THEORIES, ASSUMPTIONS, AND SECURITIES REGULATION: MARKET EFFICIENCY REVISITED

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The efficient market hypothesis has a strong presence in the contemporary culture of securities regulation. Its central insight—that a variety of forces impound available information into stock prices fast enough that arbitrage opportunities cannot be exploited systematically¹—began as an important theory in the economics literature.² Later, it became a working tool for legal scholars, and then diffused into law as both the SEC and the courts began to cite it as authority for a variety of concepts and initiatives. Judge Frank Easterbrook was able to write in a recent opinion, without qualification, that “[t]he Securities and Exchange Commission believes that markets *correctly* value the securities of well-followed firms, so that new sales may rely on information that has been digested and expressed in the security’s price.”³

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¹ The seminal article on the efficiency hypothesis as a legal construct is Ronald J. Gilson & Reinier H. Kraakman, *The Mechanisms of Market Efficiency*, 70 VA. L. REV. 549 (1984). In essence, the hypothesis posits that there will be an identity between two equilibria: securities prices and asset values. See *id.* at 557-58; see also William H. Beaver, *Market Efficiency*, 56 ACCT. REV. 23, 27-33 (1981) (defining market efficiency, and identifying its attributes and associated theories).

To test the equilibria hypothesis, a plausible model for asset prices must be developed and the presence of exploitable arbitrage opportunities must be explored. Therefore, tests that support efficiency are typically tests of the speed at which arbitrage opportunities presented by new information disappear. See Steven A. Ross, *The Interrelations of Finance and Economics: Theoretical Perspectives*, 77 AM. ECON. REV. 29, 32-33 (1987). This creates the problem that an improperly constructed asset model may cause the data to deviate from the hypothesis.

² Paul Samuelson is generally credited with the most formal exposition of the hypothesis as understood today. See Paul A. Samuelson, *Proof That Properly Anticipated Prices Fluctuate Randomly*, 6 INDUS. MGMT. REV. 41 (1965). There is, however, general agreement that its history is much longer. See Louis Bachelier, *Theory of Speculation*, in THE RANDOM CHARACTER OF STOCK MARKET PRICES 17, 17 (Paul H. Cootner ed., 1964). See generally Stephen F. LeRoy, *Efficient Capital Markets and Martingales*, 27 J. ECON. LITERATURE 1583, 1583-88 (1989) (providing a comprehensive history of the efficient markets literature, albeit by an author who is a critic of the efficiency hypothesis).

³ *Wielgos v. Commonwealth Edison Co.*, 892 F.2d 509, 510 (7th Cir. 1989) (emphasis added); see Donald C. Langevoort, *The SEC as a Bureaucracy: Public Choice, Institutional Rhetoric, and the Process of Policy Formulation*, 47 WASH. & LEE L. REV. 527, 538 (1990). For a full discussion of this case, see *infra* notes 196-202 and accompany-

The acceptance of such an idea by the legal elite makes it easy to forget just how foreign market efficiency is in wider circles. Billions of dollars are spent to generate securities research, recommendations, and advice. The popular image of the securities markets is one of a noisy crowd easily manipulated by and hypersensitive to rumors and fads.⁴ Best-selling books like *Liar's Poker*⁵ portray traders who see their jobs more as tests of virility than of intellect, selling to customers (even professional ones) who live in perpetual states of confusion. Practicing lawyers and others familiar with the day-to-day workings of the securities business are often more than happy to offer impressions of traders and their firms driven more by momentous ego or mindless bureaucracy than by rationality. It may be entertaining to watch or even participate in the process of investing, but saying that it coldly and reliably produces correct pricing, they suggest, manifests an awfully minimalist definition of correct.

This popular account is overdrawn, of course. Economists and legal scholars properly dismiss such expressions as anecdotal and popularized, albeit intriguing in their persistence.⁶ The validity of the efficient market hypothesis is based on a set of statistical tests demonstrating that the market prices securities *as if* there was a rational process, whether or not the market's constituent actors qualify as rational. The testing done in the 1960s and early 1970s, associated largely with finance theorist Eugene Fama,⁷ supported

ing text. As an academic, of course, Easterbrook is well-known for his strong efficiency views. See, e.g., Frank H. Easterbrook & Daniel R. Fischel, *Corporate Control Transactions*, 91 YALE L.J. 698, 723-31 (1982) (discussing efficiency considerations of freeze-out transactions).

⁴ The interest in biotechnology stocks in the early 1980s is a good example of such a fad. For an engaging exploration of the rise and fall of these stocks, see ROBERT TEITELMAN, *GENE DREAMS* (1989).

⁵ MICHAEL M. LEWIS, *LIAR'S POKER: RISING THROUGH THE WRECKAGE ON WALL STREET* (1989).

⁶ Economists have long wondered about the efficiency paradox—that the existence of a high degree of efficiency depends on a critical mass of persons believing that it is worthwhile to try to beat the market, notwithstanding the model's teachings. Today, it is widely accepted that markets do not achieve perfect efficiency; they offer positive returns to participants so as to justify their continued presence. See, e.g., Gilson & Kraakman, *supra* note 1, at 622-25 (offering a resolution of the efficiency paradox); Sanford J. Grossman & Joseph E. Stiglitz, *On the Impossibility of Informationally Efficient Markets*, 70 AM. ECON. REV. 393, 405 (1980) (arguing that "because information is costly, prices cannot perfectly reflect the information which is available, since if it did, those who spent resources to obtain it would receive no compensation").

⁷ See generally EUGENE F. FAMA, *FOUNDATIONS OF FINANCE* 133-68 (1976)

the idea that arbitrage opportunities were minimal: markets exhibit a sufficiently high degree of efficiency so that any residual imperfections can safely be treated as trivial. In 1978, Michael Jensen stated (in a quotation destined to live a long and useful life) that "there is no other proposition in economics which has more solid empirical evidence supporting it than the Efficient Market Hypothesis."⁸ For many legal scholars, this said enough.⁹ At roughly this point, the hypothesis began its remarkably quick transition from theory into doctrine.

The story, however, has since undergone a plot twist. In the 1980s, using more sophisticated data sets and computer technology, a number of economists began to question the accuracy of the tests that were thought to validate the efficiency model. Doubts were raised about the baseline model of asset value used to test for arbitrage opportunities. Statistical properties inconsistent with the model's predictions—excess volatility relative to expectations about changes in dividends, and tendencies of prices to revert to mean—were documented. Various pricing anomalies were identified and

[hereinafter FAMA, FOUNDATIONS] (discussing efficient capital markets and models of market equilibrium); Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. FIN. 383, 383, 416 (1970) (reviewing theoretical and empirical literature on the efficient markets model and concluding that the model holds well). Fama is well known for his three-part typology of efficiency testing. The so-called weak form of the hypothesis is that prior price movements cannot systematically be used to make predictions of future changes. The semi-strong form is that publicly available information cannot be so used. The strong form is that no informational access will systematically confer a trading advantage. See *id.* at 388. Today, the strong form has largely been falsified; insider status, for example, is presumed to give one a trading advantage. Most legal writing today focuses on the semi-strong form. Worth noting, however, is that the weak form is still a matter of interest and the subject of continued testing.

⁸ Michael C. Jensen, *Some Anomalous Evidence Regarding Market Efficiency*, 6 J. FIN. ECON. 95, 95 (1978). Jensen repeated his assertion in the mid-1980s, stating that "there is no better documented proposition in any of the social sciences." Michael C. Jensen, *The Takeover Controversy: Analysis and Evidence*, MIDLAND CORP. FIN. J., Summer 1986, at 6, 11. This statement could be taken as a comment on either the efficiency hypothesis or the social sciences.

⁹ See, e.g., Daniel R. Fischel, *Efficient Capital Market Theory, the Market for Corporate Control, and the Regulation of Cash Tender Offers*, 57 TEX. L. REV. 1, 3 (1978) (arguing "that efficient capital market theory undermines the supposed justification for current tender offer regulation and legal defensive tactics available to target company management"); Daniel R. Fischel, *Use of Modern Finance Theory in Securities Fraud Cases Involving Actively Traded Securities*, 38 BUS. LAW. 1, 3-5 (1982) [hereinafter Fischel, *Use of Modern Finance Theory*] (explaining the market model and stating that "[b]ecause all publicly available information is embedded in stock prices, investors who accept the market price are fully protected [and] no better off with more disclosure nor worse off with less disclosure").

found to be persistent. As the controversy intensified, theorists began seriously to question whether the efficient market model could ever really be validated or discredited.

This ferment has led to a counterreaction to the efficient market hypothesis within the economics profession. A group of eminent theorists believes that "noise"—pricing influences not associated with rational expectations about asset values—plays a far greater role than previously thought in stock market behavior. They are developing alternative models of price behavior that assume prices do make significant departures from asset values. Although their formal efforts are still in early stages, they have made the idea of strong capital market efficiency a legitimately debatable issue. In the words of two well-known noise theory proponents, Andrei Shleifer and Lawrence Summers: "If the efficient markets hypothesis was a publicly traded security, its price would be enormously volatile. . . . [T]he stock in the [conventional] hypothesis . . . crashed along with the rest of the market on October 19, 1987. Its recovery has been less dramatic than that of the rest of the market."¹⁰

This Article focuses on the gulf that has developed between the current economics literature and the persistent, seemingly static, conception of market efficiency in the legal culture.¹¹ In many

¹⁰ Andrei Shleifer & Lawrence H. Summers, *The Noise Trader Approach to Finance*, J. ECON. PERSP., Spring 1990, at 19, 19. The stock market crash of October 1987 has been a focal point in the debate about the rationality of stock prices, with no agreement that it is dispositive. Compare Joseph E. Stiglitz, *Symposium on Bubbles*, J. ECON. PERSP., Spring 1990, at 13, 17 (stating that "[f]or those not persuaded of the existence of bubbles, the challenge is to provide persuasive interpretations of events like the Great Depression, the stock market crash of October 1987, and other apparent bubbles") with Eugene F. Fama, *Perspectives on October 1987 or What Did We Learn from the Crash?*, in BLACK MONDAY AND THE FUTURE OF FINANCIAL MARKETS 71, 77 (Robert W. Kamphuis, Jr. et al. eds., 1989) (stating that "[i]f there are bubbles, economic efficiency is served by letting them burst rather than leak"). In his more recent work, Fama has emphasized the substantial difficulties of proving or disproving the efficiency hypothesis. See Eugene F. Fama & Kenneth R. French, *Dividend Yields and Expected Stock Returns*, 22 J. FIN. ECON. 3, 3-5 (1988); Eugene F. Fama & Kenneth R. French, *Permanent and Temporary Components of Stock Prices*, 96 J. POL. ECON. 246, 247-48 (1988) [hereinafter Fama & French, *Permanent and Temporary*]; Eugene F. Fama, *Stock Returns, Expected Returns and Real Activity*, 45 J. FIN. 1089, 1090 (1990).

¹¹ This is not to say legal scholars and commentators have ignored the critiques of efficiency theory or the development of noise. The most vigorous critic of efficiency is Louis Lowenstein of Columbia University. See, e.g., LOUIS LOWENSTEIN, WHAT'S WRONG WITH WALL STREET 52 (1988) (stating that "[t]he notion that in the stock market you can 'trust prices,' as so many textbooks on corporate finance state, has obviously dangerous implications"). Two excellent articles from the mid-1980s are Jeffrey N. Gordon & Lewis A. Kornhauser, *Efficient Markets, Costly Information, and Securities Research*, 60 N.Y.U. L. REV. 761 (1985) (focusing on and criticizing statistical

ways our culture acts as if "economists proved the efficient market hypothesis a decade ago and moved on to other topics entirely, so that all that is left is for the law to come into conformity with this intellectual orthodoxy."¹² Among other things, then, this is a study in the intellectual history of securities regulation, of how and why social-scientific theories become embedded in positive norms.

Part I traces the evolution of noise theory in the economics literature, tying it to the broader debate over the economist's conventional assumption of human rationality, demonstrating that efficiency is legitimately debatable, and describing the parameters of the debate.¹³ Notwithstanding its limited aim, this effort must be a cautious one. Literature searches naturally lean toward the interesting; those who select articles for publication in scholarly journals prefer provocative hypotheses over confirmations of long-held views. That the current economics literature is heavily

models of the efficiency theory) and William K.S. Wang, *Some Arguments that the Stock Market Is Not Efficient*, 19 U.C. DAVIS L. REV. 341 (1986) (describing anomalies involving mispriced securities and suggesting that these reflect the market's inefficiency); see also MERRITT B. FOX, FINANCE AND INDUSTRIAL PERFORMANCE IN A DYNAMIC ECONOMY 47-55 (1987) (concluding that empirical studies have not validated the efficient market hypothesis). A number of recent articles examine the efficiency controversy with respect to securities litigation. See Ian Ayres, *Back to Basics: Regulating How Corporations Speak to the Market*, 77 VA. L. REV. 945, 997 (1991) (analyzing *Basic Inc. v. Levinson*, 485 U.S. 224 (1988)), and distinguishing between informational and fundamental efficiency, two theoretically independent dimensions of market efficiency); Jonathan R. Macey et al., *Lessons from Financial Economics: Materiality, Reliance, and Extending the Reach of Basic v. Levinson*, 77 VA. L. REV. 1017, 1049 (1991) (stating that it is "too complex [and unnecessary] to determine in a securities fraud case whether the presumption of reliance on the integrity of the market price is justified on the basis of the existence of an efficient market"). Gilson and Kraakman's article, though often cited as strongly endorsing an efficiency perspective, recognizes the criticism of efficiency but takes the view that the mechanisms of efficiency are worth studying in any event. See Gilson & Kraakman, *supra* note 1, at 551 (citing anomalies and studies that criticize efficiency). Subsequently, Kraakman published a thoughtful article incorporating the insights of noise theory in the context of the debate about takeover regulation. See Reinier H. Kraakman, *Taking Discounts Seriously: The Implications of "Discounted" Share Prices as an Acquisition Motive*, 88 COLUM. L. REV. 891 (1988). With some attention to this literature, Lynn Stout claims that efficiency is overemphasized as a goal in securities regulation. See Lynn A. Stout, *The Unimportance of Being Efficient: An Economic Analysis of Stock Market Pricing and Securities Regulation*, 87 MICH. L. REV. 613, 696-706 (1988). Although these authors recognize the critiques of efficiency, they tend not to tie these critiques to explanations of why markets might not behave efficiently.

¹² Langevoort, *supra* note 3, at 539.

¹³ Noise theorists do not reject the presence of substantial efficiency properties in the financial markets, nor do they deny that markets generally operate in an unbiased fashion. They simply claim that significant inefficiencies persist.

populated by efficiency critics and noise theorists proves only their prominence, not their correctness. Noise theory may itself turn out to be a fad. Still, what is important for present purposes seems beyond debate: strong claims of efficiency are debatable.

Part I also offers another contribution. The efficient market hypothesis began as a statistical property, followed later by attempts to explain through some coherent theory why this property holds. Today, the literature provides many plausible explanations¹⁴ that are important in understanding the likelihood that various strategies employed by securities regulation will be productive. Noise theory offers a useful converse: an understanding of the possible mechanisms of market inefficiency promises to be instructive in thinking about the efficacy of regulatory strategies, especially their inherent limitations in a world of cognitive imperfection.

Part II.A looks at the SEC's use of the efficient market hypothesis in its deregulatory efforts to develop an integrated disclosure system and to simplify the capital-raising process. It considers the extent to which strong claims of market efficiency are indeed made and reasons why at least the rhetoric of the efficient market might have political value apart from substantive merit. Part II.B duplicates this effort with respect to the principal judicial uses of the efficiency hypothesis, namely, the fraud-on-the-market theory and the more general question of measuring the extent to which fraud affects a stock's price in a particular instance.

Part III synthesizes the effort—pointing out that uses of the efficiency hypothesis are often more rhetorical than real—and offers thoughts and reasons concerning what we know and what we simply believe about the process of investing, and why.

Before this effort begins, one point must be made. The idea of market efficiency is not necessarily tied to an assumption about rationality. If stock price behavior is completely and mindlessly arbitrary—a true random walk—statistical tests would demonstrate an absence of arbitrage opportunities. Prices would be unbiased in the sense that they would show no systematic tendency to be too high or too low. Similarly, demonstrating that the market reacts promptly to new information says nothing about the content of that reaction. It might just be a fool's frenzy. Much of the efficient markets literature, however, makes the stronger claim that financial markets are built on rational expectations about asset values. The

¹⁴ These are cataloged in Gilson & Kraakman, *supra* note 1.

explicit or implicit assumption is that information impounded quickly in stock prices is nothing but information reasonably related to expectations about future values. Used in this way, it is entirely plausible to claim that prices reflect the most rational possible assessment of present value.¹⁵

As we shall see, much of the recent revisionism in the finance literature criticizes only the rationality of stock prices. Speed of adjustment (at least with respect to certain types of information) and the absence of profitable trading strategies remain useful working assumptions. In assessing the role of efficiency theory in securities regulation, then, it is important first to identify the type efficiency claim being made in a particular setting. Does it assume rational pricing, or just speed and lack of bias? Or neither?

I. THE ORIGINS OF NOISE THEORY: BEHAVIORAL ECONOMICS

In many respects, the efficient market hypothesis is the natural consequence of thinking about financial asset prices as an equilibrium in a competitive market consisting of rational actors. Indeed, there is almost a tautological character to some forms of the hypothesis once rationality is assumed.¹⁶ While none of its adherents seriously deny the potential for irrational behavior by some investors, classical theory trivializes the possibility.

To understand the evolution of noise theory it is necessary first to visit a more fundamental controversy in economics: the challenge to the assumption of pervasive rationality, whether in organized markets or elsewhere. While this assumption might well be "hard-wired" to the very thought process that makes economics a discrete science,¹⁷ there is a palpable tension between it and the body of knowledge generated by other behavioral sciences, most notably psychology. This tension appears most vividly in research

¹⁵ The early work in the history of the efficiency hypothesis emphasized the random walk element of stock prices. More recently, however, the rational expectations model has come to dominate. See generally STEVEN M. SHEFFRIN, *RATIONAL EXPECTATIONS* 141-46 (1983) (analyzing "volatility" tests that identify market inefficiencies). In much of the legal literature distinctions along these lines are generally made. See, e.g., Wang, *supra* note 11, at 344-49 (distinguishing between information-arbitrage and fundamental-value efficiency). Too much emphasis on this distinction, however, might be unwise. See Jonathan R. Macey & Geoffrey P. Miller, *The Fraud-on-the-Market Theory Revisited*, 77 VA. L. REV. 1001, 1012-15 (1991).

¹⁶ See LeRoy, *supra* note 2, at 1593, 1613 (pointing out the "tautologous nature of Fama's characterization of capital market efficiency").

¹⁷ See *id.* at 1615.

relating to the process by which people make decisions under conditions of uncertainty.¹⁸

A. Rationality and Investor Behavior

The conventional economic model postulates that rational decision-makers search for the option having the largest subjective expected utility, determined by reference to probabilities derived from the available information set. Although there are a variety of formulations of this process, the widely accepted Bayesian principle describes one in which new evidence results in continual revisions of assessments, depending on a fairly rigorous appraisal of the probative value of that evidence. Psychologists, however, have developed an impressive body of research through laboratory tests indicating that people (including well-educated ones) often act in a decidedly non-Bayesian fashion.¹⁹ Although the applicability of this work to contexts outside the laboratory setting is somewhat controversial,²⁰ many of the particularly robust findings seem quite

¹⁸ This tension is widely discussed in the literature, and repetitive citations would serve little purpose. The richest source of discussion is found in a 1985 conference at the University of Chicago which drew many of the country's best-known economists and behavioral scientists. See *The Behavioral Foundations of Economic Theory*, 59 J. BUS. S181, S385-S468 (1986). The heading "Behavioral Economics" now appears as an occasional indexing format in the American Economic Review.

¹⁹ For useful overviews of this research, with significant commentary on its application to economics, see DECISION MAKING: DESCRIPTIVE, NORMATIVE, AND PRESCRIPTIVE INTERACTIONS (David E. Bell et al. eds., 1988) [hereinafter DECISION MAKING]; JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES (Daniel Kahneman et al. eds., 1982) [hereinafter JUDGMENT]; RICHARD NISBETT & LEE ROSS, HUMAN INFERENCE: STRATEGIES AND SHORTCOMINGS OF SOCIAL JUDGMENT (1980); Ward Edwards & Detlof von Winterfeldt, *Cognitive Illusions and Their Implications for the Law*, 59 S. CAL. L. REV. 225 (1986); R.J. Herrnstein, *Rational Choice Theory: Necessary But Not Sufficient*, 45 AM. PSYCHOLOGIST 356 (1990); Paul Slovic et al., *Regulation of Risk: A Psychological Perspective*, in REGULATORY POLICY AND THE SOCIAL SCIENCES 241 (Roger G. Noll ed., 1985); Daniel Kahneman & Amos Tversky, *The Psychology of Preferences*, SCI. AM., Jan. 1982, at 160.

²⁰ See Robin M. Hogarth, *Beyond Discrete Biases: Functional and Dysfunctional Aspects of Judgmental Heuristics*, 90 PSYCHOL. BULL. 197, 213 (1981) (concluding that the decades of research on decision-making shows that "[j]udgment and choice depend crucially upon the context in which they occur"); Arie W. Kruglanski, *The Psychology of Being "Right": The Problem of Accuracy in Social Perception and Cognition*, 106 PSYCHOL. BULL. 395, 395-97 (1989) (providing a definition of accuracy in social perception and cognition). The principal concern is that the laboratory experiments are largely conducted out-of-context, depriving the subjects of daily experience, learning, and feedback. For an argument that even "mindless" behavior may result from adaption to rational incentives, see Paul J. Heald & James E. Heald, *Mindlessness and Law*, 77 VA. L. REV. 1127, 1141-64, 1168-70 (1991).

relevant to the investment decision-making processes of individuals.²¹

Widely discussed in the literature, for instance, is the tendency of persons to make probabilistic decisions based on salient or easily recalled information, rather than on base-rates and other more complete data sets.²² Therefore, recent or vivid information receives a predictable overreaction from investors. Often choices vary simply as a result of the framing of the question.²³ When coupled with another well-documented cognitive illusion—the tendency to extrapolate from recently observed trends when the sequence in fact lacks a conjunctive element²⁴—this research provides the basis for predicting that investors frequently become trend-chasers.

A second phenomenon is the tendency of people to be overconfident in their predictive abilities.²⁵ In dealing with uncertain events, they overweigh the skill element of their decisions, and discount the element of chance.²⁶ In hindsight, they substantially overstate their ability to have foreseen future events and, thus, make the correct decision. Investors may therefore systematically underestimate the levels of risk they assume.

Then there is what researchers call the "endowment effect," or a slight variant, the "status quo bias."²⁷ This is the tendency to

²¹ For an early discussion of the application of behavioral research to the investment context, see Paul Slovic, *Psychological Study of Human Judgment: Implications for Investment Decision-Making*, 27 J. FIN. 779 (1972).

²² See, e.g., JUDGMENT, *supra* note 19, at 416 (asserting that "[t]he prevalent tendency to underweigh or ignore distributional information is perhaps the major error of intuitive prediction"). A common illustration of this sort of thinking is the tendency to generalize that the incidence of criminality is higher than it really is in the wake of a single, notorious crime. This tendency is referred to as the representativeness or availability heuristic.

²³ See Amos Tversky & Daniel Kahneman, *Rational Choice and the Framing of Decisions*, in DECISION MAKING, *supra* note 19, at 167.

²⁴ See JUDGMENT, *supra* note 19, at 7. The classic illustration is the gambler who believes that he has a "hot hand" or that red is due on a roulette wheel after a long run of black. This and the representativeness heuristic, of course, are interrelated. Psychologists often invoke the notion of feedback to explain the tendency to repeat behavior that has recently been (or appeared) successful.

²⁵ See Edwards & Winterfeldt, *supra* note 19, at 238-40; Slovic et al., *supra* note 19, at 247-48; Neil D. Weinstein, *Unrealistic Optimism About Future Life Events*, 39 J. PERSONALITY & SOC. PSYCHOL. 806 (1980).

²⁶ See Ellen J. Langer, *The Illusion of Control*, 32 J. PERSONALITY & SOC. PSYCHOL. 311, 327 (1975). In addition, there is a tendency to discount both future risks and future payoffs in a distorted time frame. See Herrnstein, *supra* note 19, at 358-60.

²⁷ The endowment effect seeks to explain why (well beyond the impact of transaction costs) people are willing to buy an item at a certain price, but will sell the

value that which is possessed more highly than that which is not: to value out-of-pocket losses more than opportunity costs. A person will place a particular value on an item prior to acquiring it and then refuse to part with it except at a price substantially higher than its original cost, one well beyond that explained by transaction costs. This may explain the phenomenon of why investors sometimes hold stocks longer than would otherwise be expected.²⁸

The temptation to call these various predictable behaviors irrational is not quite apt. They may simply reflect coping strategies (heuristics) used in a stressful world with too much information and too many choices.²⁹ More accurately, these behaviors are suboptimal. Whatever the locution, such decision-making is inconsistent with the assumptions of the economists' model.

In describing the resulting intellectual tension, participants in the debate sometimes refer to Thomas Kuhn's classic work on scientific revolutions.³⁰ The economists' model of rational interac-

same item only at a much higher price. See Daniel Kahneman et al., *Experimental Tests of the Endowment Effect and the Coase Theorem*, 98 J. POL. ECON. 1325, 1328-29 (1990); Daniel Kahneman et al., *Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias*, J. ECON. PERSP., Winter 1991, at 193, 194-97 [hereinafter Kahneman et al., *Endowment Effect*]. A "status quo bias" is a preference for holding a particular item over buying or selling that item. See Raymond S. Hartman et al., *Consumer Rationality and the Status Quo*, 106 Q.J. ECON. 141, 141-43 (1991); Kahneman et al., *Endowment Effect*, *supra*, at 194, 197-99.

A related matter of potential interest in the area of securities regulation concerns the evidence showing that persons in bargaining situations will often suffer substantial losses rather than allow themselves to be treated in a manner they perceive as unfair. See, e.g., Daniel Kahneman et al., *Fairness and the Assumptions of Economics*, 59 J. BUS. 5285, 5286-88 (1986) (noting that subjects in experiments were willing to forego gains in situations where they thought they were being treated unfairly).

²⁸ See Hersh Shefrin & Meir Statman, *The Disposition to Sell Winners Too Early and Ride Losers Too Long: Theory and Evidence*, 40 J. FIN. 777, 778 (1985).

²⁹ Many writers in this field borrow from Herbert Simon's notion that in the face of uncertainty individuals do not search for the optimal solution, but instead do the best they can given the costs associated with gathering and processing information. See Herbert A. Simon, *A Behavioral Model of Rational Choice*, 69 Q.J. ECON. 99, 111 (1955). For a view that considers consumer response to "information overload" under this "satisficing" model, see David M. Grether et al., *The Irrelevance of Information Overload: An Analysis of Search and Disclosure*, 59 S. CAL. L. REV. 277, 301 (1986). Moreover, there may be self-disciplinary effects associated with choosing not to consider certain options, even valuable ones. See, e.g., Robert E. Scott, *Error and Rationality in Individual Decisionmaking: An Essay on the Relationship Between Cognitive Illusions and the Management of Choices*, 59 S. CAL. L. REV. 329, 361 (1986) (noting that people develop internal rules when exercising judgment in a satisficing situation). For that reason, one should not approach suboptimal decisions in a necessarily perjorative fashion.

³⁰ See THOMAS S. KUHN, *THE STRUCTURE OF SCIENTIFIC REVOLUTIONS* (2d ed.

tive behavior is a paradigm that for some time has given an intellectual unity to the discipline. The behavioral literature, in turn, has created at least the appearance of persistent anomalies that must be dealt with by rejecting the anomaly as wrong, revising the paradigm to accommodate the anomaly, or abandoning the paradigm and moving to a new one (a paradigm shift). This is a useful characterization, to which we shall return later. For now, it suffices to say that the discipline of economics considers the challenge of the behavioral literature a serious and important one, although it is too early to determine which route toward resolution will be taken.

Opinions diverge widely on this issue, further complicated by the substantial methodological differences between the disciplines.³¹ The study of economics does not concentrate on process; rather, models are used to generate predictions subject to testing. The success of the model depends on the correlation between the prediction and the data, not the plausibility of the assumptions.³² Thus, the behavioral criticism can be deflected to the extent that outcomes continue to conform to the rationalist paradigm. In contrast, the highly erratic and contextual incidence of cognitive failures make it difficult, if not impossible, to construct an alternative model of human behavior that has the elegance and power of that paradigm to generate hypotheses and predictions that can be subjected to empirical testing. Not surprisingly, there has been no paradigm shift within economics, and for a variety of reasons one may never occur even if the anomalies persist.³³

1972). For references to Kuhn's work, see Allan W. Kleidon, *Anomalies in Financial Economics: Blueprint for Change?*, 59 J. BUS. S469, S469-70 (1986) (noting that Kuhn argues that scientists are often willing to wait to respond to a discrepancy between theory and fact); Richard Zeckhauser, *Behavioral Versus Rational Economics: What You See Is What You Conquer*, 59 J. BUS. S435, S435 (1986) (stating that Kuhn believes that the struggle between competing scientific theories is "titanic" and can be resolved only after a considerable amount of time is spent grappling with the theories).

³¹ See Robert M. Hogarth & Melvin W. Reder, *Perspectives from Economics and Psychology*, 59 J. BUS. S185, S194-99 (1986); Scott, *supra* note 29, at 333 & n.10.

³² This is the classic statement often associated with Milton Friedman. See MILTON FRIEDMAN, *The Methodology of Positive Economics*, in *ESSAYS IN POSITIVE ECONOMICS* 3, 23 (1953) ("[A] theory cannot be tested by the 'realism' of its 'assumptions' . . ."); see also MARK BLAUG, *THE METHODOLOGY OF ECONOMICS: OR HOW ECONOMISTS EXPLAIN* 104 (1980) (stating that Friedman's theory is that the realism of assumptions is irrelevant and that a model is judged by its predictive power).

³³ The pressure to retain a usable paradigm is important, for without it, much of the study of economic behavior would simply become a subset of the field of psychology, which has itself been described as a loosely allied group of research

B. Rationality in a Market Setting

Since the behavioral critique focuses largely on individual cognitive capacities, it does not directly challenge the conventional view that markets—especially highly organized financial markets³⁴—should operate to filter out these imperfections.³⁵ Still, the critique raises questions regarding the presumed mechanisms of market efficiency. For example, suboptimal behavior that is common and predictable will not be of the random sort that classical theory holds will cancel out.³⁶ Explanations for why the market operates efficiently are frequently based on the belief that even “uninformed” decision-making by market participants is improved by the consensus effect. Mistakes, biases, and excessive optimism or pessimism are removed from the price-setting process because the random, uninformed biases of individuals in the market will cancel each other out, resulting in a market that on average exhibits a capacity for greater predictive accuracy than the forecasts of any individual trader.³⁷ For this effect to operate with substantial cleansing power, however, investors must operate in a largely independent fashion with unsystematic biases. On the other hand, if their errors take on a systematic or contagious character, this analysis weakens.

Still, there are other checks that might operate protectively in the financial markets. In contrast to other contexts, such as simple consumer transactions, financial markets involve high stakes and place a premium on expertise through repetition. Moreover, stock

communities. See Hogarth & Reder, *supra* note 31, at S188. Any understanding of the sociology of professional life would suggest that such an event is unlikely. See *infra* text accompanying notes 226-27.

³⁴ It has been noted that the financial markets are the least likely to be contaminated by suboptimal cognitive traits. This observation places a great deal of stress on the notion of market efficiency, because if suboptimal behavior is found in the financial market to any significant degree, it will be more pervasive in most other exchange settings. See Hogarth & Reder, *supra* note 31, at S199-S200.

³⁵ See generally Alan Schwartz & Louis L. Wilde, *Intervening in Markets on the Basis of Imperfect Information: A Legal and Economic Analysis*, 127 U. PA. L. REV. 630, 682 (1979) (“[W]hen markets are competitive, individuals are protected from the adverse consequences of making decisions in the face of imperfect information.”).

³⁶ See, e.g., Shleifer & Summers, *supra* note 10, at 23 (stating that irrational demand shifts occur and “seem to be a response to changes in expectations or sentiment that are not fully justified by information”).

³⁷ See Gilson & Kraakman, *supra* note 1, at 581-88 (drawing heavily from Robert E. Verrecchia, *Consensus Beliefs, Information Acquisition, and Market Information Efficiency*, 70 AM. ECON. REV. 874 (1980), and Robert E. Verrecchia, *On The Theory of Market Information Efficiency*, 1 J. ACCT. & ECON. 77 (1979)).

trading provides learning opportunities that might overcome the cognitive illusions to which laboratory subjects are susceptible.³⁸ And there is always the economist's trump card: assuming there is plenty of smart money in the market, any irrational tendencies causing prices to move away from fundamental values will immediately be exploited and eliminated through arbitrage.

These points are well taken and might have served largely to immunize the efficient market hypothesis from behavioral revisionism but for two sorts of observations. First, there is the anecdotal evidence of apparent market fads and fashions, and the disturbing fact that a fair portion of those associated with the securities industry themselves seem, publicly at least, not to believe in market efficiency and its implications. In particular, the volume of trading on the financial markets seems well in excess of what the efficient market hypothesis would predict.³⁹ Second, as we have seen, working strictly within the confines of the rationalist paradigm, a substantial body of statistical data was generated during the 1970s and 1980s that appeared flatly to contradict the hypothesis.⁴⁰ A

³⁸ For an example of an experimental study that supports the view that markets do provide a useful corrective mechanism for many cognitive biases, except, to some degree, the "exact representativeness" heuristic, see Colin F. Camerer, *Do Biases in Probability Judgment Matter in Markets? Experimental Evidence*, 77 AM. ECON. REV. 981, 994-96 (1987). For a commentary skeptical of the behavioral literature's application to corporate or securities law, see Roberta Romano, *A Comment on Information Overload, Cognitive Illusions, and Their Implications for Public Policy*, 59 S. CAL. L. REV. 313, 324-27 (1986). As Professor Romano suggests, the behavioral literature may support the view that repeated learning opportunities and expertise make cognitive illusions less likely to affect actual decisions. See *id.* at 316-17. But feedback is effective only when errors are unambiguous and quickly communicated. See Hillel J. Einhorn & Robin M. Hogarth, *Confidence in Judgment: Persistence of the Illusion of Validity*, 85 PSYCHOL. REV. 395 (1978). This is not necessarily the case for investments in common stocks. In fact, where feedback is not swift and plain, even experts show a susceptibility to highly fallible probabilistic judgments. See Colin F. Camerer, *Comment On Noll and Krier, "Some Implications of Cognitive Psychology for Risk Regulation,"* 19 J. LEGAL STUD. 791, 794 (1990).

Romano also suggests that the investment decision is somewhat simpler than many consumer transactions, since under the assumptions of modern portfolio theory, the investor is simply seeking the proper mix of risk and return. See Romano, *supra*, at 325. This last point assumes a model of investor decision-making that the behavioralists suggest may not be descriptively accurate.

³⁹ See LeRoy, *supra* note 2, at 1615.

⁴⁰ For a comprehensive survey of the studies through 1989, see LeRoy, *supra* note 2, at 1595-1603. LeRoy asserts that Fama's 1970 paper on market efficiency, see Fama, *supra* note 7, "marked a high point for capital market efficiency; most of the evidence accumulated in the nearly 20 years since then has been contradictory rather than supportive." LeRoy, *supra* note 2, at 1595. For other overviews of the literature, see EDWIN J. ELTON & MARTIN J. GRUBER, MODERN PORTFOLIO THEORY AND

number of studies demonstrated the excessive volatility of share prices relative to asset values (such as expectations about dividends).⁴¹ Studies of price behavior isolated persistently anomalous patterns, such as seasonal and small firm variations.⁴² Recently, a great deal of attention has been directed toward the tendency of upswings in prices to be followed by declines, and vice versa.⁴³ While these works remain controversial,⁴⁴ they bolstered

INVESTMENT ANALYSIS 399-433 (4th ed. 1991), and Donald B. Keim, *Stock Market Regularities: A Synthesis of the Evidence and Explanations*, in STOCK MARKET ANOMALIES 16, 16-35 (Elroy Dimson ed., 1988). A particularly influential contribution to this contradictory body of evidence was Richard Roll's claim that only 35% of the monthly return volatility in a typical stock's price was explainable by reference to the traditional *ex post* categories of information. See Richard Roll, *R²*, 43 J. FIN. 541, 565 (1988).

The publication of these statistical studies, along with the growing criticism of the Capital Asset Pricing Model as a measure of asset value, led some legal commentators in the mid-1980s to caution against the use of the efficient market hypothesis. See Gordon & Kornhauser, *supra* note 11, at 764-65; Wang, *supra* note 11, at 401-02. By and large, these efforts pre-date the noise theorists.

⁴¹ See, e.g., David N. DeJong & Charles H. Whiteman, *The Temporal Stability of Dividends and Stock Prices: Evidence from the Likelihood Function*, 81 AM. ECON. REV. 600, 615 (1991) (concluding that dividends are probably trend-stationary and thus do not adequately describe stock prices); Kenneth D. West, *Bubbles, Fads and Stock Price Volatility Tests: A Partial Evaluation*, 43 J. FIN. 639, 639 (1988) (concluding tentatively that "stock prices are more volatile than can be explained by a standard constant-expected-return model").

⁴² One of the earliest identified anomalies was different price behavior during a particular month of the year (January) and during times when markets were closed compared to when they were open. Price behavior studies are discussed in LeRoy, *supra* note 2, at 1609-10. Another anomaly, long recognized in the literature, is the pricing of closed-end investment companies, whose price often diverges from its easily determined intrinsic value. See Charles M.C. Lee et al., *Investor Sentiment and the Closed-End Fund Puzzle*, 46 J. FIN. 75, 76 (1991) (asserting that the closed-end fund anomaly is a result of the changing sentiment of investors).

⁴³ This is known as reverting to mean. See, e.g., Werner F.M. De Bondt & Richard H. Thaler, *Anomalies: A Mean-Reverting Walk Down Wall Street*, J. ECON. PERSP., Winter 1989, at 189, 191-98 (reviewing evidence supporting the contention that stock prices are mean-reverting); James M. Poterba & Lawrence H. Summers, *Mean Reversion in Stock Prices: Evidence and Implications*, 22 J. FIN. ECON. 27, 53 (1988) (concluding that a historical analysis of stock prices supports a reverting-to-mean theory); cf. Marc Bremer & Richard J. Sweeny, *The Reversal of Large Stock-Price Decreases*, 46 J. FIN. 747, 754 (1991) (concluding that large one day decreases in a stock's price are followed by positive rebounds, albeit not as great as expected); Bruce N. Lehmann, *Fads, Martingales, and Market Efficiency*, 105 Q.J. ECON. 1, 25-26 (1990) (rejecting efficient market hypothesis and concluding that stock portfolios with positive returns one week had negative returns the next week, and vice versa).

⁴⁴ Some of the earlier studies were criticized for their methodology, such as the presence of small sample biases, etc. See, e.g., Allan W. Kleidon, *Bias in Small Sample Tests of Stock Price Rationality*, 59 J. BUS. 237, 239 (1986) (suggesting the existence of small sample biases); Terry A. Marsh & Robert C. Merton, *Dividend Variability and*

the intuition among their proponents that for one reason or another, factors other than fundamentals were affecting stock prices. The behavioral literature offered an appealing explanation.⁴⁵

Variance Bounds Tests for the Rationality of Stock Market Prices, 76 AM. ECON. REV. 483, 484-85 (1986) (questioning the variance bound methodology used to support rejection of the efficient market hypothesis).

Even if the presence of statistical anomalies is conceded, there remains the possibility that the efficient market hypothesis can be modified to accommodate them without disrupting its essential character. See, e.g., Ronald J. Balvers et al., *Predicting Stock Returns in an Efficient Market*, 45 J. FIN. 1109, 1109-10 (1990) ("[W]ithin an efficient market framework, stock prices need not follow a random walk . . ."); Fama & French, *Permanent and Temporary*, *supra* note 10, at 247 (asserting that "the predictability of long-horizon returns can . . . result from time-varying equilibrium expected returns generated by rational pricing in an efficient market").

A continuing debate in the literature involves the testability of the predictions generated by the efficiency hypothesis. For a variety of reasons, many of the statistical tests may lack the power to confirm or falsify the hypothesis. See, e.g., N. Gregory Mankiw et al., *Stock Market Forecastability and Volatility: A Statistical Appraisal*, 58 REV. ECON. STUD. 455, 472-73 (1991) (noting that volatility and regression tests fail to confirm, but not strongly, the efficient market hypothesis); Robert P. Flood & Robert J. Hodrick, *On Testing for Speculative Bubbles*, J. ECON. PERSP., Spring 1990, at 85, 94-98 (discussing the problems of different asset price volatility tests designed to test for bubbles in the market); see also Gerald P. Dwyer, Jr. & R.W. Hafer, *Do Fundamentals, Bubbles or Neither Determine Stock Prices? Some International Evidence*, in THE STOCK MARKET: BUBBLES, VOLATILITY, AND CHAOS 31, 62 (Gerald P. Dwyer, Jr. & R.W. Hafer eds., 1990) (noting that "neither a rational bubble nor the fundamental model adequately characterizes the behavior of stock prices in several countries"). For a more general perspective on testability, see Michael R. Gibbons, *The Interrelations of Finance and Economics: Empirical Perspectives*, 77 AM. ECON. REV. 35 (1987) (discussing some empirical interrelations of finance and economics in explaining securities pricing).

⁴⁵ One economist has suggested that the behavioral literature was actually the motivation for some of the statistical studies. See Werner F.M. De Bondt, *What Do Economists Know About the Stock Market?*, 17 J. PORTFOLIO MGMT., Winter 1991, at 84, 84. Pressure on the efficient market hypothesis comes not just from the statistical studies and the behavioral literature. A substantial body of work is developing that takes issue with some of the discrete assumptions that underlie it. For instance, one assumption is that the markets are perfectly competitive so that individual traders do not affect prices. Some commentators feel that an assumption of perfectly competitive markets is not valid. See, e.g., Jean-Jacques Laffont & Eric S. Maskin, *The Efficient Market Hypothesis and Insider Trading on the Stock Market*, 98 J. POL. ECON. 70, 87 (1990) (asserting that if traders are big enough to affect prices, as they appear to be, strategic behavior will diminish the informational efficiency of the markets). Similarly, while classical theory posits the existence of a perfectly elastic demand curve, some commentators contend otherwise. See Laurie Simon Bagwell, *Shareholder Heterogeneity: Evidence and Implications*, 81 AM. ECON. REV. 218, 221 (1991) (concluding that supply curves for corporate equity are not perfectly elastic); Andrei Shleifer, *Do Demand Curves for Stocks Slope Down?*, 41 J. FIN. 579, 588-89 (1986) (concluding that the demand curve for corporate securities slopes downward). For the legal implications of this point, compare Lynn A. Stout, *Are Takeover Premiums Really Premiums? Market Price, Fair Value, and Corporate Law*, 99 YALE L.J. 1235, 1295-

C. Noise

The idea that the stock markets are influenced by psychological factors has a long history, going back at least to Keynes.⁴⁶ Keynes hypothesized that investors were playing a game akin to the newspaper beauty contests of the time, where readers voted for the most attractive contestant and the winners of the pool came from those who voted for the entrant who received the most votes. Under those circumstances the strategy was not to vote for the one the voter considered most attractive (fundamental analysis), but simply to try to guess for whom the other voters would vote. This skeptical view of the financial markets has persisted in the popular literature and has retained some notable adherents even within the economics profession.⁴⁷ But this was very much a minority view in the profession until the price studies persisted in producing anomalous results. The effort then began in earnest to theorize about suboptimal investor behavior and noise trading.⁴⁸

96 (1990) (positing that the demand curve is downward sloping and concluding that if this is the case, "legal rules premised on the accuracy of efficient market prices . . . may be fundamentally unsound") with J. Gregory Sidak & Susan E. Woodward, *Takeover Premiums, Appraisal Rights and the Price Elasticity of a Firm's Publicly Traded Stock*, 25 GA. L. REV. 783, 816-18 (1991) (taking issue with Professor Stout's conclusions). In addition, there are some questions regarding whether institutional money managers always act as faithful agents—that is, whether they maximize portfolio value in making trading decisions. For example, they may be trend chasers because of a desire to look in step with their competitors and may not be concerned with maximizing portfolio value. One phenomenon that has been noted is "window dressing": selling certain stocks at the end of a fiscal period to make the portfolio composition look good on a certain measurement date. See Josef Lakonishok et al., *Window Dressing By Pension Fund Managers*, 81 AM. ECON. REV. 227, 231 (1991).

⁴⁶ See JOHN MAYNARD KEYNES, *THE GENERAL THEORY OF EMPLOYMENT INTEREST AND MONEY* 155 (1935). On Keynes's influence on modern noise theory, see Robert Piron, *Correspondence: Keynes as Noise Trader*, J. ECON. PERSP., Spring 1991, at 215.

⁴⁷ One adherent is Nobel Prize winner Kenneth Arrow. See Kenneth J. Arrow, *Risk Perception in Psychology and Economics*, 20 ECON. INQUIRY 1 (1982); see also James Tobin, *On the Efficiency of the Financial System*, LLOYDS BANK REV., July 1984, at 1, 5 (stating the author's skepticism concerning fundamental-valuation efficiency).

⁴⁸ Some of the first efforts in this direction were by De Bondt and Thaler, whose work emphasized the representativeness heuristic as a basis for observed trend chasing. See, e.g., Werner F.M. De Bondt & Richard Thaler, *Does the Stock Market Overreact?*, 40 J. FIN. 793, 804 (1985) [hereinafter De Bondt & Thaler, *Overreact?*] (concluding that investors' overreaction to unexpected news affects stock prices); Werner F.M. De Bondt & Richard H. Thaler, *Further Evidence on Investor Overreaction and Stock Market Seasonality*, 42 J. FIN. 557 (1987) (providing further support for the overreaction hypothesis). Their studies have been reexamined in later studies. Compare Allen B. Atkins & Edward A. Dyl, *Price Reversals, Bid-Ask Spreads, and Market*

The most visible of the noise theorists has been Robert Shiller of Yale, one of the researchers who first sought to demonstrate excessive price volatility.⁴⁹ His view begins with the claim that the inherent unpredictability of dividends and earnings for most industrial companies means that even smart money behavior is largely guesswork and intuition—an art, not a science, and thus unlikely to be a reliable predictor of value even in a consensus setting.⁵⁰ Moreover, people invest not simply to make money but also for investing's consumption or "play" value, exhibiting the biases (including the addictive ones) of gamblers generally.⁵¹ These traits apply not only to the average individual investor, but to professionals as well. In the wake of the 1987 market crash, for

Efficiency, 25 J. FIN. & QUANTITATIVE ANALYSIS 535 (1990) (concurring with De Bondt and Thaler's investor-overreaction hypothesis for explaining why stocks with the worst returns outperform stocks with the best returns during the period of return and subsequent periods) with Paul Zarowin, *Size, Seasonality, and Stock Market Overreaction*, 25 J. FIN. & QUANTITATIVE ANALYSIS 113, 124 (1990) (concluding that "losers' superior performance over winners . . . is due, not to investor overreaction, but to size discrepancies").

⁴⁹ Robert Shiller has written extensively on this topic. In 1989, his then-existing work was compiled in a single volume. See ROBERT J. SHILLER, *MARKET VOLATILITY* (1989) [hereinafter SHILLER, *MARKET VOLATILITY*]. For examples of his subsequent work, see Robert J. Shiller, *Market Volatility and Investor Behavior*, 80 AM. ECON. REV. 58 (1990) [hereinafter Shiller, *Investor Behavior*], and Robert J. Shiller, *Speculative Prices and Popular Models*, J. ECON. PERSP., Spring 1990, at 55 [hereinafter Shiller, *Speculative Prices*].

⁵⁰ This point is made extensively in many of the critiques of the efficiency hypothesis. At the risk of some overstatement, it makes little more sense to talk about smart money in terms of predicting future earnings than it does to talk about smart money in the Illinois lottery. They are guesses, and often not very good ones. See J.G. Cragg & Burton G. Malkiel, *The Consensus and Accuracy of Some Predictions of the Growth of Corporate Earnings*, 23 J. FIN. 67 (1968). While the market may cause the price to reflect the more moderate of these views, where actions are wholly independent, the potential for herd behavior and other common traits to dominate is significant. For additional criticism of the idea of smart money in the market, see DAVID DREMAN, *THE NEW CONTRARIAN INVESTMENT STRATEGY* 95-115 (1979) (drawing heavily on the behavioral literature).

⁵¹ See SHILLER, *MARKET VOLATILITY*, *supra* note 49, at 57-60. On the relationship between gambling behavior and investment behavior, see Richard H. Thaler & William T. Ziemba, *Anomalies: Parimutuel Betting Markets: Racetracks and Lotteries*, J. ECON. PERSP., Spring 1988, at 161, 170-72. The idea that investment may serve other goals is also supported, somewhat more informally, by a study suggesting that wealthy people often choose their investment advisers largely for the status they confer, with profitability being a secondary consideration. See Andrew E. Serwer, *The Wacky Way the Wealthy Invest—And How to Do It Right*, FORTUNE, July 1, 1991, at 21 (report of a study by CSSP Technologies, a market research firm); see also ROBERT H. FRANK, *CHOOSING THE RIGHT POND: HUMAN BEHAVIOR AND THE QUEST FOR STATUS* (1985) (providing broader support for the idea that status can often be more important in decision-making than direct pecuniary benefits).

example, Shiller and a colleague conducted a survey to demonstrate that the reasons for the high volume of trading by market participants during the price break (including institutional investors) were based on non-fundamental hunches, emotions, and intuitions.⁵²

In Shiller's view, most investors do not have the capacity or inclination to make comparative investment decisions independently, making them susceptible to external expressions of expert and peer opinion (ever-shifting "popular models"). To provide support, he draws not only from the behavioral work described above but also from social psychology, sociology, and epidemiology. One of his fundamental claims is that investors (again, including professionals) are linked in constant communication networks and are heavily influenced by others in making trading decisions. As a result, there is a group dynamic to the decision-making process, providing a setting in which rumors and fads can be disseminated widely and rapidly.⁵³ As with the flu, we may know that the disease of irrational investor behavior will periodically become an epidemic, but we are unable to predict where or when—something that limits arbitrage possibilities and increases noise trader risk. Here there is a strong echo of the well-known financier Bernard Baruch's comment that "I never see a brilliant economic thesis expounding, as though they were geometrical theorems, the mathematics of price movements, that I do not recall [Gunther] Schiller's dictum: 'Anyone taken as an individual, is tolerably sensible and reasonable—as a member of a crowd, he at once becomes a blockhead.'"⁵⁴ Ultimately, Shiller believes that stock prices have a substantial fad component, coupled with the tendency to revert to mean.

⁵² See SHILLER, MARKET VOLATILITY, *supra* note 49, at 379-400; see also Paul Slovic, *Analyzing the Expert Judge: A Descriptive Study of a Stockbroker's Decision Processes*, 53 J. APPLIED PSYCHOL. 225 (1969) (providing a much earlier study of stockbroker behavior along these same lines).

⁵³ See SHILLER, MARKET VOLATILITY, *supra* note 49, at 61-62; Robert J. Shiller & John Pound, *Survey Evidence on Diffusion of Interest and Information Among Investors*, 12 J. ECON. BEHAV. & ORGANIZATION 47 (1989); see also Paul B. Andreassen, *On the Social Psychology of the Stock Market: Aggregate Attributional Effects and the Regressiveness of Prediction*, 53 J. PERSONALITY & SOC. PSYCHOL. 490 (1987) (arguing that financial news influences individuals to make less regressive predictions). For a work that draws on the literature of sociology to reach consistent conclusions, see Michael Klausner, *Sociological Theory and the Behavior of Financial Markets*, in 2 THE SOCIAL DYNAMICS OF FINANCIAL MARKETS 57 (Patricia A. Adler & Peter Adler eds., 1984).

⁵⁴ Bernard M. Baruch, *Foreword* to CHARLES MACKAY, EXTRAORDINARY POPULAR DELUSIONS AND THE MADNESS OF CROWDS at xiii, xiii (L.C. Page & Co., 2d ed. 1932) (1841).

Other economists have also sought to test for suboptimal investor tendencies. They have produced evidence, for instance, that investment analysts⁵⁵ and economic forecasters⁵⁶ overreact to certain information just as the laboratory model predicts. Data collected by French and Poterba show that investor portfolios are nowhere as diversified in terms of international investments as would be optimal, a result they suggest may be related at least in part to a variety of cognitive illusions rather than to institutional constraints.⁵⁷ Familiar concepts like "herd migration behavior," "barn door closing," and "Monday morning quarterbacking" have been observed,⁵⁸ along with the presence of psychological barriers in daily trading activity (for example, otherwise inexplicable resistance levels at round numbers on the Dow Jones average).⁵⁹

⁵⁵ See Werner F.M. De Bondt & Richard H. Thaler, *Do Security Analysts Overreact?*, 80 AM. ECON. REV. 52 (1990).

⁵⁶ See De Bondt & Thaler, *Overreact?*, *supra* note 48, at 793 & n.7.

⁵⁷ See Kenneth R. French & James M. Poterba, *Investor Diversification and International Equity Markets*, 81 AM. ECON. REV. 222 (1991).

⁵⁸ See Jayendu Patel et al., *The Rationality Struggle: Illustrations from Financial Markets*, 81 AM. ECON. REV. 232 (1991). The idea of barn door closing raises an extremely interesting point, amply supported by a variety of behavioral studies: people will hold stocks they buy for too long. See, e.g., Shefrin & Statman, *supra* note 28 (examining why individuals have a tendency to "sell winners too early and ride losers too long"). One can support this conclusion from a variety of perspectives, like the endowment effect, see *supra* notes 27-28 and accompanying text, and the theory of cognitive dissonance, pursuant to which people having made a commitment to a choice (the purchase decision) filter out information inconsistent with that decision, see Klausner, *supra* note 53, at 71-75. The literature has not yet addressed in any systematic fashion the moral-hazard problem in this sort of social dynamic. It is in the interest of brokerage firms and the securities industry to feed whatever cognitive or emotional sentiments that might support investors' decisions to purchase stocks, and to create ambiguity that may lessen the negative feedback generated by apparent mistakes. The securities business may in part frame investment choices in ways designed to make salient the positive features, to create impressions of successful trends, and to place enough time pressure on customers to impress upon them that the bandwagon is leaving with only one or two seats left. See, e.g., Brett Trueman, *A Theory of Noise Trading in Securities Markets*, 43 J. FIN. 83, 93 (1988) (concluding that one reason for investment managers to trade on noise is their tendency to promote their funds by creating the illusion of active stock picking via excessive turnover). The natural question is how such illusions—natural or synthetic—can persist in the face of repeated suboptimal choices by investors. One possible answer is that feedback is ambiguous: apart from a bankruptcy situation, the investor whose stock has decreased in value knows (and can be reassured) that the bet is still on the table and that the good times are yet to come. Ambiguity can delay and interfere with the learning process, resulting in persistent suboptimal behavior. See Einhorn & Hogarth, *supra* note 38, at 409. Furthermore, after a loss is sustained one can rationalize many explanations as the product of forces other than bad decision-making or bad advice.

⁵⁹ See R. Glen Donaldson, *Psychological Barriers in Asset Prices, Rationality and*

None of these studies, however, offers any explanation to overcome the conventional objection that suboptimal behavior cannot persist for very long because of the arbitrage opportunities it creates. To date, the most formal effort to explain how noise can be sustained is found in a series of articles by four well respected economists at Harvard and the University of Chicago—Andrei Shleifer, Lawrence H. Summers, J. Bradford De Long, and Robert J. Waldmann.⁶⁰ They work with a model that assumes that investor sentiment (non-fundamental considerations such as responding to pseudo-signals by market gurus, the use of inflexible trading strategies, etc.) affects the demand for risky assets. In support of this assumption, they draw explicitly from the behavioral literature, especially the idea of feedback trading: the tendency to extrapolate from past data and thereby chase a trend.

They argue that arbitrage is limited and therefore incomplete because of the presence of two types of risk.⁶¹ One risk is that the arbitrageur's assessment of the true state of affairs will simply turn out to be wrong. The other risk comes from the unpredictability of noisy trading. Knowing that stocks are out of line now does not mean they will be less out of line tomorrow. Indeed, if feedback trading is a sufficiently predictable phenomenon, the correct smart money strategy may well be to jump on the bandwagon, so long as it can be done early enough and the position liquidated in time. If

the Efficient Market Hypothesis 2-4 (May 1990) (unpublished manuscript, on file with the author).

⁶⁰ For an overview, see Shleifer & Summers, *supra* note 10. For the specific articles, see J. Bradford De Long et al., *Noise Trader Risk in Financial Markets*, 98 J. POL. ECON. 703 (1990); J. Bradford De Long et al., *Positive Feedback Investment Strategies and Destabilizing Rational Speculation*, 45 J. FIN. 379 (1990) [hereinafter De Long et al., *Positive Feedback*]; J. Bradford De Long et al., *The Size and Incidence of the Losses from Noise Trading*, 44 J. FIN. 681 (1989); J. Bradford De Long et al., *The Survival of Noise Traders in Financial Markets*, 64 J. BUS. 1 (1991); see also David M. Cutler et al., *Speculative Dynamics and the Role of Feedback Traders*, 80 AM. ECON. REV. 63 (1990); Lawrence H. Summers, *Does the Stock Market Rationally Reflect Fundamental Values?*, 41 J. FIN. 591 (1986).

⁶¹ See Shleifer & Summers, *supra* note 10, at 20-21. This, in turn, assumes the presence of significant transaction costs to the arbitrage process. See also Andrei Shleifer & Robert W. Vishny, *Equilibrium Short Horizons of Investors and Firms*, 80 AM. ECON. REV. 148 (1990) (suggesting that because of transaction costs, among other things, arbitrage activity is skewed in favor of short-term assets (such as options and futures), with the result that the market for long-term assets (such as stocks) is less efficient than the market for short-term assets).

Whether their particular noise trading hypothesis (or any other) will survive efforts to falsify it empirically is by no means clear. But that is beside the point; what is significant is that it is being put forward seriously as an explanation of stock price behavior that is preferable to the efficient market hypothesis, given the available data. The prominence of this type of work demonstrates that economists' understanding of securities prices is still evolving and may take any number of diverse directions over the coming decade. A substantial agenda for future research includes a sizeable cognitive psychology component. By no means is the efficient market theory dead; it has exhibited considerable resilience, and there are many economists who strongly believe that with time it can and will be refined in a way that does away with the anomalies.⁶³ To be sure, there has been no refutation of the original insight that animated the efficient market hypothesis through the identification of trading strategies that have produced consistently positive abnormal returns.⁶⁴

For now, one can generalize only by saying that current research accepts that there is some noise in stock prices. How much, how often, and for how long prices might move out of line with fundamental values is a matter of considerable uncertainty. In his frequently cited article, Fischer Black suggests that the markets might well show a level of efficiency in which price is typically "within a factor of 2 of value, i.e., the price is more than half of value and less than twice value."⁶⁵ This view, he suggests, places him somewhere "in between" the classical adherents of the efficient

fundamental analysis but in trying simply to predict what others will do, and do it first. In fact, there may be some sense in making visible "irrational" purchases to trigger an overreaction. See De Long et al., *Positive Feedback*, *supra* note 60, at 380.

⁶³ See, e.g., Robert C. Merton, *On the Current State of the Stock Market Rationality*, in *MACROECONOMICS AND FINANCE: ESSAYS IN HONOR OF FRANCO MODIGLIANI* 93 (Rudiger Dornbusch et al. eds., 1987).

⁶⁴ See Simon M. Keane, *Paradox in the Current Crisis in Efficient Market Theory*, J. PORTFOLIO MGMT., Winter 1991, at 30. Some of those who suggest that overreaction is a typical investment phenomenon have indicated that contrarian investing—taking positions against the trend—should be profitable. See DREMAN, *supra* note 50. But see K. C. Chan, *On the Contrarian Investment Strategy*, 61 J. BUS. 147, 163 (1988) (finding that "the contrarian strategy earns a very small abnormal return, which is probably economically insignificant"). That is also the implication of the tendency of prices to revert to mean. Of course, clear identification of such a strategy as profitable would no doubt signal the immediate death of its prospective viability.

⁶⁵ Fischer Black, *Noise*, 41 J. FIN. 529, 533 (1986). With this definition of efficiency, Black suggests that the market is probably efficient 90% of the time. See *id.*

market hypothesis and researchers like Robert Shiller.⁶⁶ Similarly, the latest edition of Burton Malkiel's well-known book *A Random Walk Down Wall Street* expresses the view that fads and fashions can and do influence stock prices, although efficiency prevails most of the time.⁶⁷

An objective observer walking away from this debate would be something of an agnostic. While some efficiency properties characterize the securities markets, we simply do not yet know for sure much more than that. This alone should give us pause, for if the sources noted earlier are to be believed, the efficient market theory has become something of an article of doctrinal faith in corporate and securities law. If so, its routine and confident incantations are an embarrassing contrast to the open-mindedness within the economics profession.

II. THE IMPLICATIONS OF NOISE: ADMINISTRATIVE AND JUDICIAL USES OF THE EFFICIENT MARKET HYPOTHESIS

The economics literature leaves us with competing visions of the world of securities trading. On one hand, there is the conventional view of the efficient market, coldly impounding all significant information into prices that consistently reflect expectations about fundamental asset value. Noise is too trivial to merit scholarly or regulatory attention. On the other hand, there is a vision of stock prices influenced by a crowd of trend chasers, overreacting to the most recent or most vivid news, their illusions and emotions fed by a securities industry loading one bandwagon after another. Smart money cannot operate as an immediate counterweight. It is underfinanced and too subject to risk and the temptation to join in the game of trying to out-guess others. All we really know is that reality lies at some unknown point between these visions.⁶⁸

⁶⁶ See *id.* at 533 n.11. For a view even closer to Shiller's, see LeRoy, *supra* note 2, at 1616 (stating that "[t]he evidence suggests that, contrary to the assertion of this version of efficient markets theory, such large discrepancies between price and fundamental value regularly occur").

⁶⁷ See BURTON G. MALKIEL, *A RANDOM WALK DOWN WALL STREET* 210-11 (5th ed. 1990).

⁶⁸ This is not to say that these two visions are a complete description of the predictable influences on stock prices. Work has been done, for example, on the demand for stocks as a result of changing levels of savings capital produced by demographic patterns. See Zhi-Wu Chen, *Population Aging and Expected Market Risk Premiums* (1989) (unpublished manuscript), cited in Shiller, *Investor Behavior*, *supra* note 49, at 61. In addition, much investing today in the securities markets is "information-less." The most common example is the index fund that places new

Yet we are told that modern securities regulation has accepted the efficient market hypothesis as its vision,⁶⁹ at least for markets involving widely traded stocks.⁷⁰ That belief leads to a natural series of questions, best posed in the following way. First, *if* the stock markets are indeed very noisy, does this mean that the various administrative and judicial uses of the efficient market hypothesis are misdirected? Second, assuming that the argument for noisiness is not appreciably stronger or weaker in the economics literature than that for efficiency, how should prevailing policy deal with the ambiguity?

A preliminary step, however, is to inquire into the soundness of the assumption that securities regulation *uses* the efficient market hypothesis in a strong way. If it does not, the debate about noise will be far less troublesome, readily left to the academic journals. Maybe its use is superfluous, or disingenuous. These are the questions to which we move first.

A. *The SEC and the Efficient Market Hypothesis*

Although the efficient market hypothesis has a fairly long history, its prominence in legal circles began with some fairly venomous attacks on the need for mandatory disclosure in the securities marketplace by a number of economists in the 1960s. Most notable were the works of George Benston and George

money in a broad range of representative stocks, without engaging in any analysis whatsoever. To the extent the stock market is efficient, index investing makes a good deal of sense and will have no price impact one way or the other. If not, index investing will have an unpredictable impact that at the very least will not contribute to efficiency. For a critique, see LOWENSTEIN, *supra* note 11, at 64-66. Some studies of market efficiency have considered the price impact of adding a stock to a widely followed index (something that has no impact on its fundamental value), thereby finding evidence of inefficiency. See, e.g., Lawrence Harris & Eitan Gurel, *Price and Volume Effects Associated With Changes in the S&P 500: New Evidence for the Existence of Price Pressures*, 41 J. FIN. 815 (1986).

⁶⁹ See Gilson & Kraakman, *supra* note 1, at 550; Gordon & Kornhauser, *supra* note 11, at 762-63; Marvin G. Pickholz & Edward B. Horahan III, *The SEC's Version of the Efficient Market Theory and its Impact on Securities Law Liabilities*, 39 WASH. & LEE L. REV. 943, 943 (1982); Stout, *supra* note 45, at 1237, 1296.

⁷⁰ Largely because that is where the data is available, almost all the sophisticated statistical studies of price movements deal with exchange-traded securities. By hypothesis, the over-the-counter markets are presumed to be less efficient because of the lower levels of liquidity and professional investor/analyst interest. In fact, market efficiency should be thought of as a continuum rather than a yes-no question: at one end of the spectrum is the General Motors and IBM stocks, at the other end is penny stocks. Efficiency varies as a matter of degree from one end to the other.

Stigler,⁷¹ later championed in legal circles by Henry Manne.⁷² These studies purported to show that the mandatory disclosure regime created by Congress in 1933 and 1934 had no apparent beneficial effect on investment decision-making and instead simply layered unnecessary costs on the capital formation process. Implicit was the view that the same private forces that make the market efficient would also produce optimal disclosure. As the agency that has overseen the disclosure system since its inception, the SEC bore the brunt of this intellectual attack.

Predictably, the Commission did not respond formally through much of the 1970s.⁷³ The process of coming to grips with the teachings of the economics literature began with the Advisory Committee Report on Corporate Disclosure to the SEC,⁷⁴ a study done for the SEC designed to revisit some of the fundamental policy assumptions on which securities regulation is based.⁷⁵ Professor William Beaver served on the committee and authored a chapter of the report on the efficient market hypothesis, concluding—as is the prevailing view today—that even if one accepts the hypothesis as conventionally formulated, it does not necessarily follow that there is no social benefit to mandatory disclosure.⁷⁶

⁷¹ See George J. Benston, *Required Disclosure and the Stock Market: An Evaluation of the Securities Exchange Act of 1934*, 63 AM. ECON. REV. 132 (1973); George J. Stigler, *Public Regulation of the Securities Markets*, 37 J. BUS. 117 (1964).

⁷² See Henry G. Manne, *Economic Aspects of Required Disclosure under Federal Securities Laws*, in WALL STREET IN TRANSITION: THE EMERGING SYSTEM AND ITS IMPACT ON THE ECONOMY 21 (College of Business and Public Administration, New York University ed., 1974).

⁷³ The work of Stigler and Benston has been criticized within the academic community, however. See, e.g., Irwin Friend & Edward S. Herman, *The SEC Through a Glass Darkly*, 37 J. BUS. 382 (1964) (criticizing Stigler's theory, statistics, and the inference he draws from his data, as well as his test of previous regulations and his discussion of market efficiency); Irwin Friend & Randolph Westerfield, *Required Disclosure and the Stock Market: Comment*, 65 AM. ECON. REV. 467, 467 (1975) (questioning Benston's conclusion that "empirical analysis provides no support for the belief that the disclosure and related provisions of the Securities and Exchange Act of 1934 were either needed or desirable").

⁷⁴ See STAFF OF HOUSE COMM. ON INTERSTATE AND FOREIGN COMMERCE, 95TH CONG., 1ST SESS., REPORT OF THE ADVISORY COMM. ON CORPORATE DISCLOSURE TO THE SEC (Comm. Print 1977) [hereinafter ADVISORY COMMITTEE REPORT].

⁷⁵ See *id.* at 1.

⁷⁶ See *id.* at 636, 647. The question is whether private forces would more efficiently obtain the appropriate level of information from issuers (in short, would issuers have appropriate incentives to disclose even absent regulation?). Views on this vary, as well as on the question of whether free-riding, duplication, and overlap problems would stand in the way of an optimal allocation of investigatory resources. For a sampling of the debate, see John C. Coffee, Jr., *Market Failure and the Economic*

The Advisory Committee Report made a number of reform recommendations, the most important of which was to pursue the integration of the content of mandatory disclosure for the two types of markets, primary, which was the subject of the Securities Act of 1933,⁷⁷ and secondary, the subject of the Securities Exchange Act of 1934.⁷⁸ This was based on the view that investors need the same sort of issuer-specific information regardless of whether they buy from the issuer or from other investors on the stock exchanges.⁷⁹ Another recommendation was to create three tiers of companies, which would assume different forms of disclosure obligations when they made public distributions of securities pursuant to the Securities Act of 1933. Seasoned companies would have abbreviated disclosure obligations, based on the assumption that, because those companies were already subject to the continuous disclosure obligations of the Securities Exchange Act of 1934 in order to inform trading decisions in the secondary markets, a new formal disclosure document in the form of a registration statement or prospectus that contained the same information would be redundant.⁸⁰ By the end of the decade, the SEC—heavily influenced by the Carter administration's deregulation philosophy—was prepared to implement that recommendation as part of what soon became known as the integration project.

Case for a Mandatory Disclosure System, 70 VA. L. REV. 717 (1984); Frank H. Easterbrook & Daniel R. Fischel, *Mandatory Disclosure and the Protection of Investors*, 70 VA. L. REV. 669 (1984); Stephen A. Ross, *Disclosure Regulation in Financial Markets: Implications of Modern Finance Theory and Signaling Theory*, in ISSUES IN FINANCIAL REGULATION 177 (Franklin R. Edwards ed., 1979); Joel Seligman, *The Historical Need for a Mandatory Corporate Disclosure System*, 9 J. CORP. L. 1 (1983).

⁷⁷ Securities Act of 1933, Pub. L. No. 73-22, 48 Stat. 74 (1933) (codified as amended at 15 U.S.C. §§ 77a.-77bbbb. (1988)).

⁷⁸ Securities Exchange Act of 1934, Pub. L. No. 73-291, 48 Stat. 881 (1934) (codified as amended at 15 U.S.C. §§ 78a.-78ll. (1988)).

⁷⁹ See ADVISORY COMMITTEE REPORT, *supra* note 74, at 422 (stating that the SEC recognized that the disclosure principles under the 1934 Act applied to listed securities and securities traded in over-the-counter markets).

⁸⁰ See *id.* at 433-34 (recognizing that for seasoned companies, "a statutory prospectus containing disclosure other than that relating to the terms of the transaction is not necessary" because those companies "usually provide high-quality corporate communications documents" and are "widely followed by debt and equity analysts").

1. Integrated Disclosure

In 1982, the Commission adopted the three-tier system of Securities Act disclosure that the Advisory Committee had recommended. The SEC's adoption authorized the use of the highly abbreviated Form S-3 for equity offerings by companies with a float of outstanding securities held by the public greater than \$150 million (or \$100 million and an annual trading volume of three million shares)—a rough proxy for widely followed companies.⁸¹ Form S-3 is significant because it is the primary example of regulatory reform cited for the proposition that the SEC accepts the teachings of the efficient market hypothesis. The Commission stated so explicitly: the adopting release indicates that Form S-3 was created "in reliance on the efficient market theory."⁸² In the proposing release, there was a more elaborate statement that it is the "Commission's belief that the market operates efficiently for [S-3] companies, i.e., that the disclosure in Exchange Act reports and other communications by the registrant, such as press releases, has already been disseminated and accounted for by the marketplace."⁸³

Such was the rhetoric. But on close inspection, it is clear that the adoption of Form S-3 rests very weakly—if at all—on the efficient market hypothesis. The Commission's definition of efficiency says nothing about equilibrium identity or the assumption that the market *correctly* values individual stocks. Instead, Form S-3's adoption rests on the relatively mild assertions, not questioned by most noise theorists, that market price reaction, at least to definite news (for example, a dividend increase or a takeover), is indeed quite rapid,⁸⁴ and—even less controversially—that market participants draw on a variety of sources other than Securities Act

⁸¹ See 17 C.F.R. § 239.13(b)(1) (1991). Whether it is a good proxy is another question, for many people have noted that the number of companies extensively followed by analysts is less than that covered by the form. See, e.g., Gordon & Kornhauser, *supra* note 11, at 813. This is a good illustration of the difficulties inherent in treating efficiency as a yes/no type of question. For a fine study of the history of the integration project—including its use of the efficient market hypothesis—by one of the principal staff persons involved in it, see Edward F. Greene, *Determining the Responsibilities of Underwriters Distributing Securities Within an Integrated Disclosure System*, 56 NOTRE DAME L. REV. 755, 783 & n.185 (1981).

⁸² See Adoption of Integrated Disclosure System, Securities Act Release No. 33-6383, 47 Fed. Reg. 11,380, 11,382 (1982).

⁸³ Reproposal of Comprehensive Revision to System for Registration of Securities Offerings, Securities Act Release No. 33-6331, 46 Fed. Reg. 41,902, 41,904 (1981).

⁸⁴ See, e.g., Summers, *supra* note 60, at 596; Ayres, *supra* note 11, at 968-73.

disclosures for information. In any event, the largely unnecessary character of reliance on the efficient market hypothesis can be demonstrated by unbundling mandatory disclosures subject to Form S-3 into three parts: information production, certification, and dissemination. This is territory well covered some years ago by Professors Gordon and Kornhauser, but bears elaboration.⁸⁵

By and large, mandatory disclosure does not stress the production of information, assuming that most material information has been gathered and is in the possession of the issuer's senior management at the time of a public distribution. Still, the formatting required by the disclosure forms no doubt creates some new information, and occasionally the due diligence search effectively imposed by the Securities Act leads to some information discovery.⁸⁶ This, however, is completely unaffected by the adoption of Form S-3, since the effect of that form is simply to incorporate by reference the same disclosures required under the periodic disclosure obligations, updated to reflect any material changes. The disclosure *content* does not change simply because a company qualifies to use the abbreviated form to raise new capital.

Certification is the process by which the required disclosure is made credible by the issuer's management and those assisting management in the disclosure and distribution process—underwriters, attorneys, and accountants. To be sure, certification is an important part of an informed stock price, given the incentives of issuers and their associates to cheat, and the difficulties presented to investors in otherwise distinguishing desirable investment vehicles from lemons.⁸⁷ Nothing in the hypothesis as conventionally understood, moreover, denies that an efficient market can be defrauded—that the mechanisms of efficiency can process lies along with the truth.⁸⁸ The Securities Act accomplishes the certification

⁸⁵ See Gordon & Kornhauser, *supra* note 11, at 786-96.

⁸⁶ For instance, the lawyers' search to assure that prior board actions (the issuance of stock or the validity of contracts, for example) were valid may turn up information regarding problems and risks, which are then either cured or disclosed.

⁸⁷ See Gilson & Kraakman, *supra* note 1, at 602-07. This certification comes about not simply by the due diligence investigation leading to better disclosure, but by the underwriter's willingness to associate its reputation with the price being offered. See James R. Booth & Richard L. Smith, II, *Capital Raising, Underwriting and the Certification Hypothesis*, 15 J. FIN. ECON. 261, 264-71 (1986).

⁸⁸ See Gordon & Kornhauser, *supra* note 11, at 816 & n.144. The so-called strong form of the efficient market hypothesis states that price reflects all information about a stock (public and private), but there is no significant empirical support for such a view. See *id.* at 771 & n.19; FAMA, FOUNDATIONS, *supra* note 7, at 166.

objective largely through a strict civil liability scheme, whereby the participants assume a considerable financial risk if there are material misstatements or omissions in the registration statement.⁸⁹ As a formal matter, when Form S-3 is used, nothing changes with respect to liability or mandatory disclosure. While the form itself is an abbreviated one, the process of incorporation by reference to prior Exchange Act filings means that the same liability risk attaches to the incorporated material as to the short-form disclosures.

In reality, however, it is open to question whether the quality of certification is as extensive under this integrated disclosure system as when a complete due diligence investigation is done immediately prior to the distribution. Although the Commission indicated that it expected Exchange Act filings that might later be incorporated by reference to be prepared with greater care (perhaps with some continuous outside counsel and/or investment banker involvement⁹⁰), some skepticism is in order.⁹¹ In fact, if done at the same level of diligence as a registration statement, such a step would actually increase the costs that the integration project promised to reduce.⁹²

⁸⁹ Pursuant to section 11 of the Securities Act, the issuer is strictly liable for material misstatements and omissions, unless they are not the cause of any subsequent price decline. See Securities Act of 1933, Pub. L. No. 73-22, § 11, 48 Stat. 74 (1933) (current version at 15 U.S.C. § 77k (1988)). In addition, certain members of senior management, directors, underwriters, and other experts are liable jointly and severally unless they show that they reasonably believed, after due investigation, that there was no such falsity or omission. See *id.*

⁹⁰ See, e.g., Shelf Registration, Securities Act Release No. 33-6499, 48 Fed. Reg. 52,889, 52,890 (1983) (stating that the adoption of due diligence procedures to the integrated disclosure system "serve[s] to address the concerns about the adequacy of disclosure and . . . , thus, ensure the protection of investors").

⁹¹ See, e.g., JOSEPH AUERBACH & SAMUEL L. HAYES, III, INVESTMENT BANKING AND DILIGENCE: WHAT PRICE DEREGULATION? 108-22 (1986); Merritt B. Fox, *Shelf Registration, Integrated Disclosure, and Underwriter Due Diligence: An Economic Analysis*, 70 VA. L. REV. 1005, 1025-28 (1984); Lynn Nicholas, *The Integrated Disclosure System and Its Impact Upon Underwriters' Due Diligence: Will Investors Be Protected?*, 11 SEC. REG. L.J. 3, 18-20 (1983). Some indication that integration may reduce the responsibilities of underwriters is Rule 176, which states that whether the information was incorporated by reference determines the extent of the duty to investigate. See Rule 176, 17 C.F.R. § 230.176 (1991). When a public offering involving incorporation by reference is plainly contemplated, there is little doubt that the filings will be prepared in an environment similar to the traditional due diligence setting. If not, however, the likelihood that issuers will invite a retrospective revisiting of their filing is somewhat lessened.

⁹² It is possible that the SEC's strategy was not really to produce cost-savings at all, but rather to create an environment wherein issuers would be forced to expend

Since the SEC refused to concede that there would be any significant reduction in the quality of disclosures as a result of incorporation by reference, there was no need for it to invoke the efficient market hypothesis to support such a step. Indeed, since the Commission also allowed incorporation by reference for S-2 issuers—smaller registrants,⁹³ about whom no efficiency claim was made—it is clear that the hypothesis is not part of its logic with respect to the verification component of mandatory disclosure.⁹⁴

We are left, then, with dissemination. Here, Form S-3 does make a difference in that company-specific disclosures so produced and certified must be made to the SEC (where they become publicly available), but need not be delivered to investors as the securities are being marketed. If the efficient market hypothesis holds, this is obviously correct: the information is already correctly impounded in price and disclosure adds no value. But what if stock prices are quite noisy, such that we cannot trust the stock price to be in line with fundamental expectations at the time of the distribution?

greater resources in assuring the accuracy of their Exchange Act filings, given the importance of those filings to investors. See Gordon & Kornhauser, *supra* note 11, at 815-16. If that is the case, then costs associated with any loss of protection at the time of distribution might be outweighed by the gains to others in the secondary markets.

⁹³ In general, a Form S-2 issuer is one that has been subject to the continuous disclosure system of the Securities Exchange Act for three years, current in its filings, and not in default. See 17 C.F.R. § 239.12 (1991).

⁹⁴ Suppose the SEC is mistaken, however, and that integration does result in less diligence going into the preparation of qualifying registration statements. Putting aside the overbreadth that comes from its coverage of Form S-2 issuers, could the efficiency hypothesis nonetheless justify this manner of deregulation? Common sense suggests that the larger, more visible, and more closely scrutinized a company is, the less likely it is to fool the investment community in a significant way. If so, there is roughly an inverse relationship between the measure of efficiency and the incidence of successful fraud. See Shleifer, *supra* note 45, at 585-88. It then follows that the value added by regulation-induced certification decreases relative to its costs for efficiently traded companies. Such incorporation by reference is cost-justified even if there is less due diligence by the lawyers, underwriters, and accountants at the time of an S-3 offering. Whatever the plausibility of this reasoning (a strong counter-argument might be that whether or not the incidence of fraud for efficiently traded stocks is lower, the aggregate impact when fraud occurs is likely to be larger), it need not rest on a strong claim about the efficiency of stock prices. In large part, any perceived inverse relationship could just as easily be premised on the simple presence of persons or institutions monitoring the issuer either to deter or expose the fraud, without making further assumptions about how quickly or accurately assessments of credibility are impounded in price. In the end, however, this certification analysis is academic. Once again, the SEC made no use of it in justifying integrated disclosure.

No doubt much of the political appeal of integrated disclosure comes from a number of nonefficiency-based theories of securities regulation that converge to support its attempt to create cost savings for issuers and, hence, lower the cost of capital. Homer Kripke, for example, long advocated a two-tier regulatory structure wherein mandatory disclosure obligations were oriented toward the professional investor—the smart money, expert enough to use it—rather than the typically indifferent layperson.⁹⁵ The latter are protected indirectly, since most are presumed to rely on professionals for advice and information. Under this approach, eliminating dissemination obligations under Form S-3 is cost-justified simply because, as an empirical matter, the predicted rate of primary information usage by average investors is so low.⁹⁶ Those who advocate a “gatekeeper”-oriented strategy will likewise find the SEC’s initiative appealing.⁹⁷ Here, the primary investor protection mechanism is not information delivery but the interpositioning of professionals with strong pecuniary and reputation interests at stake (underwriters, accountants, and lawyers) who can be expected to deter opportunistic issuers from seeking capital.⁹⁸ While the

⁹⁵ See HOMER KRIPKE, *THE SEC AND CORPORATE DISCLOSURE: REGULATION IN SEARCH OF A PURPOSE* 96-116 (1979). The principal virtue of this approach is that it frees the SEC from the need to insist on simplicity in required disclosures, enabling greater use of sophisticated, forward-looking data.

⁹⁶ There is widespread availability of these documents for investors who want them, especially in a high-tech disclosure environment. See Donald C. Langevoort, *Information Technology and the Structure of Securities Regulation*, 98 HARV. L. REV. 747, 786 (1985). Also take note that section 5 of the Securities Act does not necessarily require the delivery of disclosure documents to investors before they make their investment decision. See Securities Act of 1933, Pub. L. No. 73-22, § 5, 48 Stat. 74 (1933) (codified as amended at 15 U.S.C. § 77e. (1988)). In a situation (other than an initial public offering) where sales are done over the telephone, the first time the investor sees the disclosure document is often when the sale comes in the mail. Even mild behavioral insight suggests that the likelihood that a dense disclosure document will be read, after the customer has agreed to the purchase, is quite small.

⁹⁷ See Reinier H. Kraakman, *Gatekeepers: The Anatomy of a Third-Party Enforcement Strategy*, 2 J. L. ECON. & ORGANIZATION 53, 54 (1986). Gatekeeper strategy depends on the assumption that certain market participants control access to markets. If so, making them responsible for harm by those seeking entry (fraud by issuers, for example) is an efficient strategy, especially since such participants have a pre-existing reputational interest in not being tainted anyway and can thus be trusted to do some level of monitoring. An underwriter, for example, can withhold its services from an issuer that does not assist in the certification process, or it can price the securities in a way that includes the equivalent of an insurance premium, see Seha M. Tinic, *Anatomy of Initial Public Offerings of Common Stock*, 43 J. FIN. 789, 797-800 (1988) (discussing the use of underpricing as a form of insurance).

⁹⁸ At the issuer level, the simple introduction of outside underwriters, account-

ability of underwriters to perform due diligence in an integrated disclosure environment may be diminished, those professionals still face the same stakes and have the capacity to bar issuers from access to the markets, or, through pricing, to compensate for the risk.

Indeed, even a blatant cynic about investor behavior is likely to find Form S-3 appealing. There is no reason to expect that widespread delivery of dense information packages is likely to counter suboptimal tendencies to any significant degree—especially those indicated by a feedback trading model, in which other investors' behavior, rather than issuer-generated information itself, is the primary motivation for trading.⁹⁹ This brings us to an important irony. Just as efficiency-based reasoning sometimes teaches that regulation is unnecessary, reasoning based on the sources of inefficiency sometimes teaches that exactly the same form of regulation is unhelpful or irrelevant. In either case it is not worth the costs. Though dramatically different in assumptions, both methods of reasoning lead to precisely the same skepticism about conventional forms of regulation. In the end, therefore, the ability to justify deregulation in such a variety of ways lessens the fear that investors will be harmed if markets are not strongly efficient. It also weakens the alleged causal relationship between the efficiency hypothesis and Form S-3.

2. Rule 415

The other portion of the SEC's integration effort that refers explicitly to the efficient market hypothesis is Rule 415,¹⁰⁰ the shelf registration rule. This rule allows issuers eligible to use Form S-3 to register offerings on a delayed basis (that is, to have securities eligible for sale, waiting for some future point to begin the distribution).¹⁰¹ The regulatory intent was to provide issuers with greater flexibility in timing their offerings, looking for windows of

tants, and elite law firms into the capital raising process operates as a deterrent to issuer "lemons" from even seeking capital; alternatively, those who want access to the public markets will have to appear to conduct themselves in a way acceptable to the professionals. In this sense, there is a behavioral impact quite apart from the substance of the subsequent disclosure. A different gate to the marketplace can be found at the investor level, where the goal is to assure that brokers and others recommending securities do so in an informed and unbiased fashion. See JAMES D. COX ET AL., *SECURITIES REGULATION* 1187-88 (1991).

⁹⁹ See *supra* text accompanying notes 60-62.

¹⁰⁰ See Rule 415, 17 C.F.R. § 230.415 (1991).

¹⁰¹ See Rule 415(a)(1)(x), 17 C.F.R. § 230.415(a)(1)(x) (1991).

opportunity in market conditions, and then proceeding quickly with the distribution.¹⁰²

Much of Rule 415 is not controversial; it is simply a codification of long-standing practice. To the extent that it facilitates the raising of investment-grade debt capital there is little concern, since such sales are based largely on yields and external ratings by Moody's and Standard & Poor's. The controversy surrounding Rule 415 has to do with its expected practical impact on equity financing, particularly with respect to the certification of information.¹⁰³ As noted earlier, there is a controversy over whether due diligence will diminish as a result of incorporation by reference, even when there is a conventional distribution so that underwriters at least have the opportunity to investigate.¹⁰⁴ By contrast, Rule 415 invites issuers to file a registration statement well in advance of the distribution—indeed, before the underwriters are even selected.¹⁰⁵ The innovative portion of the rule is valuable in situations when the issuer can both finalize and commence the plan of distribution within the perceived fleeting window of opportunity. There is no meaningful opportunity for due diligence at that time.¹⁰⁶ In adopting the

¹⁰² For an overview regarding the history and mechanics of Rule 415, see John P. Ketels, *SEC Rule 415—The New Experimental Procedures for Shelf Registration*, 10 SEC. REG. L.J. 318, 318-32 (1983). The two-step process makes it relatively easy for the issuer to impose a competitive bidding regime on underwriters at the time the distribution is to be effected.

¹⁰³ This controversy is amply reflected in the debate between Fox, *supra* note 91, and Barbara A. Banoff, *Regulatory Subsidies, Efficient Markets, and Shelf Registration: An Analysis of Rule 415*, 70 VA. L. REV. 135, 145-84 (1984); see also AUERBACH & HAYES, *supra* note 91, at 189-90 (arguing that Rule 415 should focus on distinctions among corporate issuers rather than the distinction between debt and equity financing). In the initial proposals, the ability to raise equity capital under Rule 415 was not limited to S-3 issuers. Much of the controversy surrounded the impact of the rule with respect to smaller companies, a concern eliminated by the rule as finally adopted.

¹⁰⁴ See *supra* note 91.

¹⁰⁵ See Rule 415(a)(4)(iv), 17 C.F.R. § 230.415(a)(4)(iv) (1991).

¹⁰⁶ As with integrated disclosure, the SEC suggested that the loss of due diligence will be minimal. In one sense, this is more plausible in the shelf registration setting, since by filing such a registration statement, the issuer is stating a bona fide intent to distribute the securities within a two-year period. See Rule 415(a)(2), 17 C.F.R. § 230.415(a)(2) (1991). Greater care (and prospective underwriter involvement) in the preparation of the periodic disclosure documents is unlikely to be wasted. At the same time, however, there remains some doubt about whether due diligence at the time the disclosure package is being prepared can ever be effective without the presence of a gatekeeper/bargaining agent facing both reputational and liability exposure in the forthcoming deal. The Commission's suggestions included (1) naming underwriters in advance; (2) naming counsel in advance for underwriters to be named later; or (3) periodic meetings with potential underwriters. See Shelf

final version of the rule, which limited its availability to S-3 issuers, the SEC again, albeit somewhat abstrusely, invoked the efficient market theory.¹⁰⁷

This appears to be a stronger efficiency claim than in the integrated disclosure setting. A noisy view of the securities markets—especially one characterized by high levels of feedback trading—suggests that there will be times when the prevailing price is excessively high as a result of investor overreaction to positive signals. That is the ideal market window, and without some assumption about efficiency, Rule 415 would simply be inviting the issuer with a shelf registration to take advantage of it.

By all accounts, Rule 415 is designed to create a more competitive capital raising environment for large issuers who might otherwise be tempted to move off-shore for their funds; subsequent studies have documented cost savings.¹⁰⁸ The question, then, is whether the loss occurring in due diligence is compensated by the lower cost of capital. This in turn depends (in part) on the extent to which other mechanisms serve as efficient substitutes for due diligence in performing a certifying function. In an efficient market this netting out would occur naturally as the average amount of loss in the certification value compared with the gains from the floatation cost savings. Equity shelf registrations would occur only when a positive value is anticipated.

Registration, Securities Act Release No. 33-6499, 48 Fed. Reg. 52,889, 52,892-93 (1983).

Concern has been raised from the issuer's perspective regarding the desirability of following these Commission suggestions. There is concern regarding the first step, since much of the gain in Rule 415 comes from the ability to place potential underwriters in competition with each other at the time of the actual distribution. The conflict of interest problem inherent in the second also raises concerns because the issuer selects and compensates the attorneys. Similarly, free-rider and related incentive problems are associated with the third suggestion. See Fox, *supra* note 91, at 1005-09, 1025-34.

¹⁰⁷ See Shelf Registration, Securities Act Release No. 33-6499, 48 Fed. Reg. 52,889, 52,892 (1983) (according to the efficient market hypothesis, "at the time S-3/F-3 registrants determine to make an offering of securities, a large amount of information already has been disseminated to and digested by the marketplace").

¹⁰⁸ See, e.g., Sanjai Bhagat et al., *The Rule 415 Experiment: Equity Markets*, 40 J. FIN. 1385, 1389-1400 (1985) (concluding that empirical analysis suggests lower issuing costs under Rule 415); David S. Kidwell et al., *SEC Rule 415: The Ultimate Competitive Bid*, 19 J. FIN. & QUANTITATIVE ANALYSIS 183, 186-95 (1984) (same). But see David S. Allen et al., *The Shelf Registration of Debt and Self Selection Bias*, 45 J. FIN. 275, 277-86 (1990) (concluding that "those firms having chosen to use shelf registration had lower issuing costs during period before shelf registrations were possible").

Using this reasoning, researchers have sought to explain the interesting phenomenon that, notwithstanding the documented cost-savings, equity shelf registrations rarely occur.¹⁰⁹ Indeed, their use has actually *decreased* since the period immediately following the rule's adoption.¹¹⁰ One explanation is that the loss of certification value perceived by the market—evidenced by the abnormally greater drop in market price of the issuer's securities upon an announcement of a shelf offering than upon the announcement of a traditional distribution—is for most issuers not worth the savings.¹¹¹

Suppose we assume noisiness instead.¹¹² On its face, there is the potential for the abuse observed above. This potential, however, is subject to two constraints as well. One constraint is found in questioning the frequency at which managers are likely to identify market windows successfully; they will do so rarely if they suffer from cognitive limitations comparable to the investment community. Indeed, managerial overoptimism, or hubris, may be greater than that characterizing investor behavior.¹¹³

The other constraint is found in the role played by the investment banker. For implementing the new issues of equity into an existing trading market pursuant to a shelf registration, the SEC requires the use of one or more underwriters;¹¹⁴ in most other instances, except for so-called "bought deals," their use is still a

¹⁰⁹ See David J. Denis, *Shelf Registration and the Market for Seasoned Equity Offerings*, 64 J. BUS. 189, 191-95 (1991).

¹¹⁰ See *id.* at 190.

¹¹¹ See *id.* at 197-98. The predictable market drop upon the announcement of a bid is rationalized under the so-called certification hypothesis (see *infra* note 116) by assuming that investors take the intent to make an offering as an indication that management believes that the issuer's stock is overpriced. Underwriters then play a certifying role in bonding the credibility of management's assessment of price. The abnormally large drop would reflect the market's assessment of the certification loss in a shelf offering.

¹¹² In fact, with respect to common stock offerings, the notion of a window of opportunity seems at odds with the efficient market hypothesis, a curious inconsistency in the SEC's position. Gordon and Kornhauser point to numerous ways in which Rule 415 does not seem entirely consistent with the efficiency hypothesis. See Gordon & Kornhauser, *supra* note 11, at 819 n.154.

¹¹³ Cf. Richard Roll, *The Hubris Hypothesis of Corporate Takeovers*, 59 J. BUS. 197, 212-14 (1986) (discussing managerial hubris as a possible explanation of the takeover phenomenon of mergers and tender offers).

¹¹⁴ See Rule 415(a)(4)(iii), 17 C.F.R. § 230.415(a)(4)(iii) (1991). An at-the-market offering is a distribution of stock into an existing trading market. The Commission further limits the percentage of new stock sold pursuant to Rule 415 to 10%. See Rule 415(a)(4)(ii), 17 C.F.R. § 230.415(a)(4)(ii) (1991).

practical necessity.¹¹⁵ The underwriter is put in a difficult position, as a result of the lack of opportunity for due diligence, unless one of the precautionary steps has already been taken. The underwriter retains, however, substantial residual power to refuse to act and may thereby deny the issuer access to domestic markets if it senses for some reason that due diligence would serve as the optimal protective device, but is not practically available. After all, the underwriter's reputation is at stake and it faces the threat of liability. The underwriter will thus choose whether to assume the risk, and at what price.¹¹⁶ The gatekeepers' reputational interests and simple risk aversion should caution against repeated involvement in sales immediately before a predictable reversion to mean. The evidence described earlier regarding the limited use of shelf registration for equity offerings may simply reflect this bargaining dynamic, without the need for any strong claims about pricing efficiency.¹¹⁷

More generally, echoing a point made earlier, we must ask whether there is anything in Rule 415 *itself* that is likely to exacer-

¹¹⁵ Bought deals are sold directly to institutional investors, who presumably can bargain directly for whatever certification or other protection is desired. See Gordon & Kornhauser, *supra* note 11, at 822.

¹¹⁶ There is much literature documenting the tendency of underwriters to underprice public offerings (at least in the near term), with many competing explanations. One explanation is the certification hypothesis (stating that underpricing is an effort to protect reputation); another explanation is the insurance hypothesis (stating that underpricing reduces liability exposure). This evidence suggests that the bargaining dynamics do operate as a check on issuer overreaching, even in the Rule 415 environment. For a view that the premium charged by underwriters to reflect the risk is not worth the protection, see David M. Green, Comment, *Due Diligence Under Rule 415: Is the Insurance Worth the Premium?*, 38 EMORY L.J. 793 (1989).

¹¹⁷ See *supra* notes 109-11 and accompanying text. For evidence that abnormally high premiums in shelf registrations cause some issuers to prefer traditional distribution methods, see David W. Blackwell et al., *Shelf Registration and the Reduced Due Diligence Argument: Implications of the Underwriter Certification and the Implicit Insurance Hypotheses*, 25 J. FIN. & QUANTITATIVE ANALYSIS 245, 250-58 (1990). Gordon and Kornhauser identify a separate problem with Rule 415: it gives the market insufficient time to digest information released on the eve of the offering (e.g., last minute 8-K filings, the dilution effect of the particular distribution), with the SEC apparently assuming that market price reaction is all but instantaneous. See Gordon & Kornhauser, *supra* note 11, at 819. They suggest that this assumption is far too strong given the available evidence and that the Commission should have considered a two-day cooling off period. See *id.* at 823. This is a valid concern, especially in a noisy environment. It is possible, however, that underwriters will readily acquiesce in an offering immediately upon the release of fundamental information in an Exchange Act disclosure or become involved in a distribution that is based on rushing to market immediately before there is an opportunity to appreciate some adverse information.

bate the overreactive tendencies of investors. Even the certified accuracy of firm-specific information that attends a traditional fixed-price offering is unlikely to dampen the enthusiasm of investors caught up in a market-wide speculative bubble or a contagion of hopefulness regarding a given stock or industry.¹¹⁸ If so, the case for trying to at least capture the cost savings associated with flexibility is that much stronger. In the end, then, we are left with ambiguity in assessing whether there is any strong efficiency claim implicit in Rule 415.

3. Why Efficiency?

If neither integration nor Rule 415 need rely on the efficient market hypothesis for their legitimacy, a natural question is to ask why the SEC chose so clearly to make the efficiency claims. In any event, did the Commission not appreciate the tentative, evolutionary nature of the economics literature that suggested that dispositive claims about efficiency might be premature?

There are many plausible answers. First, of course, is that the SEC was not making any strong claims at all—that it was using the efficient market hypothesis as a shorthand for the almost self-evident description of the market as a voracious consumer of information. If so, the problem is only in the way the Commission's signal has subsequently been interpreted. Second, it is possible that the Commission, like many others, simply did not appreciate the tentative nature of the empirical support for the efficient hypothesis. The genesis of the integration project is roughly contemporaneous with Jensen's notorious quotation that the hypothesis is one of the best supported in all of economics;¹¹⁹ most of the mainstream criticism came after its completion in 1983. This would point to the

¹¹⁸ For a view that equity offerings (especially initial ones) tend to coincide with upswings in general market sentiment, see Edwin J. Elton et al., *New Public Offerings, Information, and Investor Rationality: The Case of Publicly Offered Commodity Funds*, 62 J. BUS. 1, 2-3, 13-15 (1989); Lee et al., *supra* note 42, at 105-08; see also SHILLER, *MARKET VOLATILITY*, *supra* note 49, at 61-62 (discussing studies of group-induced polarization of attitudes). The open question here regards the consistency between this and the certification hypothesis. One possible resolution is that periods of positive investor sentiment last long enough for offerings to generate the sort of short-term positive feedback that is consistent with their investment in reputational capital, with any downswings coming too late, and in too ambiguous an environment, to operate harmfully.

¹¹⁹ See *supra* text accompanying note 8. Many academic writings of the time supported the view that the accuracy of the hypothesis was firmly established in the economics literature. See *supra* note 9.

dangers inherent in the importation of social science research to more normative settings by those who are poorly equipped to understand it. Another fairly benign explanation is that the SEC staff was acting in its usual lawyer-like way, engaging in the art of advocacy by introducing all possible grounds to support its decision, necessary or not.¹²⁰

There is, however, still another insight to consider, one that may play a substantially underappreciated role in the intellectual history of the efficient market theory as a positive norm. The efficiency hypothesis is laden with political content. Its implications are very strong for nonintervention or deregulation in a host of corporate and securities law settings, hostile takeovers (the cause celebre of the 1980s) in particular.¹²¹ If accurate, its invocation is plainly in the public interest. If overstated or wrong, the resulting deregulation still produces a shift of wealth from one group to another. Organized interests that foresee favorable results will treat strong statements of the research (and those who produce it) as a valuable commodity.

This brings us to two more possible administrative uses of the hypothesis. One is pretext. Rule 415 was expected to have a substantial impact in a number of ways: one was diminished certification, and the question of whether investors would be net losers as a result; another had to do with the economic gains and losses as between issuers and investment bankers generally, or (equally probable) allocations of wealth within the investment banking industry.¹²² Without necessarily endorsing a darker

¹²⁰ Since the integration policy was first put forward by the Advisory Committee on Corporate Disclosure in a report that was heavily influenced by an efficient market perspective, it should not be surprising that the subsequent policy-formulation process would relate back rhetorically to that document. Invoking the rhetoric of a report with such perceived legitimacy could well facilitate the negotiation process involved in bringing the policy initiative to fruition. For thoughts on the role of ideology and rhetoric in SEC policy formulation, see Langevoort, *supra* note 3, at 539.

¹²¹ See Kraakman, *supra* note 11, at 928-29.

¹²² The specific concern was that larger investment bankers would gain at the expense of regional ones, for a variety of reasons. One reason is that traditional syndications, on which the regionals are heavily dependent, would decline in favor of shelf offerings, which cannot easily be accommodated to syndication. To the same end, there was concern that issuers forced to name underwriters in advance in the registration statement would naturally choose the largest and most reputable underwriters. This was an important part of the reasoning of one former Commissioner, Barbara Thomas, who dissented from Rule 415. See generally Banoff, *supra* note 103, at 169-76 (discussing former Commissioner Thomas's concerns about the capital markets and the effect of Rule 415 on regional underwriters).

explanation for Rule 415, a cynic—or a public choice theorist—could readily see the use of the efficient market hypothesis simply as a way of offering an illusion of legitimacy to rent-seeking behavior.¹²³

The related possibility is that, quite apart from the particular merits or politics of integration and Rule 415, the SEC intended to do what the audience has since perceived: to send a signal of support for this form of economic reasoning to a variety of groups outside the agency. The theory that agencies “play” to external audiences through signalling is implicit in the literature dealing with the behavior of public organizations.¹²⁴ Invoking the efficiency hypothesis could be expected to resonate in a variety of circles, especially the SEC’s most significant constituencies—the Congress and the executive branch of the early 1980s. During this period, the use of economic theory as an organizing principle for deregulation in a variety of market settings (for example, airlines and cable television) was a highly visible part of public policy, uniting otherwise diverse political groups. Publicly endorsing that ideology could only enhance the SEC’s standing among its regulatory peers. Political capital can be acquired with the appropriate rhetoric, quite apart from whether (and perhaps even because) it is substantively overstated.¹²⁵

¹²³ On the use of illusions in rent-seeking legislation, see Jonathan R. Macey, *Promoting Public-Regarding Legislation Through Statutory Interpretation: An Interest Group Model*, 86 COLUM. L. REV. 223 (1986). Carefully chosen rhetoric may also serve as a mechanism to preserve administrative discretion and to shield particular decisions from careful scrutiny. See Michael E. Levine & Jennifer L. Forrence, *Regulatory Capture, Public Interest, and the Public Agenda: Toward a Synthesis*, 6 J. L. ECON. & ORGANIZATION 167, 180-81 (1990).

¹²⁴ For a view that bureaucratic behavior is characterized as a signalling dialectic whereby the outputs of the agency are driven by the approval feedback received, see Roger G. Noll, *Government Regulatory Behavior: A Multidisciplinary Survey and Synthesis*, in *REGULATORY POLICY AND THE SOCIAL SCIENCES* 9, 41-52 (Roger G. Noll ed., 1985). Rhetorical signalling is a direct way of bonding with those audiences.

¹²⁵ For interesting commentaries on the role of economic ideology—both substantively and rhetorically—in the politics of deregulation, see MARTHA DERTHICK & PAUL J. QUIRK, *THE POLITICS OF DEREGULATION* 246 (1985) (noting that economic advice “tends to be efficacious insofar as it has two general attributes, which are by no means necessarily related: substantive soundness . . . and political adaptiveness—the ability of analysis to meet further criteria inherent in the political process and to underlie rhetoric that meets those criteria”); see also James Q. Wilson, *The Politics of Regulation*, in *THE POLITICS OF REGULATION* 357, 386-87 (James Q. Wilson ed., 1980) (emphasizing the economics background of many individuals who became influential policy-makers in the late 1970s and early 1980s); Levine & Forrence, *supra* note 123, at 186 (discussing the importance of signals for engendering extensive political support).

The cumulative mix of all of these possible explanations is an imponderable; all were probably factors in the development of the integrated disclosure system and Rule 415. Since the early 1980s, the SEC has not relied explicitly on the efficient market hypothesis in any affirmative rule-making activity, and indeed has taken a number of steps that have been criticized as inconsistent with such a belief.¹²⁶ There is no way of knowing, of course, the extent to which the hypothesis has become part of the internal bureaucratic culture of the Commission, or the extent to which it has been invoked to justify inaction as opposed to formal deregulation. The signal of the early 1980s, however, lives on.

B. *Judicial Uses of the Efficient Market Hypothesis*

Separately from the SEC's invocation of the efficiency hypothesis, the courts have also incorporated economic theory into their way of thinking about securities litigation. The two principal uses the courts find for economic theory are its role as an intellectual linchpin for the fraud-on-the-market theory, and, more generally, its role as a device for assessing the impact of misinformation on stock prices.

1. The Fraud-on-the-Market Theory

In litigation under the principal antifraud provision of the federal securities laws, Rule 10b-5, courts have long insisted that plaintiffs satisfy some sort of reliance requirement.¹²⁷ This insistence on a showing that the misrepresentation or nondisclosure distorted the investor's active deliberative processes derives,

¹²⁶ Perhaps the best illustration is the hostile takeover. SEC policy during the 1980s was in many ways consistent with the free market ideology supported by the efficient market hypothesis. The Commission at the same time, however, took steps regarding the equal treatment of security holders which would be unnecessary if one truly believed in the ability of shareholders to sell out into the market at any time at a fair price. See, e.g., Short Tendering Rule, Exchange Act Release No. 20,799, 16 Sec. Reg. & L. Rep. (BNA) 628 (Apr. 6, 1984) (barring hedged and multiple tendering of securities in a tender offer). The Release also included an insightful efficiency-oriented dissent by Commissioner Cox. See *id.* at 631-32. For a suggestion that Commission policy is hardly likely to be internally coherent at any given time, see Langevoort, *supra* note 3, at 535-38. For a view of the efficiency claim implicit in the Commission's one-share/one-vote policy, see *infra* note 222 and accompanying text.

¹²⁷ See, e.g., *List v. Fashion Park Inc.*, 340 F.2d 457, 462-63 (2d Cir.) (discussing the importance of a reliance requirement in civil cases under Rule 10b-5), *cert. denied*, 382 U.S. 811 (1965).

somewhat awkwardly, from Rule 10b-5's common law antecedents.¹²⁸

The fraud-on-the-market theory accords plaintiffs in Rule 10b-5 class actions a rebuttable presumption of reliance if they bought or sold their securities in an "efficient" market. They need not show that they actually knew of the communication that contained the misrepresentation or omission. The conventional fraud-on-the-market theory was first recognized by the Ninth Circuit in 1975 in *Blackie v. Barrack*.¹²⁹ In *Blackie*, the court determined that the presumption of reliance was reasonable because misinformation has the power to affect the stock prices at which the investor trades, and thus cause injury even in the absence of direct reliance.¹³⁰ The presumption can be rebutted only by showing that the plaintiff knew the truth or would have traded anyway had the truth been known.¹³¹ Over the next decade, the *Blackie* theory was followed by a number of appellate courts, and rejected by none.¹³² The

¹²⁸ See *Peil v. Speiser*, 806 F.2d 1154, 1160-63 (3d Cir. 1986). The awkwardness, which has often been noted, derives largely from the development of common law fraud in the context of face-to-face bargaining, and not from settings (like the organized markets) where information dissemination is diffused and complicated.

¹²⁹ 524 F.2d 891 (9th Cir. 1975), *cert. denied*, 429 U.S. 816 (1976). For a look at some of the factual complexities in the reliance aspect of *Blackie*, see COX ET AL., *supra* note 98, at 1091-95.

¹³⁰ See *Blackie*, 524 F.2d at 905-08.

¹³¹ See *id.* at 906.

¹³² See, e.g., *Peil*, 806 F.2d 1154; *Lipton v. Documentation Inc.*, 734 F.2d 740 (11th Cir. 1984) (en banc), *cert. denied*, 469 U.S. 1132 (1985). The trend was perceptively analyzed in Barbara Black, *Fraud on the Market: A Criticism of Dispensing with Reliance Requirements in Certain Open Market Transactions*, 62 N.C. L. REV. 435 (1984), and in Note, *The Fraud-on-the-Market Theory*, 95 HARV. L. REV. 1143 (1982). There are a number of variants on the theory. For example, in *Panzirer v. Wolf*, 663 F.2d 365 (2d Cir. 1981), *cert. denied*, 458 U.S. 1107 (1982), the Second Circuit allowed an investor who was not aware of the actual misstatement to proceed based on the allegation that the information she did use to decide to purchase the stock in question, a newspaper article on the company's product development, would have been different had its author been aware of the truth. This is a true "secondary reliance" claim. See *id.* at 367.

In addition, a number of courts have allowed class actions on the part of investors in tax-exempt public offerings to proceed without a showing of actual reliance by claiming that if the truth had been known, the securities in question would not have been marketable because investment bankers and other "gatekeepers" would have avoided involvement with the securities. See, e.g., *Shores v. Sklar*, 647 F.2d 462, 469 (5th Cir. 1981) (en banc) (stating that plaintiff's main burden of proof in a 10b-5 action is simply to prove that "defendants knowingly conspired to bring securities onto the market which were not entitled to be marketed"), *cert. denied*, 459 U.S. 1102 (1983). More recently, these courts have refined the theory to require a showing that the securities were truly worthless, and not just less valuable than

fraud-on-the-market theory is often understood to carry with it the second presumption that in an efficient market, a material misrepresentation or actionable omission influences the market price, and therefore removes the need to actually prove the impact.¹³³

Though theoretical in construct,¹³⁴ the fraud-on-the-market theory is intensely practical in application. The reliance stories of individual investors vary substantially; if each investor/class member had the burden of establishing reliance, the resulting litigation would be too difficult and costly to justify.¹³⁵ Indeed, the class

advertised—a step that has substantially undermined the usefulness of this fraud-on-the-market theory. See, e.g., *Ross v. Bank South N.A.*, 885 F.2d 723, 730 (11th Cir. 1989) (en banc) (concluding that appellants failed to establish securities fraud violation because they “failed to generate a genuine issue of fact as to marketability”), *cert. denied*, 110 S. Ct. 1924 (1990).

¹³³ See, e.g., *Peil*, 806 F.2d at 1163 (noting that “a well-developed market can reasonably be presumed to respond to even a single material misrepresentation or omission concerning a stock . . . traded in that market”).

¹³⁴ *Blackie* itself developed the presumption largely in practical terms. The link between the theoretical presumption and the efficient market hypothesis was largely the product of the most insightful judicial discussion of the theory, in *In re LTV Securities Litigation*, 88 F.R.D. 134 (N.D. Tex. 1980), which concluded that in efficient markets “[t]he market is acting as the unpaid agent of the investor, informing him that given all the information available to it, the values of the stock is worth the market price.” *Id.* at 143; see also *Finkel v. Docutel/Olivetti Corp.*, 817 F.2d 356, 360-61 (5th Cir. 1987) (discussing the economic doctrine and the judicial development of the fraud-on-the-market theory), *cert. denied*, 485 U.S. 959 (1988). Although *LTV* was heavily influenced by economic reasoning, it was candid enough to acknowledge the limitations of the statistical studies supporting the hypothesis. Because of practical aspects and the theory’s predating of the SEC’s integration project, few courts cite the SEC’s work as authority in fraud-on-the-market cases. An exception is *Finkel*, 817 F.2d at 361 n.13. The academic commentary, on the other hand, has emphasized the SEC’s acceptance of the efficient market theory. See, e.g., Black, *supra* note 132, at 468 (stating “[t]he SEC explicitly recognized the efficient market thesis . . . by its adoption of the integrated disclosure system”); see also Pickholz & Horahan, *supra* note 69, at 945 (noting that the SEC has accepted the efficient market theory, but that such acceptance has been partial and grudging).

¹³⁵ See, e.g., Black, *supra* note 132, at 437 (stating that the fraud-on-the-market theory streamlines securities fraud litigation and makes class actions possible, thus minimizing difficult issues of proof, such as reliance). The fraud-on-the-market theory, however, is not the only mechanism for shifting the burden of proof with respect to reliance. In *Affiliated Ute Citizens v. United States*, 406 U.S. 128 (1972), the Supreme Court authorized a presumption of reliance in a case based primarily on nondisclosure rather than an affirmative misrepresentation, suggesting that it is difficult to prove reliance in a transaction involving a failure to disclose. See *id.* at 153. Courts have also granted a presumption of reliance for similar reasons in cases involving broad schemes to defraud, as opposed to specific communicative acts. See, e.g., *Competitive Assocs. v. Laventhol, Krekstein, Horwath & Horwath*, 516 F.2d 811, 814 (2d Cir. 1975) (stating that in a comprehensive scheme to defraud, plaintiff is not required to prove reliance on the false financial statements, “but need only allege that

action as a mechanism for redressing securities fraud would be diminished severely in its efficacy, if not rendered impotent. The presumption invites class certification (and a subsequent trial on the merits) by moving this one issue on which there will be substantial variation among the plaintiffs to a later stage of the proceeding, and then only if the defendant wishes to assume the burden of negating it. The defendant will rarely assume this burden because such inquiry is prohibitively expensive and subject to a substantial moral hazard since savvy plaintiff-investors can, if challenged, easily recast their recollections of subjective motivation to conform to the presumption. In fact, a defendant who loses on the merits will probably settle, or contest only the class-wide questions of whether the fraud had an impact at all on price or on the computation of the basic measurement of damages.¹³⁶ The rebuttable nature of the presumption is thus largely hypothetical, and the character of investor reliance is, as a practical matter, relevant to the litigation only for purposes of determining whether the *named* plaintiffs' reliance stories are sufficiently typical so they will be competent class representatives.¹³⁷

Both the practical consequences and the conceptual underpinnings of the fraud-on-the-market theory were clearly articulated when its viability was tested before the Supreme Court in *Basic Inc. v. Levinson*.¹³⁸ In that 1988 decision, the Court came down firmly in the theory's favor, granting the presumption of reliance to a class of investors who sold stock after a company falsely denied that it

it would not have acted as it did had it known of the information withheld by defendants").

¹³⁶ See Bradford Cornell & R. Gregory Morgan, *Using Finance Theory to Measure Damages in Fraud on the Market Cases*, 37 UCLA L. REV. 883, 884 & n.5 (1990). On the question of whether the stock price was affected by the fraud, see *In re Apple Computer Securities Litigation*, 886 F.2d 1109 (9th Cir. 1989), *cert. denied*, 110 S. Ct. 3229 (1990), discussed *infra* text accompanying notes 183-95.

¹³⁷ This may not be a very rigorous inquiry. Many courts have indicated that absent a more specific conflict of interest, a named plaintiff's somewhat different reliance from that of the class generally should not preclude it from class representative status. See, e.g., *Deutschman v. Beneficial Corp.*, 132 F.R.D. 359, 373 (D. Del. 1990) (concluding that "[t]he typicality requirement is satisfied, and factual differences will not render a claim atypical, if the named plaintiff's claim arises from the same event or course of conduct and is based upon the same legal theory as the claims of other class members").

¹³⁸ 485 U.S. 224 (1988). The Court's decision was 4-2, with three Justices not participating. Some have characterized the decision as a plurality holding. That characterization is not accurate, however, since the decision was made by a majority of those sitting; it is thus an opinion of the Court with stare decisis effect.

was engaged in merger negotiations.¹³⁹ Rhetorically, Justice Blackmun's opinion is restrained. It begins with an emphasis on the pragmatic aspects of granting the presumption, and then suggests that the Court's decision does not purport to state that markets are necessarily efficient, leaving that determination to development by lower courts.¹⁴⁰

Neither is Justice Blackmun's economic reasoning particularly aggressive in conceptualizing the fraud-on-the-market theory. Responding to the dissent's claim that he was prematurely writing a controversial economic theory (the efficiency hypothesis) into law,¹⁴¹ Justice Blackmun wrote that "[f]or 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."¹⁴² These disclaimers notwithstanding, the *Basic* decision leaves relatively little undone for purposes of structuring the theory, and gives all the necessary guidance as to the situations where the presumption might be rebutted.¹⁴³ That guidance holds little promise for potential defendants, making all the more clear that

¹³⁹ See *id.* at 247. For good discussions of what *Basic* does and does not resolve, see Ayres, *supra* note 11; Barbara Black, *The Strange Case of Fraud on the Market: A Label in Search of a Theory*, 52 ALB. L. REV. 923, 931-36 (1988); William J. Carney, *The Limits of the Fraud on the Market Doctrine*, 44 BUS. LAW. 1259 (1989); Jonathan R. Macey & Geoffrey P. Miller, *Good Finance, Bad Economics: An Analysis of the Fraud-on-the-Market Theory*, 42 STAN. L. REV. 1059 (1990).

¹⁴⁰ See *Basic*, 485 U.S. at 241-47, 249 & n.29.

¹⁴¹ See *id.* at 254-55 (White, J., concurring in part and dissenting in part). In his dissent, Justice White challenged the economic basis underlying the majority's reasoning, claiming that the efficient market hypothesis remains a controversial and evolving academic theory, that it is not an established fact, and that courts are ill-equipped to resolve the debate. See *id.*

¹⁴² *Id.* at 247 n.24. The Court also stated that in adopting its 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." *Id.* at 248 n.28. It did, on the other hand, say that "[r]ecent empirical studies have tended to confirm Congress' premise that the market price of shares traded on well-developed markets reflects all publicly available information, and, hence, any material misrepresentations." *Id.* at 246.

For a critique of *Basic* that adopts something of a noise theory perspective and draws on some of that literature, see L. Brett Lockwood, Comment, *The Fraud-on-the-Market Theory: A Contrarian View*, 38 EMORY L.J. 1269 (1989).

¹⁴³ The Court gave examples: (1) a situation where the alleged fraud had no price impact because market professionals did not believe the misstatement or because the price had already been corrected; and (2) where the plaintiff had to buy or sell the shares because of some extraneous pressures. See *Basic*, 485 U.S. at 248-49.

reliance will effectively disappear as an element of the cause of action once the efficiency of the market is established.

Like most of the lower court decisions preceding it, the *Basic* decision did not articulate precisely the nature of the reliance on the "integrity of the market" that is presumed in an appropriate case, or what is actually supposed to have gone through an investor's mind for the resulting decision to merit protection. There are essentially two ways of addressing these issues, both raise interesting and largely unexplored questions.

One possibility is to insist that the investor's thought process evinces a genuine belief in the implications of the efficient market hypothesis.¹⁴⁴ This is not to say that the investor must understand the intricate economic reasoning behind or the empirical support for the hypothesis, or even necessarily believe that markets correctly bind stock prices to rational expectations about fundamental asset value. At the very least, however, we would insist under this view that to deserve the presumption, an investor should be a free rider on market efficiency, believing that she cannot outperform (or outguess) the market and thus trusting that price is the best possible indicator of value.

This view of the presumption was apparently taken by the Third Circuit in a case decided just before *Basic*: *Zlotnick v. TIE Communications*.¹⁴⁵ *Zlotnick* held that a short-seller was not entitled to the

¹⁴⁴ See *Finkel v. Docutel/Olivetti Corp.*, 817 F.2d 356, 361 (5th Cir. 1987) (asserting that courts have adopted the requirement that in a fraud-on-the-market case plaintiffs "could prove reliance on 'the supposition that the market price is validly set and that no suspected manipulation has artificially inflated the price'" (quoting *Blackie v. Barrack*, 524 F.2d 891, 907 (1975), *cert. denied*, 429 U.S. 816 (1976)), *cert. denied*, 485 U.S. 959 (1988). This appears to be the view implicit in *Macey & Miller*, *supra* note 139, at 1089 ("[P]laintiffs are entitled to rely on the price decoding and setting mechanisms of market professionals."). See also Jonathan R. Macey, *The Fraud on the Market Theory: Some Preliminary Issues*, 74 CORNELL L. REV. 923, 925-26 (1989) (discussing whether it is reasonable to presume that all investors rely on the integrity of the market when they purchase securities). But see *Macey et al.*, *supra* note 11, at 1021 (suggesting that causation is the real issue and thus the relevant inquiry is "whether the defendants' misstatements or omissions affected the market price of th[e] security"). Many other commentators, such as *Carney*, *supra* note 139, seem to suggest that this represents the intellectual underpinnings of the fraud-on-the-market theory, but subtly expand their articulation to protect a larger class. See *infra* notes 150-54 and accompanying text.

¹⁴⁵ 836 F.2d 818 (3d Cir. 1988). *Zlotnick* makes a distinction between reliance on market price and reliance on the market itself; it concludes that only the former is protected. See *id.* at 823. *Zlotnick* is not cited in *Basic*, although the Court did rely heavily on another Third Circuit decision, *Peil v. Speiser*, 806 F.2d 1154 (3d Cir. 1986). See *Basic*, 485 U.S. at 241-49.

presumption of reliance because by definition short-selling implies a belief that the stock is overvalued, and will soon decline in price.¹⁴⁶ Such a belief thus does not evince reliance on the integrity of the market price that prevailed at the time of the transaction.

This articulation is conceptually coherent, a direct way of tying the investor's thought processes to a positive theory of market efficiency. Moreover, it survives even if one posits a noisy stock market.¹⁴⁷ Although noise theorists assume that stock prices diverge significantly from underlying asset values, they have not established the existence of any trading rule or strategy that permits the exploitation of noise.¹⁴⁸ A reasonable person can simultaneously be skeptical about the short-term rationality of stock prices and yet conclude that it is not worth trying to outguess them by engaging in personal analysis or paying for research. No doubt many investors fall in this category.

Instead, the problem with this articulation is the resulting overbreadth of the application of the fraud-on-the-market theory. One of the ironies in the development of the theory, if understood this way, is that it uses the efficient market hypothesis in the one way it is not meant to be used: as a predictor of the behavior of individual investors. As we have seen, the efficiency hypothesis states that market prices behave *as if* investors were rational and invest resources in information only to the limited point of positive expected return.¹⁴⁹ Nothing in the hypothesis denies what most popular accounts assume: that much information searching and trading by investors, from institutions on down, is done in the (perhaps erroneous) belief that undervalued or overvalued stocks exist and can systematically be discovered.¹⁵⁰ Noise theorists only

¹⁴⁶ See *Zlotnick*, 836 F.2d at 822-23.

¹⁴⁷ See Daniel R. Fischel, *Efficient Capital Markets, the Crash, and the Fraud on the Market Theory*, 74 CORNELL L. REV. 907, 913-15 (1989).

¹⁴⁸ See *supra* note 62 and accompanying text.

¹⁴⁹ See *supra* text accompanying notes 6-7.

¹⁵⁰ The phenomenon has given rise to an important topic in the literature, the "Efficiency Paradox". This paradox explores the extent to which efficiency depends on the presence of a critical mass of investors who disregard its rational implications. See Gilson & Kraakman, *supra* note 1, at 622-26. As Gilson and Kraakman show, the paradox is consistent with the evidence on efficiency if one takes into account the costs of information acquisition: there must be a positive expectation of return to stay in the business. See *id.* In this sense, there is an "equilibrium degree of disequilibrium." *Id.* at 623 (quoting Grossman & Stiglitz, *supra* note 6, at 393). This is one more illustration of the point that markets and stocks are not efficient or inefficient in some readily determinable sense; rather, they exhibit relative degrees

stress that the behavior of this class of speculators can be driven by pseudo-signals and cognitive illusions, as well as by fundamental analysis, thus moving prices away from value more frequently and for longer periods of time.¹⁵¹

Unfortunately—perhaps because of the long primacy of the efficient market hypothesis¹⁵²—there is very little empirical data to tell us what percentage of investors are free-riding believers in market efficiency and what percentage are habitually trying to beat the market.¹⁵³ The effect of the fraud-on-the-market presumption as applied, however, is to assure that both groups are compensated. To the extent that speculators are included but do not deserve protection because of the way the theory is understood, the result is substantial overcompensation. The realities of securities litigation are such that this overcompensation will not be trivial, but probably measurable in the millions of dollars. Certainly, it affects the bargaining dynamics associated with pre-trial settlement.¹⁵⁴

of efficiency. An efficient market is a shorthand way of describing a market with a high level of—but not perfect—efficiency.

¹⁵¹ See *supra* notes 22-45 and accompanying text.

¹⁵² See *supra* text accompanying note 30.

¹⁵³ The dearth of data on investor behavior is remarkable. A now dated but still often cited study began the inquiry into this issue, noting how much more work needed to be done to gain useful insights into the investing process. See Ronald C. Lease et al., *The Individual Investor: Attributes and Attitudes*, 29 J. FIN. 413 (1974) [hereinafter Lease et al., *Individual Investor*]; see also Ronald C. Lease et al., *Market Segmentation: Evidence on the Individual Investor*, FIN. ANALYSTS J., Sept./Oct. 1976, at 53 (surveying different groups of investors and their investment behavior). One of the insights resulting from the 1974 study, consistent with the behavioral literature, was that although most investors expressed skepticism about the average investor's ability to beat the market, most considered themselves investors of above-average skill. See Lease et al., *Individual Investor*, *supra*, at 431-32. Some empirical data can be found in ADVISORY COMMITTEE REPORT, *supra* note 74, at 269-304, published in 1977. Robert Shiller has also done some informal surveys on investor attitudes and behaviors. See *supra* notes 49-53 and accompanying text.

¹⁵⁴ Securities cases are often settled due not only to the merits but also the conflicts of interest faced by the lawyers involved in the action. See Geoffrey P. Miller, *Some Agency Problems in Settlement*, 16 J. LEGAL STUD. 189, 190 (1987) (noting that attorneys will be inclined to accept the defendant's settlement offer, although the plaintiff might be better off going to trial). Plainly, the outer limit of the damage exposure will substantially affect bargaining outcomes. See, e.g., Robert Cooter et al., *Bargaining in the Shadow of the Law: A Testable Model of Strategic Behavior*, 11 J. LEGAL STUD. 225, 237 (1982) (stating that "[a]n increase in the value of the trial . . . will make trial more attractive, and the player will demand more"); cf. Janet C. Alexander, *Do the Merits Matter? A Study of Settlements in Securities Class Actions*, 43 STAN. L. REV. 497, 596 (1991) (concluding that securities class actions are not resolved in a manner predicted by the economic model).

There is a different way of articulating the form of protectable reliance in a fraud-on-the-market case—probably the better reading of *Basic*—that avoids this overbreadth. Perhaps investors deserve inclusion in the protected class simply if they relied on the market to be undistorted by fraud.¹⁵⁵ Under this articulation (and in contrast to *Zlotnick*), even speculators should be compensated since they implicitly assume that the market price has been set in an unbiased fashion even if they believe it is too high or too low. “Who would knowingly roll the dice,” asked Justice Blackmun in justifying the presumption of reliance, “in a crooked crap game?”¹⁵⁶ Indeed, a subsequent district court indicated that it finds *Zlotnick*’s validity “somewhat questionable in light of *Basic*,” an apparent endorsement of this broader articulation.¹⁵⁷

While this articulation avoids the overbreadth concern, it effectively unties the protected form of reliance from any meaningful belief about market efficiency. Efficiency does not prevent fraud:¹⁵⁸ indeed, the very existence of the fraud-on-the-market theory is premised on the idea that credible lies can and do affect the prices of widely-traded stocks.¹⁵⁹ In a rational market, traders assume the risk of fraud, with prices adjusted to reflect some average amount of predictable misbehavior.¹⁶⁰ So understood,

¹⁵⁵ See Carney, *supra* note 139, at 1277-78; Fischel, *supra* note 147, at 920. But see Fischel, *Use of Modern Finance Theory*, *supra* note 9, at 11 (asserting that a presumption of reliance should be abandoned).

¹⁵⁶ *Basic*, 485 U.S. at 247 (quoting *Schlanger v. Four-Phase Sys.*, 555 F. Supp. 535, 538 (S.D.N.Y. 1982)). Further support in *Basic* for this idea comes from one of the examples Justice Blackmun gave as to how the presumption of reliance might be rebutted. He indicated that a person who did not trust the market would have no direct or indirect connection with the fraud if extraneous events (antitrust considerations, for example) forced him to sell. See *id.* at 249. The forced-sale aspect would be unnecessary if the lack of trust itself disqualified the plaintiff. Similarly, the *Blackie* case also assumes reliance on an unriggered market. See *Blackie v. Barrack*, 524 F.2d 891, 907 (9th Cir. 1975), *cert. denied*, 429 U.S. 816 (1976).

¹⁵⁷ *In re Western Union Sec. Litig.*, 120 F.R.D. 629, 637 (D.N.J. 1988); see also *Deutschman v. Beneficial Corp.*, 132 F.R.D. 359, 371 (D. Del. 1990) (holding that options traders have engaged in the requisite reliance, even though they are betting on a price movement).

¹⁵⁸ See *supra* note 88 and accompanying text.

¹⁵⁹ Some have suggested that the fraud-on-the-market theory seems internally inconsistent in its assumption that fraud can be successful in an efficient market. See, e.g., Black, *supra* note 139, at 933-34 (arguing that the efficient market hypothesis contradicts the notion of false information having great impact on stock prices, since traders disregard such information upon recognition of its falsity). Under the semi-strong version of the efficient market hypothesis, however, there is no reason to expect that private information will necessarily be reflected in stock price. See Macey & Miller, *supra* note 139, at 1078-79.

¹⁶⁰ See, e.g., George A. Akerlof, *The Market for "Lemons": Quality Uncertainty and*

the articulation that investors rely on the price of the stock to be undistorted by fraud is either unreasonable (a cognitive illusion based on excessive optimism, not a rational expectation) or, more persuasively, a statement that investors are entitled *as a matter of law* to rely on the stock price as the product of unbiased market forces rather than fraud or manipulation.

Why should we, however, limit the presumption to traders in efficient organized markets?¹⁶¹ The efficient market hypothesis cannot take credit for the insight that information affects prices.¹⁶² As Justice Blackmun acknowledged, an organizing principle of securities regulation since its inception is that misinformation distorts the prices of stocks,¹⁶³ small as well as large—albeit sometimes more slowly and imprecisely with respect to the former. A buyer of a small over-the-counter stock no doubt holds the same expectation of the absence of fraud (otherwise why would she roll the dice, to repeat Justice Blackmun's rhetorical question), and does not act in an appreciably more unreasonable fashion in so doing.¹⁶⁴ In this light, discriminating between investors in small and

the Market Mechanism, 84 Q.J. ECON. 488, 495-96 (1970) (analyzing the "costs of dishonesty" in the automobile market context and stating that, at least in theory, such costs can be evaluated); Carney, *supra* note 139, at 1278 ("[I]nvestors will assume each security possesses the average amount of fraud.").

¹⁶¹ See Macey et al., *supra* note 11, at 1021 (arguing that the relevant inquiry in determining whether a presumption of reliance should be granted to the plaintiff "is not whether the market for the security is efficient, but whether the defendants' misstatements or omissions affected the price of that security"). We should put to the side for a moment the issue of granting the presumption of reliance when there is no organized market at all (for example, the initial public offering). See *infra* notes 169-70 and accompanying text.

¹⁶² In fact, the Court's articulation of the economic basis for the fraud-on-the-market theory, see *supra* text accompanying note 142, is little more than the idea that information affects prices—something that is undeniably true, but by no means limited to instances subsumed in the efficiency hypothesis. See Ayres, *supra* note 11, at 983-84. For a similar insight regarding the pre-*Basic* case law, see ROBERT C. CLARK, CORPORATE LAW 331 (1986).

¹⁶³ See, e.g., COX ET AL., *supra* note 98, at 679-81 (providing an overview of the history of the Securities Exchange Act of 1934, its purpose, and its reach); Steve Thel, *The Original Conception of Section 10(b) of the Securities Exchange Act*, 42 STAN. L. REV. 385, 391 (1990) (noting that the Securities Exchange Act of 1934, in its primary concern with securities pricing, "provides for extensive control over several critical factors affecting prices, including production and dissemination of information").

¹⁶⁴ As noted earlier, it is likely that the incidence of fraud is relatively higher among smaller stocks than larger ones. See *supra* note 94 and accompanying text. This difference, however, is a matter of degree, and probably a small one. In no way could it be asserted that reliance on the absence of fraud is *per se* reasonable for efficiently traded stocks and *per se* unreasonable for thinly traded ones.

large companies makes no conceptual sense.¹⁶⁵ The only important question is whether the price was distorted. Given the well-acknowledged practical and conceptual difficulties of determining what is or is not a truly efficient market—various conundra that all stem from treating efficiency as a yes/no question rather than one that varies as a matter of degree depending on the type of issuer and the type of information¹⁶⁶—there are good reasons to want to avoid this sort of threshold inquiry. Yet *Basic* seems to insist on it.¹⁶⁷

¹⁶⁵ The same point holds even if, as some commentators have suggested, we play down the *Basic* Court's insistence that individual reliance remain an element of all 10b-5 cases and instead follow a pure causation approach. A simpler model of the fraud-on-the-market theory would be that so long as fraud distorts the stock price, anyone injured in fact by buying at too high a price or selling at too low a price is entitled to sue. This would avoid all the conceptual problems that come from fictionalizing the reliance interest, and would be a more realistic response to the ways that modern securities markets operate. Again, however, there would be no basis for introducing the artificial efficient/nonefficient dichotomy. So long as the misinformation affected the stock price—as it surely would even in many cases involving thinly traded stocks—causation could be shown with respect to all subsequent purchases until the truth was exposed. Except for its evidentiary role in helping determine whether (and for how long) the fraud had an impact, the efficient market hypothesis would have little to do with either understanding or applying a causation-based fraud-on-the-market theory.

¹⁶⁶ See *supra* note 68. Macey and Miller note correctly that a determination of whether the market is sufficiently efficient to warrant applying the presumption of reliance depends on the nature of the fraud. See Macey & Miller, *supra* note 139, at 1087. The finance literature recognizes that information is assimilated into price slowly to the extent that it is either highly subjective and difficult to evaluate, or available in the first instance only to a small number of market participants. See *id.* at 1083-85; Gilson & Kraakman, *supra* note 1, at 558. A subtle, hard-to-evaluate piece of information about a large issuer may well take longer to become impounded than a dramatic bit of information about a thinly traded stock. In their most recent work, Macey and Miller explicitly suggest moving away from an efficiency requirement. See Macey et al., *supra* note 11, at 1021.

¹⁶⁷ For post-*Basic* cases struggling with the interpretation of what an efficient market is, see *Freeman v. Laventhol & Horwath*, 915 F.2d 193, 197-98 (6th Cir. 1990), *Hurley v. FDIC*, 719 F. Supp. 27, 34 (D. Mass. 1989), *Cammer v. Bloom*, 711 F. Supp. 1264, 1276-87 (D.N.J. 1989), and *Harman v. LyphoMed, Inc.*, 122 F.R.D. 522, 525-26 (N.D. Ill. 1988). There is a split among the courts over what factors should be considered in assessing whether a security is traded in an efficient market. Some make the determination based on easily determined factors (for example, whether securities are exchange-traded or whether they are eligible to use Form S-3), see *Freeman*, 915 F.2d at 199, while others insist on a more fact-specific inquiry, see *Cammer*, 711 F. Supp. at 1281-87. In the middle are courts willing to accept a *prima facie* showing of efficiency at the class certification stage, leaving open the possibility of more intensive inquiry later. See *Harman*, 122 F.R.D. at 525-26.

As noted earlier, a separate aspect of the fraud-on-the-market theory is that upon a showing of materiality, impact on price is presumed, subject to rebuttal by the

Where does this leave us? If our second reading of *Basic*'s conception of reliance is right, the development of the fraud-on-the-market theory by the courts is reminiscent of the SEC's articulation of its integrated disclosure system.¹⁶⁸ The efficient market hypothesis is invoked, but in ways that on close inspection are neither necessary nor sufficient to the ultimate conclusion. The structure of the reasoning in *Basic* is much like that of the progenitor, *Blackie*—a decision that made no explicit use of the efficiency hypothesis, finding it necessary only to state (without resort to citation) that prices respond to information causing harm when there is fraud. The important feature of the presumption of reliance is its pragmatic consequence: absent some sort of presumption that removes the burden of proving reliance on the part of each individual plaintiff, securities class actions involving dispersed investors with relatively small claims would essentially disappear. Given both the deterrent and compensatory role these actions are widely believed to play, such a result seems unacceptable. If the efficient market hypothesis had not provided an appealing rationale in which to cloak the process of burden shifting, something else would have to have been found.

Unlike its use in the integration project, however, the efficiency rhetoric also has a substantive effect: the unnecessary limitation to "efficient" organized markets.¹⁶⁹ Efficiency-as-justification subtly

defendant. See *supra* notes 130-32 and accompanying text. *Basic* supports this second presumption, although it is not extensively discussed and there is some residual ambiguity. See Cornell & Morgan, *supra* note 136, at 913-17. Arguably, the efficient market hypothesis is the justification for this step, making inquiry into the efficiency of the market a necessary determination. Three points are worth noting, however. First, unlike the individualized inquiry of the reliance discussion, the efficiency of the market inquiry addresses an issue (price impact) that is common to the plaintiff class as a whole. Second, it is by no means clear that the same presumption of reliance would not be made even in the absence of a showing of efficiency. For example, the defendant may have better access to the facts, or the matter could be considered sufficiently difficult to prove that it would be unfair to allocate the burden to the innocent plaintiffs. See, e.g., *Affiliated Ute Citizens v. United States*, 406 U.S. 128, 152-54 (1972) (creating a presumption of reliance in a nondisclosure case). Finally, even if the efficiency hypothesis is a justification for the presumption of reliance, the presumption relies on a relatively noncontroversial form of the hypothesis that assumes that stock prices in organized markets, noisy or not, are highly responsive to information.

¹⁶⁸ For discussions of the SEC's articulation of its integrated disclosure system, see Fox, *supra* note 91, at 1025-28, and Nicholas, *supra* note 91, at 18-20.

¹⁶⁹ The practical consequence of this restriction is hard to evaluate. As noted above, courts have a variety of justifications besides the fraud-on-the-market theory to reduce the plaintiff's burden of proving reliance, and these could prove useable

becomes efficiency-as-prerequisite, an instance of the economic mode of discourse restricting, rather than expanding, the cognitive process of law-formulation.¹⁷⁰ There is probably a second unfortunate consequence as well. Noticeably absent from the *Basic* decision is a careful consideration of the costs associated with a broad liability rule, in terms of damage awards that are disproportionate to the level of misconduct or in terms of its chilling effect on voluntary publicity, harming investors rather than helping them.¹⁷¹

to the plaintiffs in a thin-market case. See *supra* notes 132 & 135.

¹⁷⁰ An example of this narrowing process is in the continuing debate over whether to grant a presumption of reliance in cases involving offerings of new securities, where there is no preexisting market. See *supra* note 132. If efficiency is crucial to the process, the answer is an easy "no." See, e.g., *Freeman*, 915 F.2d at 198 (holding that "the rationale supporting . . . presumption of reliance does not apply when securities are not traded in an efficient market" and thus there would be no presumption "if a primary market for newly issued . . . bonds is not efficient"); Carney, *supra* note 139, at 1284-91 (arguing that "assumptions about the fair (unbiased) pricing of financial assets must be confined to those markets where market forces are powerful enough to act with relative speed on new information").

Much more broadly, however, the question in new-securities-offerings cases is whether investors buying new offerings are entitled to a presumption that but for the fraud, the securities would not have been marketed. That inquiry is in turn based on the reasonableness of that reliance; whether purchasers are entitled to assume that gatekeepers would have prevented or ameliorated the effects of the fraud. Although this question is an interesting one, it is worth noting that such reliance is not substantially different in character from the assumption that fraud has not distorted an organized market. Fraud is foreseeable in primary and secondary market settings. One can imagine particular public offerings that are structured in such a way as to make the lack of a specific inquiry by purchasers not unreasonable.

More generally, one might well conclude that optimal deterrence would be furthered by a presumption of reliance in all cases involving large-scale distribution or trading of securities. In *Freeman*, the dissenting judge claimed that the majority misunderstood plaintiff's claim in focusing excessively on efficiency. See *Freeman*, 915 F.2d at 200-01 (Guy, Jr., J., concurring in part and dissenting in part).

¹⁷¹ *Basic* is a good example. The fraud was in falsely denying the existence of ongoing merger negotiations. There was no corruption or self-dealing by the managers involved. See *Basic*, 485 U.S. at 227-28. The evidence suggested that management was simply trying to protect the confidentiality of the negotiations to give them a better chance of success. See *id.* at 236. Yet assuming liability, the company (that is, its existing shareholders) would possibly be forced to pay damages of tens of millions of dollars for what was essentially a utilitarian lie. At first glance, this seems to be just compensation—at least under causation-based reasoning. But the net economic harm of the lie is far less, for in the absence of trading by the company or its insiders, each bad sale by one investor is offset by a windfall purchase by another. See Frank H. Easterbrook & Daniel R. Fischel, *Optimal Damages in Securities Cases*, 52 U. CHI. L. REV. 611, 618-25 (1985); Dennis S. Karjala, *A Coherent Approach to Misleading Corporate Announcements, Fraud, and Rule 10b-5*, 52 ALB. L. REV. 957, 968-72 (1988). That is cold comfort to the disappointed traders in the specific case.

What the precise analytical structure should be takes us well beyond our particular focus, the role of the efficient market hypothesis as an intellectual construct in securities litigation. Understood clearly, what is important is that none of the hard questions generated under this heading are really answerable by reference to any interesting positive theory regarding market efficiency. Professors Macey and Miller have aptly described their view of the fraud-on-the-market theory as "good finance, bad economics."¹⁷² One may quibble with the first judgment they make,¹⁷³ but that judgment is largely academic. The dilemma is in their second judgment,¹⁷⁴ regarding the cost-benefit calculus. Unfortunately, in so wrapping itself in the rhetoric of finance theory that its reasoning took on the aura of intellectual inevitability, the *Basic* opinion may well have missed the point.

What happens to the fraud-on-the-market theory if we assume a noisy stock market? As noted earlier, a noisy view is consistent with either the idea that misinformation affects stock prices or, because of the apparently unexploitable character of noise, a

For active investors however, there will be, over time, a netting out of the windfalls and losses from even the most distorted markets.

For this reason, coupled with the rather high social costs associated with class action-type litigation, it may make more sense to mold liability standards in open market cases with a view toward optimal deterrence rather than toward ad hoc compensation. In terms of optimal deterrence, large dollar amount recovery, generated by the fraud-on-the-market theory for the company's existing shareholders, will often be excessive. In all likelihood, there is a threat that large recovery "over-deters" the release of information to the marketplace, chilling the release of all but the minimum issuer-specific information—especially chilling forward-looking information not required in Exchange Act filings.

Some commentators have suggested, for precisely this reason, retaining the broad class aggregation permitted by the fraud-on-the-market theory, while limiting recovery substantively to situations of true corruption by corporate managers of the sort found in classic schemes to defraud. See Karjala, *supra*, at 983-84. Others have suggested a similar limitation to situations where the fraud did not involve an attempt to protect a corporate property right. See Macey & Miller, *supra* note 139, at 1066-76. Alternatively, the damages recoverable by the broadly defined class could be limited to less than the aggregate out-of-pocket measure, as in the law of insider trading—although this would be hard to accomplish without statutory reform. See Easterbrook & Fischel, *supra*, at 642 n.44. Finally, Ian Ayres has suggested allowing corporations to opt out of a duty of truthfulness, albeit with explicit disclaimers. See Ayres, *supra* note 11, at 947-64.

¹⁷² Macey & Miller, *supra* note 139, at 1059.

¹⁷³ See *id.* at 1062 (determining that the *Basic* Court's opinion successfully applied the principles of corporate finance).

¹⁷⁴ See *id.* at 1062, 1079 (concluding that the *Basic* Court struggled unsuccessfully with simple economic principles).

rational decision to invest without trying to beat the market.¹⁷⁵ But if investors *as a group* unwisely overreact to a bit of misinformation, should the defendant therefore be held responsible to all traders? The underlying tension has long been part of securities regulation. Reckless plaintiffs cannot recover under Rule 10b-5;¹⁷⁶ we expect investors to conform to a basic model of rational behavior in which they try to make informed investment decisions or at least thoughtfully free-ride on others.

The common experience from which the behavioralists (and noise theorists) draw suggests, of course, that some segment of investors is not conforming to this model, and their behavior may be the behavior that affects the price. Once again, however, we do not know as an empirical matter how large this segment is likely to be, and for the same reasons that led to *Basic*'s reliance presumption¹⁷⁷ we cannot make the reasonableness of reliance an investor-specific issue in litigation. A noisy view of the stock markets, thus, simply strengthens the need to take careful account of the costs associated with the presumption of reliance. It would not be surprising if a court adhering to a noisy view introduced subtle restrictions to limit recovery in perceived overreaction cases. For example, such a result might be accomplished by implicitly assessing the reasonableness of reliance. Indeed, we shall see a possible example shortly.¹⁷⁸

2. Fraud's Impact on Stock Prices

Putting aside the question of who bears the burden of proof, the fraud-on-the-market theory assumes that plaintiffs recover only if, and to the extent that, the fraud distorted the market price. Although an investor who can demonstrate actual reliance of a

¹⁷⁵ See *supra* notes 49-62 and accompanying text.

¹⁷⁶ See, e.g., *Teamsters Local 282 Pension Trust Fund v. Angelos*, 762 F.2d 522, 529 (7th Cir. 1985) (acknowledging that the plaintiff might "not [be] eligible to recover if guilty of 'gross conduct'" (quoting *Sundstrand Corp. v. Sun Chem. Corp.*, 553 F.2d 1033, 1048 (7th Cir.), *cert. denied*, 434 U.S. 875 (1977))). On the other hand, there is the view that even the gullible deserve protection. See, e.g., Margaret V. Sachs, *The Relevance of Tort Law Doctrines to Rule 10b-5: Should Careless Plaintiffs Be Denied Recovery?*, 71 CORNELL L. REV. 96, 141 (1985) (concluding that "the duty of care has no proper place in Rule 10b-5 litigation. A plaintiff's carelessness should no longer bar recovery for intentional securities fraud.").

¹⁷⁷ See *Basic*, 485 U.S. at 245-47 (stating that Congress relied on the premise that securities markets are affected by misinformation when it enacted legislation to facilitate an investor's reliance on the integrity of the markets).

¹⁷⁸ See *infra* text accompanying note 195.

nonreckless sort in a case under Rule 10b-5 does not in theory lose her claim simply because other investors knew the truth,¹⁷⁹ the fraud-on-the-market presumption properly shifts the inquiry to whether the market as a whole was fooled. Moreover, this same factual inquiry is present even beyond cases of presumed reliance.

Under the rubric of loss causation, plaintiffs in Rule 10b-5 actions generally have the burden of showing that the fraud led to the damages alleged. Specifically, plaintiffs must show that discovery of the misstatement or omission, not some extraneous factor, was the proximate cause of the subsequent drop in price in a defrauded buyer's case.¹⁸⁰ If the market was not fooled by the fraud, any price movement after discovery or correction would by definition be attributable to other factors. This concept, moreover, is effectively built into the standard measure of damages in an open-market fraud case—the out-of-pocket measure, which allows the plaintiff to recover the difference between the transaction price and the “value” it would have had on that date had the truth been known.¹⁸¹

At this point litigants frequently invoke the efficient market hypothesis to establish or negate the causal relationship between the fraud and the market price. The case law on this interesting issue is sparse, however, because of the tendency of litigants to settle

¹⁷⁹ Cf. *In re Apple Computer Sec. Litig.*, 886 F.2d 1109, 1116 (9th Cir. 1989) (holding that “[i]n order to avoid Rule 10b-5 liability, any material information [not disclosed] must be transmitted to the public with a degree of intensity and credibility sufficient to effectively counterbalance any misleading impression”), *cert. denied*, 110 S. Ct. 3229 (1990). Such a plaintiff might have difficulty showing loss causation, however.

¹⁸⁰ See, e.g., *Bastian v. Petren Resources Co.*, 892 F.2d 680, 685 (7th Cir.) (holding that “the plaintiff must allege and prove that, but for the defendant’s wrongdoing, the plaintiff would not have incurred the harm”), *cert. denied*, 110 S. Ct. 2590 (1990); Theresa A. Gabaldon, *Causation, Courts, and Congress: A Study of Contradiction in the Federal Securities Laws*, 31 B.C. L. REV. 1027, 1034 (1990) (“The plaintiff usually must introduce evidence from which reasonable persons might conclude that . . . the injury in question was caused by defendant’s conduct . . .”); Andrew L. Merritt, *A Consistent Model of Loss Causation in Securities Fraud Litigation: Suiting the Remedy to the Wrong*, 66 TEX. L. REV. 469, 516 (1988) (noting that “most courts place the burden of establishing loss causation on the plaintiff”).

¹⁸¹ See, e.g., *Green v. Occidental Petroleum Corp.*, 541 F.2d 1335, 1346 (9th Cir. 1976) (Sneed, J., concurring) (maintaining that purchasers “who disposed of their stock after disclosure are entitled to recover the difference between the price and value of the stock on the date of their purchase even [if] they ultimately sold the stock for more than they paid”); Easterbrook & Fischel, *supra* note 171, at 651 (noting that adjustments for market changes result in “conventional out-of-pocket-loss measures”).

before this stage of the proceeding.¹⁸² Furthermore, the efficiency reasoning that aids plaintiffs in gaining class certification turns upon them and bites them at this stage. There are effectively two types of cases dealing with this issue.

a. *The Partially Informed Market*

The first type of case concerns fraud that is arguably palpable, such as cases where there is evidence that a significant number of investors either knew the truth or were skeptical about the allegedly misleading statements. In *In re Apple Computer Securities Litigation*,¹⁸³ for example, summary judgment was granted for the defendant on most issues upon the largely uncontradicted showing that financial analysts and the financial press were widely discounting Apple's excessive public optimism about two of its new products.¹⁸⁴ This showing thus negated any price impact, even though some investors may have been fooled.¹⁸⁵ Although the *Apple* court—and many commentators¹⁸⁶—viewed this reasoning as a largely noncontroversial extension of the fraud-on-the-market theory, it in fact deals with a very different phenomenon and potentially makes a far stronger efficiency claim. The *Basic* decision, as we have seen, is premised on the simple idea that misinformation affects stock prices.¹⁸⁷ The *Apple* court's opinion, on the other hand, seems to say that the truth will necessarily prevent misinformation from having any such effect, simply by virtue of its availability. This presumably rests on the belief that smart-money arbitrage will operate to counter the influence of any gullible investors.

¹⁸² See Cornell & Morgan, *supra* note 136, at 884.

¹⁸³ 886 F.2d 1109 (9th Cir. 1989), *cert. denied*, 110 S. Ct. 3229 (1990). For similar dispositions, see *In re Convergent Technologies Securities Litigation*, 721 F. Supp. 1133 (N.D. Cal. 1988), *aff'd*, Fed. Sec. L. Rep. (CCH) ¶ 96,211, at 91,109 (9th Cir. Aug. 27, 1991), and *In re LTV Securities Litigation*, 88 F.R.D. 134, 148 (N.D. Tex. 1980).

¹⁸⁴ See *Apple*, 886 F.2d at 1118-19.

¹⁸⁵ See *id.* at 1116. The court noted over 20 publicly available articles in the financial press that stressed the risks Apple was taking with the Lisa computer and the underlying problems flowing from those risks. It rejected plaintiffs' claim that, because a significant price movement in Apple stock occurred immediately after the fraud, a triable issue was necessarily presented. See *id.*

¹⁸⁶ See, e.g., Cornell & Morgan, *supra* note 136, at 920-21 (asserting that the *Apple* court correctly applied the fraud-on-the-market theory).

¹⁸⁷ See *supra* note 142, 177.

Following the efficiency hypothesis, this reasoning is clearly correct, and the *Apple* decision thus seems to make a fairly strong claim about market efficiency. Certainly, the court's opinion contains aggressive rhetoric:

Where both [false-good and accurate-bad news] are transmitted to the market with roughly equal intensity and credibility, the market will receive complete and accurate information. Informed investors will invest in light of an accurate appreciation of the relevant risks. Those investors who know only of the Chairman's optimism may overvalue Apple stock However, it is a basic assumption of the securities laws that the partially-informed investors will cancel each other out, and that Apple's stock price will accurately reflect all relevant information [T]he market . . . will not be misled.¹⁸⁸

This sort of reasoning must be used with care, especially in summary judgment settings. Much of recent noise theory argues that there can be a contrived run-up in the price of a stock based on hopes and illusions that the smart money either waits out or joins.¹⁸⁹ The mere fact that a critical mass of smart money is not fooled will not necessarily prevent the stock price from being influenced by fraud.

On careful inspection, however, it seems that the court in *Apple* is not nearly as aggressive as it appears at first glance. Most importantly, the *Apple* court's decision requires that the truthful information be available to the market "with roughly equal intensity,"¹⁹⁰ something that is irrelevant under classical efficiency reasoning.¹⁹¹ Classical theory states that truthful information will be impounded simply if it is publicly available. The intensity qualifier is, if anything, more consistent with a noise perspective in which information must compete with misinformation.

For fraud to have an impact notwithstanding contrary public information, we would expect to find visible evidence of widespread "optimism"¹⁹² to support the speculative bubble. Press coverage that is decidedly negative indicates—although it does not prove—the contrary. In the *Apple* scenario, it is *probable* that the price impact of the professionally disbelieved optimism was nil. The court's

¹⁸⁸ *Apple*, 886 F.2d at 1114 (footnote omitted).

¹⁸⁹ See *supra* text accompanying notes 60-62.

¹⁹⁰ *Apple*, 886 F.2d at 1114.

¹⁹¹ See generally *supra* notes 34-45 and accompanying text.

¹⁹² "Optimism," in the context of this discussion, refers to those enthusiastic pseudo-signals disseminated by a corporation for public consumption.

decision, then, is methodologically troublesome only to the extent that it is read to turn what will sometimes be a subtle factual inquiry into a matter of routine summary judgment.¹⁹³

There may be more to *Apple* than that, however; quite apart from its descriptive methodology, the case can also be read as having a normative dimension. If we believe that information discounting Apple's enthusiasm for its new products was readily available to the public, we might well ask whether Apple's optimism should have affected the stock's price, regardless of whether it actually had any effect. It may well be, as was suggested earlier,¹⁹⁴ that a court inclined to take a noisy view of the stock markets will somehow seek to control liability excesses of the fraud-on-the-market theory by implicitly questioning the reasonableness of the reliance in cases like *Apple*. Whether the *Apple* court sought to do this is not clear, but its decision certainly did have that effect.¹⁹⁵

¹⁹³ For an example of a court's refusal to accept the general availability of information as precluding plaintiffs' fraud-on-the-market claim, see *In re Western Union Securities Litigation*, 120 F.R.D. 629 (D.N.J. 1988). This decision has been criticized by Cornell & Morgan, who argue that the court did not seem to fully understand the implications of the fraud-on-the-market theory. See Cornell & Morgan, *supra* note 136, at 921-23.

¹⁹⁴ See *supra* notes 175-78 and accompanying text.

¹⁹⁵ For a case clearly questioning whether an open-market trader is entitled to ignore publicly available information, see *Teamsters Local 282 Pension Trust Fund v. Angelos*, 762 F.2d 522, 530 (7th Cir. 1985) ("The investor cannot ask a court to focus on the lie and ignore the remaining pieces of information already available to him (or, in the case of a publicly traded security, already available to others and reflected in the price of the security)."). Another subtle means of getting to the same point is to use the concept of materiality and engraft onto it the idea that information is not material if the total mix of available information already contains the truth. See Roger J. Dennis, *Materiality and the Efficient Capital Market Model: A Recipe for the Total Mix*, 25 WM. & MARY L. REV. 373, 374-86 (1984) (comparing concepts of materiality with the treatment of materiality in the efficient market model). To the extent that the efficiency hypothesis is not descriptively accurate, this account loses its persuasive effect. Even so, it is normatively appealing.

Dennis's article also examines another setting where the efficiency hypothesis has an impact: proxy fraud litigation. See *id.* at 386-411. Although the collective action nature of shareholder voting precludes efficiency from being a direct check for fraud, an examination of market price movements in response to an allegedly tainted vote may indicate either the absence of materiality or the absence of financial harm. See, e.g., *Mills v. Electric Auto-Lite Co.*, 552 F.2d 1239, 1247 (7th Cir.) (holding that "when market value is available and reliable, other factors should not be utilized in determining [fairness]"), *cert. denied*, 434 U.S. 922 (1978); Simon M. Lorne, *A Reappraisal of Fair Shares in Controlled Mergers*, 126 U. PA. L. REV. 955, 965-70 (1978) (analyzing *Mills* and the confusion inherent in the decision); see also *Seaboard World Airlines v. Tiger Int'l, Inc.*, 600 F.2d 355, 363 (2d Cir. 1979) (finding the value of

In much the same genre as the *Apple* decision is Judge Easterbrook's opinion in *Wielgos v. Commonwealth Edison Co.*,¹⁹⁶ which produced the bit of hyperbole that began this Article: that the SEC "believes that markets correctly value the securities of well-followed firms."¹⁹⁷

In *Wielgos*, an investor brought a class action suit on the part of purchasers of stock in a public offering by Commonwealth Edison registered for the shelf on Form S-3. The plaintiffs alleged that the defendant substantially overstated in its filings the expected speed with which certain nuclear plants would be up and running with Nuclear Regulatory Commission approval. In fact, it took much longer for the plants to begin operation, and thus cost the company much more money. Since the case was brought under section 11 of the Securities Act,¹⁹⁸ reliance was presumed conclusively not to be an issue; hence the fraud-on-the-market theory was not at issue. Instead, Commonwealth Edison's principal defense was that its projection was not unreasonable, and hence within the safe harbor of SEC Rule 175.¹⁹⁹

Affirming a grant of summary judgment for the defense (and citing the *Apple* decision), Judge Easterbrook wrote essentially that although the assumptions on which the projection was based were plainly unrealistic, market professionals, at least, knew it.²⁰⁰ Thus (and we should pause at this leap in reasoning), the projection was not without a reasonable basis.

Though curious in analytical structure, *Wielgos* produces the right result *if* (as Judge Easterbrook suspected) the market was not fooled. Any post-correction drop in the price of Commonwealth Edison's stock would have been unrelated to the misleading projection, reducing damages to zero pursuant to section 11(e).²⁰¹

stock a circumstance relevant in determining the materiality of the allegedly misleading statement).

¹⁹⁶ 892 F.2d 509 (7th Cir. 1989).

¹⁹⁷ *Id.* at 510.

¹⁹⁸ See *id.* at 511-12 (claiming that issuer and underwriters, by underestimating the completion costs and failing to reveal that application was made for a license, violated section 11).

¹⁹⁹ See 17 C.F.R. § 230.175 (1991) (detailing issuers' liability for certain statements); *Wielgos*, 892 F.2d at 512-13.

²⁰⁰ See *id.*

²⁰¹ See Securities Act of 1933, Pub. L. No. 73-22, § 11(e), 48 Stat. 74 (1933) (codified as amended at 15 U.S.C. § 77k(e) (1988)). See generally *Akerman v. Oryx Comm., Inc.*, 810 F.2d 336, 341-43 (2d Cir. 1987) (noting that the section 11(e) formula for calculating damages is "the difference between the amount paid for the security (not exceeding the price at which the security was offered to the public) and

In this sense, the interesting question is the same as that posed in *Apple*: if we shift to a noisy stock market perspective, is there anything to lead us to expect, notwithstanding the smart money's alleged appreciation of the foolishness of Commonwealth Edison's projection, that enough other investors might have responded irrationally to this information in a way that affected the stock's price?²⁰²

b. *Measuring the Impact of Fraud*

The second kind of case is where the fraud is effectively concealed, leaving no question of whether the market was fooled, but rather poses the question of how much the market was fooled. Take, for instance, a case where a bank holding company misstates some accounting data—miscalculating a loan-loss reserve, for example. A few months later, a newspaper does a story about the bank, prompting the filing of a corrective disclosure on Form 8-K a few weeks later. For a few days after the story, the stock price drops, and it does so again immediately after the filing. Although instinctively the price drop seems related to the disclosure, one in fact must rule out various other issuer-specific, industry-specific, and market-wide factors that might independently exert a downward influence on the price.

Finance theory has led to the creation of a number of statistical tests to assist in this calculation.²⁰³ One is to create a comparable

... the value thereof as of the time such suit was brought" (citation omitted)).

²⁰² The *Wielgos* opinion does not set forth in detail the evidence one way or another. There is substantial indication that Judge Easterbrook would defend this "truth on the market" theory on normative as well as descriptive grounds. He is the author of numerous opinions that suggest that plaintiffs should be charged with having knowledge of all available information. See, e.g., *Teamsters Local 282 Pension Trust Fund v. Angelos*, 762 F.2d 522, 530 (7th Cir. 1985) ("The investor cannot ask a court to focus on the lie and ignore the remaining pieces of information already available to him (or, in the case of the publicly traded security, already available to others and reflected in the price of the security.)").

²⁰³ The discussion of methodology that follows is taken largely from Cornell & Morgan, *supra* note 136, at 897-911. For an illustration of how this methodology might be applied in the *Basic* case itself, see Janine S. Hiller & Stephen P. Ferris, *Use of Economic Analysis in Fraud on the Market Cases*, 38 CLEV. ST. L. REV. 535, 550-57 (1990). For other examples from the literature, see Jared Tobin Finkelstein, *Rule 10b-5 Damage Computation: Application of Financial Theory to Determine Net Economic Loss*, 51 FORD. L. REV. 838, 850-58 (1983); Fischel, *supra* note 9 at 17-19; Philip J. Leas, *The Measure of Damages in Rule 10b-5 Cases Involving Actively Traded Securities*, 26 STAN. L. REV. 371, 371-85 (1974); Macey et al., *supra* note 11, at 1028-49. A difficult problem in these calculations arises when courts are forced to deal with situations where it is

index—a hypothetical proxy for the firm in question—that estimates the returns on the security had there been no fraud. This is done by calculating backwards from the disclosure date based on observed pre-fraud correlations between the returns on the stock in question and those of its industry and the market as a whole (the familiar *beta* measure in modern portfolio theory).²⁰⁴ Another is an event-study approach, which assumes that price and value are identical except on days when fraud-related information has been disclosed; for those days, a prediction of the sort made above is substituted. Once again, the value line is then calculated backwards in time from the date of disclosure.²⁰⁵

Although similar, these two methods can produce different results. The comparable-index approach is easily biased toward overcompensation, since it attributes to the fraud all declines not explainable by reference to industry and market factors. Other negative information about the firm could easily have entered the market as well, especially if there is a long time-lag between the fraud and the correction.²⁰⁶ In contrast, the event-study approach tends toward undercompensation to the extent that the market frequently figures out some or all of the truth prior to the corrective disclosure.²⁰⁷

Still, both approaches are firmly and explicitly grounded in assumptions generated by the efficient market hypothesis. Both posit that issuer stock-price movements can be related in a definable way to industry- and market-price movements, and that the value line converges with price upon full disclosure.²⁰⁸ In theory, both tests become weaker in their explanatory power if one adopts a noisy view of the stock markets.

Pragmatically, however, there may be little reason for concern. Whatever their artificiality as formal expositions, no one has yet suggested a better way to assess intrinsic value;²⁰⁹ the alternatives,

unclear when the truth entered the market.

²⁰⁴ See Cornell & Morgan, *supra* note 136, at 897-98.

²⁰⁵ See *id.* at 899-900.

²⁰⁶ See Cornell & Morgan, *supra* note 136, at 903.

²⁰⁷ See *id.* at 905-06. In addition, of course, both techniques will give rise to substantial disputes about what figures to use in the calculations. The judgmental elements remain substantial.

²⁰⁸ See *id.* at 906-11.

²⁰⁹ See *supra* text accompanying note 64. This emphasis on the best available measure is also found in Macey et al., *supra* note 11, at 1042-49. There is, of course, the possibility that alternative models will evolve. For instance, the tendency of stock prices to revert to mean suggests that some sort of curve smoothing approach to

such as reliance on expert valuations, are no more determinate or realistic. In fact, stripped of their rigor, these models bear a strong resemblance to extrapolation methodologies that have long been used to measure damages under conditions of uncertainty in fields such as contract law. There is no reason to expect that in situations where both parties choose their particular models outcomes will be skewed systematically in favor of plaintiffs or defendants. Hence, in a rough sense, their application by a judge or jury will be as fair as alternative solutions. Furthermore, since most damage/loss causation issues are resolved by settlement rather than adjudication, reference to this methodology may sufficiently orient the negotiations in an objective—although potentially artificial—fashion so that bargaining is facilitated. As Professors Morgan and Cornell have said, “[i]f the litigants’ debate can be reduced to the question of how to measure the market portfolio or how to estimate Beta, settlement is probably near.”²¹⁰

3. Again, Why Efficiency?

The foregoing analysis suggests that the courts’ use of the efficient market hypothesis is somewhat stronger than the SEC’s use, although there is some element of window-dressing here as well, especially in the fraud-on-the-market theory. It is thus worth asking why, apart from arguably excessive confidence in its certainty, the courts have so completely embraced this hypothesis.

Many of the same possibilities considered with respect to the SEC bear repetition here. The academic influence, the tendency toward advocacy, and even the political dimension are plausible.²¹¹ But cases like *Apple* and *Wielgos* raise another consideration. In many ways, noise theory taken seriously is a doctrinally threatening and disruptive idea. The dogma of securities regulation has long assumed that markets will take on a fair and orderly character so long as lies are not effectively concealed. Its dominant image is of the reasonable (if not hyper-rational) investor who is simply in need of a little regulatory assistance to make thoughtful

long-term valuation may be appropriate.

²¹⁰ Cornell & Morgan, *supra* note 136, at 888 n.16; see also *id.* at 911-12.

²¹¹ See, e.g., Scott Altman, *Beyond Candor*, 89 MICH. L. REV. 296, 303-07 (1990) (discussing the psychology of self-fulfilling beliefs in judicial decisionmaking); Nicholas S. Zeppos, *Judicial Candor and Statutory Interpretation*, 78 GEO. L.J. 353, 358-59, 412-13 (1989) (examining critically the theories that argue for abandoning originalism in statutory interpretation and adopting judicial candor in its place).

trading decisions on the basis of presented information. The contrasting image of the investor bound up in a web of cognitive illusions and processing deficiencies, with little appetite for the truth, offers the discouraging possibility that many traditional strategies of investor protection may not be worth the cost. The efficiency hypothesis and noise theory, when stated in the extreme, lead to similar end points: forms of regulation that are seen as either unnecessary burdens or quixotic waste.²¹²

In this light, efficiency thinking to the courts may not be so appealing because it is descriptively persuasive, but because it is a preferable normative vision, better in keeping with the fundamentally rationalist worldview that has animated regulatory theory—publicly, at least—since its inception.²¹³ People may not be rational investors, but they should be. The temptation to mold the doctrine in the image of the ideal is strong, especially if the implications of reality are more intellectually chaotic than we are comfortable to admit.

III. CONCLUSION: THE EFFICIENCY HEURISTIC AND THE SCHOLAR'S GAMBLE

Our study of the impact of the efficient market hypothesis on securities regulation may be surprising given the common perception of its significance. The efficiency hypothesis is embedded in regulation, but as often as not it is as facade rather than as structure. Frequently, it is used to make the largely uncontroversial point that the securities markets respond quickly to information, true or false, informally disseminated or contained in filings. The principal regulatory initiatives cited as efficiency-based—the integrated disclosure effort, Rule 415, and the fraud-on-the-market theory—fall into this category. Strong claims about efficiency are neither necessary nor sufficient to legitimize them; each has virtues that would be plain under any realistic theory about how markets

²¹² See Homer Kripke, *The SEC, the Accountants, Some Myths and Some Realities*, 45 N.Y.U. L. REV. 1151, 1164-70 (1970) (arguing that complex disclosure documents confuse investors and that for intelligent investors to become informed they must obtain information second-hand, via professionals).

²¹³ As noted earlier, there are large portions of securities regulation that even strong believers in market efficiency would support, with some possible modifications, such as a system of mandatory disclosure as a form of public good. See *supra* note 76 and accompanying text.

operate. Greater acceptance of noise as a significant market phenomenon would not be cause to reject them.

That makes the ultimate question posed at the outset of part II—what posture should the law adopt in light of the new-found ambiguity—somewhat easier, since there is less to rethink. Properly understood, efficiency remains a useful heuristic, an analytical structure for thinking about markets. Claims in legal proceedings that are inconsistent with efficiency theory (in *Apple*-type cases, for example) should be scrutinized carefully in light of the theory's teachings to test for their plausibility. Beyond that, however, they should not operate preclusively.²¹⁴ Claimants should be permitted to base factual arguments on the assumption that markets are noisy, and legal theories should be sufficiently agnostic regarding stock price behavior so as not to preclude the noisy view unless some independent normative grounds exist for doing so.²¹⁵ With respect to measuring damages, continued use of efficiency-based models can be justified on pragmatic grounds unless and until some alternative valuation model evolves.

The only real cause for concern in the current state of securities regulation is rhetorical.²¹⁶ Whatever the substantive or political motivations, statements regarding efficiency in the process of policy formulation are frequently stronger and less careful than they should be. The danger is that a new wave of SEC and judicial policy

²¹⁴ Some scholars heavily influenced by economic thinking have suggested, by reference to something like an intellectual version of the child's game "king of the hill," that it "takes a theory to beat a theory." See Fischel, *supra* note 147, at 915. For this reason alone the efficiency hypothesis should continue to drive legal thinking until the behavioralists come up with a formal, validated model of their own. See Fred S. McChesney, *Assumptions, Empirical Evidence and Social Science Method*, 96 YALE L.J. 339, 341 (1986) (arguing that no alternative hypothesis or test has been forwarded rejecting an efficiency model). With respect to the efficiency hypothesis, at least, this depends on the assumption that the testing of the hypothesis has given it sufficient support to deserve prima facie validity. That, of course, is a controversial assumption. The idea that law must be based on the best-tested social scientific theory, no matter what the level of doubt accompanying it (or that no form of regulation should exist unless based on a scientifically validated theory), employs a method of legal reasoning that is hardly mainstream and is exceedingly political.

²¹⁵ Denying recovery to plaintiffs in fraud-on-the-market cases where there might have been a noisy response to certain false signals, notwithstanding the public availability of accurate information, may represent such a case. See *supra* text accompanying note 194.

²¹⁶ On the rhetorical significance of economic-type arguments, see Donald N. McCloskey, *The Consequences of Rhetoric*, in *THE CONSEQUENCES OF ECONOMIC RHETORIC* 280, 283-92 (Arjo Klammer et al. eds., 1988); Donald N. McCloskey, *The Rhetoric of Law and Economics*, 86 MICH. L. REV. 752, 752-67 (1988).

making may thoughtlessly reify this rhetoric, in areas such as the regulation of takeovers or the role of shareholder monitoring.

Whether this happens will depend partly on the community of academic legal scholars who operate as the primary filtration mechanism for research in economics and finance. As was noted at the outset, the efficiency hypothesis is firmly entrenched in the mainstream legal literature.²¹⁷ There have been occasional critiques, such as Reinier Kraakman's explicit use of noise theory to caution against too much certainty one way or another in choosing the proper regulatory posture toward takeovers.²¹⁸ On balance, however, the best scholarship in corporate and securities law has yet to venture very far from the orthodoxy of efficient markets, a contrast to the noticeable diversity in the contemporary economics literature from which it supposedly derives.

Even more surprising, perhaps, is the equally noticeable reluctance of corporate/securities scholars to make any serious use of the behavioral literature on decision-making under uncertainty. While this literature has made a substantial impact in other legal fields—Robert Ellickson has gone so far as to suggest that legal scholarship is on the verge of a generic shift from the influence of economics to the influence of the behavioral sciences²¹⁹—it is rarely mentioned in the corporate subspecialty. When it is, it is usually footnote material.²²⁰ Yet the relevance of behavioral

²¹⁷ See *supra* note 2-6 and accompanying text.

²¹⁸ See Kraakman, *supra* note 11. Earlier, Louis Lowenstein invoked the teachings of some of the noise theorists in his critique of the pro-takeover movement. See Louis Lowenstein, *Pruning Deadwood in Hostile Takeovers: A Proposal for Legislation*, 83 COLUM. L. REV. 249 (1983).

²¹⁹ See Robert C. Ellickson, *Bringing Culture and Human Frailty to Rational Actors: A Critique of Classical Law and Economics*, 65 CHI.-KENT L. REV. 23, 35-55 (1989). For representative uses in other fields, see, e.g., William N. Eskridge, Jr., *One Hundred Years of Ineptitude: The Need for Mortgage Rules Consonant With the Economic and Psychological Dynamics of the Home Sale and Loan Transaction*, 70 VA. L. REV. 1083, 1112-18 (1984) (noting that the homebuyer is not a wealth-maximizing decision-maker, but rather an imperfect shopper and suboptimal decision-maker); Thomas H. Jackson, *The Fresh-Start Policy in Bankruptcy Law*, 98 HARV. L. REV. 1393, 1410-14 (1985) (discussing the problem of "incomplete heuristics," which may lead an individual to favor present consumption despite a different set of long-term desires and goals); Roger G. Noll & James E. Krier, *Some Implications of Cognitive Psychology for Risk Regulation*, 19 J. LEG. STUD. 747, 760-79 (1990) (considering some of the implications of the cognitive theory for regulatory policies designed to control risks to life, health, and the environment). See generally Matthew L. Spitzer, *Comment on Noll and Krier, "Some Implications of Cognitive Psychology for Risk Regulation,"* 19 J. LEG. STUD. 801 (1990) (discussing the usefulness of cognitive theory in legal analysis).

²²⁰ A conventional statement of the reasons why it is not directly relevant to

literature to questions of business organization and finance is palpable, and we have seen that economists have been making use of it in the enterprise setting for at least five or six years.²²¹

A good example is the debate that produced some of the best recent writing in this area: the one share-one vote controversy about whether the law should allow shareholders to authorize disparate voting structures that effectively separate the financial and voting interests in a firm's ownership structure.²²² The controver-

corporate law can be found in Romano, *supra* note 38, at 324-27. For some of the more recent uses, however, see, e.g., Victor Brudney, *Corporate Governance, Agency Costs, and the Rhetoric of Contract*, 85 COLUM. L. REV. 1403, 1418 n.35 (1985) (noting that the operation of assorted heuristics and biases tend to leave individuals with illusions of control over future contingencies); John C. Coffee, Jr., *Shareholders Versus Managers: The Strain in the Corporate Web*, 85 MICH. L. REV. 1, 60-73 (1986) (discussing the problem of risk for shareholders, employees, and the state in the corporate setting); Melvin A. Eisenberg, *The Structure of Corporation Law*, 89 COLUM. L. REV. 1461, 1465 (1989) (asserting that corporations by their nature involve a form of activity in which uncertainty plays a vital role); Henry T.C. Hu, *Risk, Time, and Fiduciary Principles in Corporate Investment*, 38 UCLA L. REV. 277, 330 (1990) (noting the "prospect theory" model, which entails that real people are risk-averse in choices involving gains and are risk-seeking in choices involving losses). Although they do not draw heavily on the cognitive-illusion literature, Cox & Munsinger make very significant use of materials from social psychology. See James D. Cox & Harry L. Munsinger, *Bias in the Boardroom: Psychological Foundations and Legal Implications of Corporate Cohesion*, 48 LAW & CONTEMP. PROBS. 83, 85-108 (1985) (discussing the social and psychological causes of board of directors' bias). By contrast, evidence of social psychology's minimal influence can be found rather dramatically in reviewing the proceedings of a Columbia Law School conference debating the contractual view of corporate law. See Lucian A. Bebchuk, *The Debate on Contractual Freedom in Corporate Law*, 89 COLUM. L. REV. 1395 (1989) (introducing the conference papers). Apart from brief mention in Mel Eisenberg's contribution, *supra*, there is no reference to the behavioral literature. Even scholars not traditionally associated with law and economics sometimes make fairly strong claims about rationality and market efficiency. See, e.g., Elliott J. Weiss & Lawrence J. White, *Of Econometrics and Indeterminacy: A Study of Investors' Reactions to "Changes" in Corporate Law*, 75 CAL. L. REV. 551, 589-90 (1987) (discussing the limits of the market model).

²²¹ See *supra* notes 46-67 and accompanying text.

²²² For articles opposing the disparate-voting-structure proposal, see Lucian A. Bebchuk, *Limiting Contractual Freedom in Corporate Law: The Desirable Constraints on Charter Amendments*, 102 HARV. L. REV. 1820, 1848-60 (1989) (discussing the desirable limits on and the optimal corporate arrangement for permitting opting-out in midstream); Ronald J. Gilson, *Evaluating Dual Class Common Stock: The Relevance of Substitutes*, 73 VA. L. REV. 807, 815-44 (1987) (noting that wealth impact of dual-class recapitalization can be tested by comparing premiums paid in management buy-outs); Jeffrey N. Gordon, *Ties That Bind: Dual Class Common Stock and the Problem of Shareholder Choice*, 76 CAL. L. REV. 1, 39-42 (1988) (contending that shareholder approval of a dual-class common recapitalization does not necessarily support a belief that those actions increase shareholder wealth). The conventional pro-choice law and economics view is expressed best in Daniel R. Fischel, *Organized Exchanges and the Regulation of Dual Class Common Stock*, 54 U. CHI. L. REV. 119, 133-48 (1987)

sy was vigorously mooted, with those taking the negative point-of-view raising questions about the adequacy of information and the collective action problems that can lead to distorted choices.²²³ Yet even this view was rationalist at heart. No one considered in any detail whether there were influences in the way that information is perceived and processed that might distort shareholder choice.

Why has the behavioralist critique had so little influence? One possibility is lack of familiarity. But that is becoming less and less plausible given its prominent display in the economics journals and the speed with which other novel developments in economic theory move into the legal arena. More likely, there are deeper explanations.

By all accounts, the integration of economics and finance theory into corporate law during the late 1970s and early 1980s brought it to the forefront of quality legal scholarship generally.²²⁴ The use

(discussing the economics of shareholder voting and the criteria that determine whether a rule of one share, one vote or dual classes is optimal for a particular firm).

From the economist's perspective, see Sanford J. Grossman & Oliver D. Hart, *One Share-One Vote and the Market for Corporate Control*, 20 J. FIN. ECON. 175, 182-95 (1988) (setting forth an economic model to analyze some of the forces that make it desirable to set up a corporation so that all securities possess voting strength in proportion to the claim to income). Ian Ayres's thoughtful article on the fraud-on-the-market theory, see Ayres, *supra* note 11, is an example of an expression of concern about at least fundamental value market efficiency, while at the same time working with a rationalist regime in advocating an opt-out approach to the duty of truthfulness.

²²³ This view was cited by the SEC in its adoption of Rule 19c-4, 17 C.F.R. § 240.19c-4 (1990), which prohibited most forms of mid-stream recapitalization that had the effect of disproportionately reducing shareholder voting power. The rule was later struck down by the D.C. Circuit. See *Business Roundtable v. SEC*, 905 F.2d 406, 417 (D.C. Cir. 1990). For articles supporting this view, see *supra* note 222.

In many ways, Rule 19c-4 was an implicit Commission endorsement of investor rationality, if not the efficiency hypothesis. This was evidenced by its willingness to allow disparate voting rights in initial public offerings based on the assumption that the absence of voting rights would be fairly priced, a choice supported by Gilson, *supra* note 222, at 808-09. But see Louis Lowenstein, *Shareholder Voting Rights: A Response to SEC Rule 19c-4 and to Professor Gilson*, 89 COLUM. L. REV. 979, 985-1014 (1989) (criticizing SEC Rule 19c-4 and arguing that the SEC should not permit the sale of voting rights).

²²⁴ In its first stages, the use of economics was particularly effective in its critical capacity to generate unexpected insights and to force more traditional scholars to seek to explain or negate these possibilities—forcing a far greater rigor on the field. This highly mathematical use of economic theory does not depend heavily on the reality of the underlying assumptions, since it does not itself purport to offer a positive normative position. See Jason S. Johnston, *Law, Economics, and Post-Realist Explanation*, 24 L. & SOC'Y REV. 1217, 1232 (1990). Nothing here is meant to be critical of the use of a rationalist paradigm in making legal arguments, as long as it is used carefully.

of simple models to predict behavior allowed legal scholars to make bold, unambiguous claims that often challenged long-standing convention. Issues about how firms are organized and financed could fruitfully be reconceptualized, sometimes radically. Perhaps most significantly, efficient market assumptions allowed scholars to use the event study to provide prompt feedback regarding the wealth-shift consequences of various forms of regulation.²²⁵ With this evolution came apparent, and sometimes even real, influence and a new intellectual hierarchy.²²⁶

Both the behavioralist critique and noise theory call into question some of the first principles underlying these models.⁴ As in lengthy, arduous negotiations so familiar to business lawyers where one party suddenly suggests a return to square one, such suggestions are rarely greeted kindly. In the preface to the second edition of his book on scientific revolutions referred to earlier, Thomas Kuhn noted that academic specialties form "invisible colleges," essential to the dissemination of knowledge, but also imposing a discipline on appropriate modes of thinking; a discipline that grows increasingly certain and conservative over time.²²⁷ The

²²⁵ See generally Stephen J. Brown & Jerold B. Warner, *Using Daily Stock Returns: The Case of Event Studies*, 14 J. FIN. ECON. 3 (1985) (examining the properties of daily stock returns and how characteristics of these data affect event study methodologies for assessing share price impact); G. William Schwert, *Using Financial Data to Measure Effects of Regulation*, 24 J.L. & ECON. 121, 121 (1981) (noting that positive analysis of government regulation concentrates on the "wealth effects" of regulation). For illustrations of the pervasive character of reliance on event studies, see the various articles on the one-share/one-vote controversy cited *supra* note 222. The tendency to over-rely on event studies regarding non-firm-specific information has been criticized by at least one commentator. See Merritt B. Fox, *The Role of the Market Model in Corporate Law Analysis*, 76 CAL. L. REV. 1015, 1015-18, 1041-46 (1988); see also Gibbons, *supra* note 44, at 37-38 (questioning the reliability of event study methodologies in the area of regulation economics).

²²⁶ Early on, at least, the influence of the new elite in corporate law scholarship was enhanced by high barriers to entry; relatively few legal academics or practitioners had the expertise in economics and finance to operate as effective filters. Cf. Ian Ayres, *Playing Games With the Law*, 42 STAN. L. REV. 1291, 1295-1310 (1990) (book review) (describing a similar phenomenon with respect to game theory in legal settings).

²²⁷ KUHN, *supra* note 30, at 176; see DIANE CRANE, *INVISIBLE COLLEGES: DIFFUSION OF KNOWLEDGE IN SCIENTIFIC COMMUNITIES* 22-40 (1972). Kuhn also emphasizes a tendency for models to move toward simplicity and abstraction as they grow older with a consequent loss of realism. See KUHN, *supra* note 30, at 155-56; see also Robert C. Clark, *Contracts, Elites, and Traditions in the Making of Corporate Law*, 89 COLUM. L. REV. 1703, 1735-36 (1989) (noting the possibility of persistent social illusions with reference to corporate law). The tendency toward theoretical simplicity in the biomedical sciences—with its risks to investors induced to buy into start-up companies

interesting question, echoing a long-standing concern among psychologists in similar instances, is whether the efficiency paradigm is a persistent heuristic because of its descriptive accuracy, or simply because legal scholars desperately want it to be accurate.

The behavioralist critique is unappealing in many ways. As Shiller has noted, it is hard to model a partially rational person in a way that generates testable predictions.²²⁸ Accepting the critique does not often lead to grand theories or confident assertions about optimal legal structures. It is largely descriptive in nature, not simple, or rigorous, or aesthetically elegant.²²⁹ Its conclusions point mildly to the possibility that quasi-paternalistic regulatory intervention might be desirable in a number of settings but then immediately create doubts about the efficacy of the traditional legal strategies that might be used,²³⁰ thereby raising unpleasant recollections of the highly impressionistic, polemical style of corporate law scholarship that once predominated.

Nor can we ignore the political dimension. Strong claims of market efficiency and investor rationality usually carry with them an endorsement of the *laissez faire*.²³¹ We also noted earlier that

whose work is based largely on theory—is examined in TEITELMAN, *supra* note 4, at 200-09.

²²⁸ See SHILLER, MARKET VOLATILITY, *supra* note 49, at 435. This is really a comparative point. Kahneman and Tversky, for instance, have developed a concept called "prospect theory" regarding decisions under uncertainty, and that theory can be used as the basis for making interesting behavioral claims. See Kahneman & Tversky, *supra* note 19, at 160-62, 173; see also Noll & Krier, *supra* note 219 (building a model of the political demand for risk regulation using prospect theory). Compared to the rationalist paradigm, however, theories of suboptimal behavior create greater ambiguity regarding the actions of large groups (such as investors in markets).

²²⁹ Aesthetics may play a role in determining what academics value. See Mark Kelman, *Spitzer and Hoffman on Coase: A Brief Rejoinder*, 53 S. CAL. L. REV. 1215, 1221 (1980) (noting the aesthetic pleasure we get from economic theories like the Coase Theorem); Janice Toran, *'Tis a Gift to be Simple: Aesthetics and Procedural Reform*, 89 MICH. L. REV. 352, 355, 363-70 (1990) (advancing the hypothesis that aesthetic considerations play a role in the formulation of new legal procedures and the preference for one procedure over another).

²³⁰ A good illustration of this is the debate over information overload—whether providing consumers with too much information produces suboptimal decisions. See Grether et al., *supra* note 29, at 277-80; Scott, *supra* note 29, at 329-32. Providing information, of course, is the classic strategy of federal securities regulation.

²³¹ See William W. Bratton, Jr., *The "Nexus of Contracts" Corporation: A Critical Appraisal*, 74 CORNELL L. REV. 407, 432-46 (1989) (recognizing the political element of much economics-oriented legal scholarship in corporate law). For a fairly candid recognition of the political biases in various forms of legal scholarship, see Jonathan R. Macey, *Takeover Defense Tactics and Legal Scholarship: Market Forces Versus the*

some of the influence of efficiency-based thinking (and thinkers) may be not only the product of substantive merit but also of commodity value in rationalizing potentially wealth-shifting forms of deregulation.²³² Although good academics will not consciously alter their writings simply because certain styles or conclusions are in demand, no one can expect the production of strong normative claims to cease as long as they are generating positive abnormal returns.

It is likely, therefore, that cognitive dissonance will prevent the corporate/securities literature from readily embracing the cautionary teachings of the behavioralists or the doubts about market efficiency. If behavioral economics itself turns out to be something of a fad, with subsequent reversion to conventional efficiency ideology, that is fine. If not, the cost comes in terms of foregone opportunities to check the influence of rhetorical overstatement hinted at in some of the cases and SEC releases, and to present a view of the investing process that, though somewhat chaotic and inelegant, has the appeal of realism.

There is something else as well. If the behavioralists have a valid point and the markets do not effectively filter out cognitive biases and imperfections, we will be forced to confront, at this rather late date in the intellectual history of securities regulation, how little we really know about how and why people invest.²³³ Claims of market efficiency carry the orthodox view that so long as the test results continue to support the hypothesis, the study of whether investor behavioral traits are likely to be as rational as assumed is beside the point. If the test results, however, do not provide unambiguous support, and no acceptable alternative theoretical construct to the efficiency hypothesis evolves, there is little choice but to concede the possibility of suboptimal behavior and try to gauge its degree empirically. This will be necessary if we are to gain insight into the workings of the capital markets and seriously assess the costs and benefits of the regulatory structure.²³⁴

Policymaker's Dilemma, 96 YALE L.J. 342 (1986), and McChesney, *supra* note 214. Both articles are responses to Jeffrey N. Gordon & Lewis A. Kornhauser, *Takeover Defense Tactics: A Comment on Two Models*, 96 YALE L.J. 295 (1986).

²³² See *supra* text accompanying notes 114-17.

²³³ See *supra* text accompanying notes 94-160.

²³⁴ See SHILLER, *supra* note 49, at 435-37. This would encompass both laboratory-type experiments and survey-type investigations. For some examples of the former, see Paul B. Andreassen, *On the Social Psychology of the Stock Market: Aggregate Attributional Effects and the Regressiveness of Prediction*, 53 J. PERSONALITY & SOC.

We have extensive price/performance studies of public offerings, but little data on the purchasers in such offerings that seeks to explain their motivations, the relevance to them of the mandatory disclosures, or the content and influence of sales and marketing communications that seem to play such a role in their success. Similarly, we know surprisingly little about who buys or sells in the stock market (and why) during various phases of a significant price move. Moreover, very little is known about the level of portfolio diversification and attitudes toward risk among individual investors,²³⁵ or the organizational and moral hazard influences on trading behavior in institutions.²³⁶ For many reasons, we have gambled on a simplifying theory that allows us not to worry too much about questions like these in making judgments about securities law. But at some point, the dice will stop rolling, and intellectually, it will be time to settle up.

PSYCHOL. 490 (1987); Camerer, *supra* note 38, at 981-82; Vernon L. Smith et al., *Bubbles, Crashes, and Endogenous Expectations in Experimental Spot Asset Markets*, 56 *ECONOMETRICA* 1119, 1121-22 (1988); see also Paul Slovic, *Analyzing the Expert Judge: A Descriptive Study of a Stockbroker's Decision Processes*, 53 *J. APPLIED PSYCHOL.* 255, 256-58 (1968) (describing an illustration of the analysis-of-variance technique to depict the use of information by persons making complex judgments); Paul Slovic et al., *Analyzing the Use of Information in Investment Decision Making: A Methodological Proposal*, 45 *J. BUS.* 283, 283-90 (1972) (detailing previous research and methods describing how complex investment decisions are made). The general issue is addressed in Elizabeth Hoffman & Matthew L. Spitzer, *Experimental Law and Economics: An Introduction*, 85 *COLUM. L. REV.* 991, 1018-19 (1985) (discussing studies, for example, showing that individuals are willing to bid more for a good than they would actually be willing to pay for the same good if asked). Nothing here is meant to understate the difficulties inherent in doing either of these kinds of studies or translating the results into policy. See David L. Faigman, *To Have and Have Not: Assessing the Value of Social Science to the Law as Science and Policy*, 38 *EMORY L.J.* 1005, 1009 (1989) (proposing a framework in which both scientific and nonscientific social inquiry can be assessed and utilized by legal decision-makers).

²³⁵ Some of the behavioral literature suggests that people may develop mental accounts of assets as a heuristic device and adopt significantly different attitudes toward risk depending on the current status of the account. See Richard H. Thaler, *Savings, Fungibility, and Mental Accounts*, 4 *J. ECON. PERSP.*, Winter 1990, at 193, 194-203. On diversification, see French & Poterba, *supra* note 57, at 222-25.

²³⁶ Moral hazard problems, high personnel turnover, and the rapid proliferation of new financial products that might interfere with effective learning, among other influences, may well lead to suboptimal decision-making even in institutional settings, but their role is largely unexplored. See *supra* notes 44 & 58. Cf. Edward B. Rock, *The Logic and (Uncertain) Significance of Institutional Shareholder Activism*, 79 *GEO. L.J.* 445, 468-72 (1991) (emphasizing the moral hazard problem in explaining why institutional shareholder activism may be less than expected).