e) lowers the cost of judicial decisionmaking. We next elaborate on each effect.

Begin with the number of lawsuits. Since a scienter rule sets a higher bar for successful suits relative to negligence, one should 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 duty of care compared with a scienter rule that requires proving 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.²⁴⁵ 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 it discloses to the market. Accordingly, management will spend more resources on verifying information before releasing it to the market. By contrast, a negligence regime will effect a cost savings for information traders. Naturally, the added investment in verification by corporations will eliminate some of the verification efforts undertaken by information traders. Yet, it is important to note that the two effects will not necessarily cancel each other out. The

²⁴² *Id.*

²⁴³ See Johnson, Nelson & Pritchard, *supra* note 236, at 782-783 (noting that the scienter standard is notoriously amorphous. Although 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, 742-743 (1995) (supplying evidence indicating that between 22% and 60% of securities suits are settled for nuisance value).

²⁴⁵ Cooter & Ulen, *Law and Economics*

added verification costs for the corporation should be expected to be lower than the savings on the information traders' side. First, as we explained, managers, as insiders, can verify information more cost-effectively than information traders. Second, since all information traders invest in verification costs, the added investment by the corporation eliminates duplicative investment for the information traders.²⁴⁶

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 on verifying the information before it releases it to the public. However, the delay in disclosure on the corporations' side will likely be offset by speedier pricing on the information traders' side since the information they receive from firms will be more accurate and the verification process will be shorter.

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. Since the corporation is the least cost avoider, efficiency prescribes imposing the cost of avoidance on the corporation.²⁴⁷ 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? In fact, we do not support such a change. Since experience teaches that courts sometimes over-enforce the statutory standard (e.g., by sometimes imposing liability based on negligence instead of scienter) lowering the statutory standard to negligence may generate a tidal wave of strike suits. The enactment of a negligence standard coupled with the retaining of the class action mechanism may cause a slide toward a strict liability standard. In theory, a strict liability regime will force corporations to invest in precautions that eliminate all misstatements, while relieving information traders of the need to take any precautions whatsoever.²⁴⁸ Since some misstatements may be detected more cost-effectively by information traders, such a one-sided regime is clearly excessive. Moreover, the imposition of a strict liability regime will not completely eliminate all verification costs in practice, as some information traders may wish to spearhead class actions against corporations that failed to meet the heightened standard.

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

²⁴⁸ Cooter & Ulen

Worst of all, the number of frivolous suits under a strict liability regime will be very high and both corporations and the courts will incur significant expenses dealing with such suits.

The balance achieved by setting the standard of review very high (at scienter)—that due to the agency cost problems embodied in the class action mechanism²⁴⁹ the actual standard will slide to the appropriate level (negligence)—is efficient.²⁵⁰ 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.²⁵¹ Second, although the legal enforcement achieved by blurring the distinction between scienter and negligence under-deters 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.²⁵² Indeed, the market “judges” the merits of private law suits against corporations by adjusting share prices and thereby provides more fine-tuned deterrence against fraud.²⁵³

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.

²⁴⁹ See John C. Coffee, *Understanding the Plaintiff's Attorney: The Implication of Economic Theory for Private Enforcement of Law through Class and Derivative Actions*, 86 COLUM. L. REV. 66 (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, Bierschbach & Stein, *Overenforcement*

²⁵¹ See Rafael La-Porta, Florencio Lopez-de-Silanes & Andrei Shleifer, *What Works in Securities Law?* (2003), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=425880.

²⁵² Dale Cloninger & Edward Waller, *Corporate Fraud, Systematic Risk, and Shareholder Enrichment*, 29 J. SOCIO-ECON. 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).

²⁵³ An examination of 290 lawsuits filed under Rule 10(b)-5 in the 1996-1998 period found that, although, in the aggregate, stocks of the defendant companies experience significant declines around the time of the first filing of lawsuits, not all cases have the same merit. 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. See Charmen 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 (2003).

CONCLUSION

In this Article, we 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 regulations elected 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 showed 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 demonstrated that disclosure duties should apply to soft information as well as hard information in order to reduce management agency costs. Third, we established that the fraud on the market presumption is justified not only when markets are efficient, but also (and perhaps especially) when markets are inefficient; the presumption is necessary to support information traders, the most effective price correcting mechanism.