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The Unimportance of Being Efficient: An Economic Analysis of Stock Market Pricing and Securities Regulation

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THE UNIMPORTANCE OF BEING EFFICIENT: AN ECONOMIC ANALYSIS OF STOCK MARKET PRICING AND SECURITIES REGULATION†

*Lynn A. Stout**

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INTRODUCTION

The stock market ought to be efficient.¹ At least, the Supreme Court,² the Congress,³ and the Securities and Exchange Commission (SEC) think so,⁴ and most academics agree.⁵ It is a fundamental premise of modern securities policy that efficient stock markets (defined as markets in which stock prices fully reflect all available infor-

1. Capital markets are described as "efficient" when stock prices fully reflect all available information relevant to their values. See *infra* note 22; see generally Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. FIN. 383 (1970); Gilson & Kraakman, *The Mechanisms of Market Efficiency*, 70 VA. L. REV. 549 (1984); Gordon & Kornhauser, *Efficient Markets, Costly Information and Securities Research*, 60 N.Y.U. L. REV. 761 (1985).

2. See *Basic Inc. v. Levinson*, 108 S. Ct. 978, 988-91 (1988) (efficient market prices accurately reflect value; "fraud-on-the-market" theory of investor reliance, allowing plaintiffs to sue whenever fraud causes stock price to depart from value, furthers regulatory goal of accurate prices); *Dirks v. SEC*, 463 U.S. 646, 658 n.17 (1983) (declining to extend insider trading liability where to do so would chill efficiency-enhancing activities of market analysts).

3. See *Basic Inc. v. Levinson*, 108 S. Ct. at 990-92 (congressional policy to protect efficient market prices as indices of value); see *Definition of Insider Trading: Hearings Before the Subcomm. on Securities of the Comm. on Banking, Housing, & Urban Affairs, U.S. Senate*, 100th Cong., 1st Sess. pt. I, at 6 (1987) [hereinafter *1987 Hearings*] (statement of Senator Bond) (overly broad definition of insider trading could impair market efficiency); HOUSE COMM. ON ENERGY & COMMERCE, INSIDER TRADING SANCTIONS ACT OF 1983, H.R. REP. NO. 355, 98th Cong., 1st Sess. 2, 22 (1983) [hereinafter REPORT ON ITSA] (noting and adopting SEC's view that U.S. securities markets are "the best . . . the world has ever known" because they are "efficient" and "[t]he prices of the vast majority of actively traded securities reflect available information about companies and the economy"); SENATE COMM. ON BANKING, HOUSING & URBAN AFFAIRS, NATIONAL SECURITIES MARKET SYSTEM ACT OF 1974, S. REP. NO. 865, 93d Cong., 2d Sess. 3 (1974) (securities markets must be fair and efficient).

4. Anderson, *The Disclosure Process in Federal Securities Regulation: A Brief Review*, 25 HASTINGS L.J. 311, 353 (1974) (SEC policy to administer disclosure provisions to promote efficient market); Kerr, *A Walk Through the Circuits: The Duty To Disclose Soft Information*, 46 MD. L. REV. 1071, 1110 (1987) (SEC policy to promote efficient markets); see *1987 Hearings, supra* note 3, pt. II, at 13 (statement of Charles Cox, acting chairman, SEC: SEC believes that insider trading discourages investment in legitimate information gathering "essential to market efficiency"); HOUSE COMM. ON INTERSTATE & FOREIGN COMMERCE, 95TH CONG., 1ST SESS., REPORT OF THE ADVISORY COMMITTEE ON CORPORATE DISCLOSURE TO THE SECURITIES & EXCHANGE COMMISSION 16 (Comm. Print 1977) (benefits of mandatory disclosure system include efficient resource pricing); Preliminary Response to the Advisory Committee on Corporate Disclosure, Securities Act Release No. 5906 [1978 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 81,505, at 80,048 (Feb. 15, 1978) (basic objective of disclosure requirements is "to make the securities markets more efficient").

5. See, e.g., Barry, *The Economics of Outside Information and Rule 10b-5*, 129 U. PA. L. REV. 1307, 1315 (1981) (value in promoting efficient capital markets); Carlton & Fischel, *The Regulation of Insider Trading*, 35 STAN. L. REV. 857, 866 (1983) (social gains from efficient markets are "well known"); Coffee, *Market Failure and the Economic Case for a Mandatory Disclosure System*, 70 VA. L. REV. 717, 737 (1984) (social interest in ensuring efficient market); Dennis, *Materiality and the Efficient Capital Markets Model: A Recipe for the Total Mix*, 25 WM. & MARY L. REV. 373, 375 (1984) (efficient stock markets economically desirable); Fox, *Shelf Registration, Integrated Disclosure, and Underwriter Due Diligence: An Economic Analysis*, 70 VA. L. REV. 1005, 1015 (1984) (benefits from accurate prices in efficient market); Gordon & Kornhauser, *supra* note 1, at 781 (efficient markets are "highly desirable from a policy perspective"). But see Coffee, *supra*, at 734 (one can view efficient securities prices as socially unimportant); Fox, *supra*, at 1010-12, 1023 (noting and rejecting view that efficient markets which correctly price securities are socially unimportant).

mation) should be promoted.⁶ Judges decline to broaden the scope of insider trading liability for fear that such expansion will harm market efficiency.⁷ The SEC defends program trading in stock index futures on the assumption that program trading improves the stock market's efficiency.⁸ Commentators cite efficiency as a reason to require mandatory disclosure of merger negotiations.⁹ In each case, legal rules that favor efficient stock markets do so by sacrificing other regulatory goals.¹⁰

Two key assumptions are necessary to the view that improving market efficiency is an important goal of securities regulation. The first is that stock prices in an efficient market accurately reflect our best estimates of the financial prospects of the issuing corporation.¹¹ The second assumption is that accurate stock prices are desirable because stock market prices influence the production, distribution, and consumption of goods and services in the economy. For this reason,

6. A preoccupation with market efficiency is reflected throughout the securities culture. Not only does the Supreme Court view efficient markets as an objective, *see supra* note 3, but lower courts also recognize the importance of efficient stock markets. *See Freeman v. Decio*, 584 F.2d 186, 190, 196 (7th Cir. 1978) (declining to recognize derivative action under Indiana law for profits of insider trading and noting that insider trading helps assure efficient capital markets that reflect the best information available); *Chris-Craft Indus. v. Piper Aircraft Corp.*, 480 F.2d 341, 357 (2d Cir.), *cert. denied*, 414 U.S. 910 (1973) (securities laws seek to prevent restrictions on information which distort stock market pricing and hamper market efficiency). Concern for maintaining efficient markets is expressed by agencies other than the SEC as well. *See U.S. FED. RESERVE BD., U.S. COMMODITIES FUTURES TRADING COMM. & U.S. SEC. & EXCH. COMM., A STUDY OF THE EFFECTS ON THE ECONOMY OF TRADING IN OPTIONS at I-11 to I-12 (1984) [hereinafter JOINT STUDY OF TRADING IN FUTURES]* (defending arbitrage activity in stock futures as enhancing stock efficiency); *U.S. DEPT. OF THE TREASURY, PUBLIC POLICY FOR AMERICAN CAPITAL MARKETS 3 (1974)* (efficiency in pricing is objective of securities policy). Even securities practitioners recognize the importance of efficient markets. *See ABA Committee on Federal Regulation of Securities, Report of the Task Force on Regulation of Insider Trading*, 41 *BUS. LAW.* 223, 225, 228-29 (1985) [*hereinafter ABA Report*] (insider trading liability rules should serve market's informational efficiency).

7. *See infra* notes 50-68 and accompanying text.

8. *See infra* notes 71-90 and accompanying text.

9. *See infra* notes 106-27 and accompanying text.

10. Allowing insiders to trade on the basis of information unavailable to public investors violates notions of fairness. *See infra* note 458 and accompanying text. Program trading erodes investor confidence by adding undesirable volatility to the stock market. *See infra* notes 79-85 and accompanying text. Requiring disclosure of preliminary merger negotiations is believed to interfere with the negotiation process or even discourage potential suitors from making offers. *See infra* notes 106-07 and accompanying text.

11. Efficient market prices which reflect all available information relevant to the value of the stock are thought to measure rationally the "worth" of stocks as financial instruments in terms of the present value of their expected future earnings, discounted for nondiversifiable risk. *See infra* text at notes 280-92. Therefore, we can rely on market price as a measure of "true worth" or "intrinsic value." *See infra* notes 408-19 and accompanying text; *see also Basic Inc. v. Levinson*, 108 S. Ct. 978, 991 (1988) (in efficient market where prices quickly incorporate all available relevant information, market price is best estimate of actual worth, and we can rely on market prices as accurate "indices of real value"). This assumption is crucial to the purported benefits of efficiency. *See infra* notes 408-09 and accompanying text.

stock market efficiency is regarded as essential to allocative efficiency in the distribution of investment capital and other scarce resources to their most productive uses.¹²

Given the importance which the securities culture attaches to cultivating stock market efficiency, both assumptions have long warranted careful evaluation. But while numerous commentators have examined whether an efficient stock market sets accurate prices,¹³ the consensus that stock prices influence the allocation of real resources among competing uses has remained largely unquestioned.¹⁴ A reexamination of that orthodoxy seems especially appropriate in the wake of October 19, 1987. On that date, the Dow Jones average of thirty leading industrial stocks dropped 508 points, losing 22.6% of its value in a single day's trading.¹⁵ The abrupt extinction of more than one trillion dollars in stock value would be catastrophic were it to produce a contraction of similar magnitude in the economy.¹⁶ A year later, however, the macroeconomic impact of the October crash seems to have been negligible.¹⁷

12. See, e.g., SEC. & EXCH. COMM., POLICY STATEMENT ON THE STRUCTURE OF A CENTRAL MARKET SYSTEM 196 Sec. Reg. & L. Rep. (BNA) D-1 (Apr. 4, 1973) [hereinafter SEC POLICY STATEMENT] (to allocate capital effectively, securities markets must be efficient); JOINT STUDY OF TRADING IN FUTURES, *supra* note 6, at I-11 to I-12 (speculation in futures helps to keep stock prices accurate which "promote[s] efficiency in the production, distribution, and consumption of goods and services"); Barry, *supra* note 5, at 1316-19 (more accurate securities prices lead to more efficient resource allocation); Fox, *supra* note 5, at 1025 (accuracy in securities prices "enhances the efficient allocation of resources"); Levmore, *Securities and Secrets: Insider Trading and the Law of Contracts*, 68 VA. L. REV. 117, 145-47 (1982) (describing misallocations of resources resulting from inefficient stock prices); Seligman, *The Reformulation of Federal Securities Law Concerning Nonpublic Information*, 73 GEO. L.J. 1083, 1119 (1985) (faster dissemination of information improves market's allocative efficiency by channelling society's resources into investments promising best return); Wu, *An Economist Looks at Section 16 of the Securities Exchange Act of 1934*, 68 COLUM. L. REV. 260, 264 (1968) (accurate price determination in the stock market is "essential" to efficient allocation).

13. See sources cited *infra* notes 410-16 (some suggest stock prices may be function of irrational investor preferences); Wang, *Some Arguments that the Stock Market Is Not Efficient*, 19 U.C. DAVIS L. REV. 341, 344-49 (1986) (describing arguments that efficient market prices may not reflect stocks' "fundamental" values).

14. See sources cited *supra* note 12, *infra* notes 152, 156. But see H. KRIPKE, THE SEC AND CORPORATE DISCLOSURE 135-39 (1979) (SEC's influence on resource allocation may be confined to new stock issues, which are "a very small portion of the total process of resource allocation."); Berle, *Modern Functions of the Corporate System*, 62 COLUM. L. REV. 433, 445-47 (1962) ("[T]he stock market is an allocator, not of capital, but of wealth.").

15. PRESIDENTIAL TASK FORCE ON MARKET MECHANISMS, REPORT OF THE PRESIDENTIAL TASK FORCE ON MARKET MECHANISMS 1 (1988) [hereinafter BRADY REPORT].

16. See *id.* at v (U.S. stocks lost approximately one trillion dollars in value between October 13 and 19.).

17. See Farhi, *Dire Forecasts Never Came To Pass*, Wash. Post, Oct. 19, 1988, at F1, col. 3 (crash had little effect on economy); Laderman & Pennar, *Did the Crash Make a Dent?*, BUS. WK., Oct. 17, 1988, at p. 88 (same); Pennar, *It's Almost as if It Never Happened — Almost*, BUS. WK., Apr. 18, 1988, at 56 (six months after October 19, 1987, market crash has shown little effect on macroeconomy).

Even if the 1987 market crash were followed by economic recession or depression, this would

This article tests the assumption that stock market prices control the distribution of capital and other resources. It finds that assumption wanting. Careful analysis indicates that the connection between prices in the public trading markets for stocks and the allocation of real resources is a weak one, and that stock markets may have far less allocative importance than has generally been assumed.¹⁸ That finding in turn suggests a need to reexamine the existing consensus that we should spend resources and sacrifice other goals of securities regulation (such as investor protection or fair and honest markets) to further market efficiency.

Part I of this article describes how perceptions that market efficiency is an important regulatory objective have influenced the development of securities law.¹⁹ For illustration, Part I examines the role of market efficiency goals in recent debates on the scope of insider trading liability, on trading in stock index futures, and on mandatory disclosure of merger negotiations. Part II then evaluates the notion that more efficient stock markets necessarily produce more optimal resource allocation.²⁰ A closer look at the economic consequences of stock prices suggests that the principal function of stock prices is not resource allocation but rather the redistribution of wealth among investors. Consequently, more efficient public stock markets may contribute little to allocative efficiency. Part III presents reasons why legal rules designed to improve market efficiency may, on the whole, produce social losses.²¹ It concludes that enhancing market efficiency should not be a goal of securities regulation and describes significant policy changes that would follow from the abandonment of efficiency as a goal.

not necessarily indicate that stock prices affect business — the reverse may be true. Stock prices are likely “the thermometer and not the fever.” R. KARMEL, REGULATION BY PROSECUTION 44 (1982) (quoting Bernard Baruch); see also J. LORIE & M. HAMILTON, THE STOCK MARKET: THEORIES AND EVIDENCE 10-25 (1973) (role of stock prices as indicator of impending macroeconomic change).

18. Commentators speaking of an efficient “stock market” generally are referring to public stock trading on registered exchanges such as the New York Stock Exchange (NYSE) or in the over-the-counter (OTC) market of stocks quoted on the National Association of Securities Dealers Automatic Quotation system (NASDAQ). See generally Seligman, *The Future of the National Market System*, 10 J. CORP. L. 79, 82-101 (1984) (describing exchange and OTC markets). There are other markets for stock; corporations may sell new issues by private placement with an institutional investor or by issuing warrants to key employees or existing shareholders, and investors may arrange private sales of outstanding shares including large blocks that carry with them voting control. But as questions of informational efficiency are almost invariably raised in the context of public trading on the exchanges or in the OTC market, see *infra* note 206, this discussion is similarly limited.

19. See *infra* notes 36-151 and accompanying text.

20. See *infra* notes 152-405 and accompanying text.

21. See *infra* notes 406-62 and accompanying text.

I. THE INFLUENCE OF EFFICIENCY OBJECTIVES ON THE REGULATION OF SECURITIES MARKETS

Commentators who speak of "making the stock market more efficient" are almost invariably referring to a specialized concept of efficiency developed from the doctrine known as the Efficient Capital Markets Hypothesis (ECMH).²² The ECMH is the offspring of a series of studies during the 1950s and 1960s by economists and statisticians who examined the patterns of stock prices hoping to predict future movements in price.²³ If their efforts were motivated by anything other than professional curiosity, they were surely disappointed, for they concluded that stock price changes were random and could not be successfully foreseen.²⁴

The ECMH answers the riddle of random price changes.²⁵ It asserts that stock traders hoping for arbitrage profits gather and analyze all available information that might help them to identify mispriced securities.²⁶ When new information indicates that a particular stock is mispriced, traders promptly adjust the price to reflect the new information.²⁷ The result is an "informationally efficient" (or, as it is some-

22. See Gilson & Kraakman, *supra* note 1, at 554 (common definition of market efficiency is that prices fully reflect available information); Friend, *The Economic Consequences of the Stock Market*, 62 AM. ECON. REV. 212 (May 1972) (The "most common conception of an efficient market . . . is one in which every price fully reflects all available information."); Note, *Disclosure of Future-Oriented Information Under the Securities Laws*, 88 YALE L.J. 338, 339 n.10 (1978) (efficient market "generally understood" to mean one in which prices reflect all information). See generally sources cited *supra* note 1; R. BREALEY & S. MYERS, *PRINCIPLES OF CORPORATE FINANCE* 266-81 (2d ed. 1984); J. LORIE & M. HAMILTON, *supra* note 17, at 70-97.

23. See generally R. BREALEY & S. MYERS, *supra* note 22, at 266-67.

24. See R. BREALEY & S. MYERS, *supra* note 22, at 268 (research results showed stock price changes were random). Of course, the researchers did at least gain a rejoinder to the inquiry: "If you're so smart, why ain't you rich?"

25. The observation that stock prices move unpredictably was contrary to prevailing views that stock market prices tended to follow certain waves or patterns, and that the investor who accurately identified these could regularly profit from the certain knowledge that price would rise or fall at a particular time on the chart. See W. BAUMOL, *THE STOCK MARKET AND ECONOMIC EFFICIENCY* 40 (1965) (random walk findings "a remarkable result"); R. BREALEY & S. MYERS, *supra* note 22, at 267 (idea that stock price changes were random startled many economists).

26. Suppose a stock trader receives information indicating a stock is "undervalued" in the sense that its price will rise from \$20 today to \$25 tomorrow. Assuming that there is no cost to storing the security, the trader can profit by simply buying the security and holding it until the price rises. If short sales are permitted, speculators can also profit from overvalued securities. A speculator sells stock "short" by accepting the payment price now but promising to deliver the stock at some time in the future. If stock price declines before the delivery date, the speculator can purchase the stock for delivery at a lower price than he or she received in payment. Selling stock short is one of the few legal ways to sell something you don't own.

27. The mechanism of price changes in an efficient market has not been clearly established. See generally M. FOX, *FINANCE AND INDUSTRIAL PERFORMANCE IN A DYNAMIC ECONOMY* 34-36, 55-57 (1987); Gilson & Kraakman, *supra* note 1, at 565-92. Widely disseminated new information may cause traders to alter their bid and ask prices in accordance with their new estimates of the stock's value, so that prices change without any actual trading. See Carney, *Signalling and Causation in Insider Trading*, 36 CATH. U. L. REV. 863, 880, 885 (1987); Gilson

times known, "pricing efficient") market which rapidly incorporates all available data into stock prices.²⁸

It is only logical that price changes will be random in an informationally efficient market. If prices continuously reflect all available information, a necessary corollary is that a change in price must be due to previously unavailable information. Because no one can predict such new information, no one can successfully predict the direction or magnitude of future changes in stock prices. Thus the adage: you

& Kraakman, *supra* note 1, at 568-69 (describing "universally informed" trading). It is also possible that small groups of informed speculators buying or selling large quantities on the basis of new information unavailable to the general public may exert "price pressure" through their transactions: if the quantity they demand outstrips the supply at present market prices, the bids of informed speculators will raise prices to a level that more closely approximates the actual value of the stock in light of the new information. In this fashion informed trading can drive price toward the correct value even if the remainder of the market remains uninformed. See Seligman, *Reappraising the Appraisal Remedy*, 52 GEO. WASH. L. REV. 829, 837 (1984) (large trades upset supply and demand and drive security's price up); Gilson & Kraakman, *supra* note 1, at 570 n.67 ("professionally informed" trading may lead to price changes through price pressure).

The idea that large stock transactions can exert price pressure is contrary to theories that assert that, since securities are perfect substitutes for each other, demand for them should demonstrate almost infinite price elasticity. See *infra* notes 212, 309-12, and 372-82.

28. The statement that efficient stock prices "fully reflect all available information" means little unless we define what we mean by "reflect" and "available." Markets are described as efficiently reflecting a particular class of information if it is so quickly incorporated into price that no one can expect to make consistent profits trading on the basis of that information. Gilson & Kraakman, *supra* note 1, at 554-55. Random walk findings support the view that the market is efficient in "weak" form, in the sense that stock prices fully reflect all information concerning past stock movements, and that "technical" analysis of past changes or cycles does not allow us to predict successfully what stock prices will do in the future. R. BREALEY & S. MYERS, *supra* note 22, at 271. "Semi-strong" efficiency requires that prices incorporate other publicly available information as well, such as newspaper reports, investment advice sheets, and SEC filings. Evidence that the initial dissemination of information concerning significant corporate events leads to price changes so quickly that no investor can consistently profit by trading on "fundamental" analysis of public information lends empirical support for a semi-strong market in which prices reflect all publicly available information. See *id.* at 270. The third form of efficiency, "strong" form efficiency, exists if prices incorporate all relevant information, whether public or nonpublic. (The descriptive accuracy of strong form efficiency is a touchy matter, as it implies possible improper conduct by corporate management. State law fiduciary duties preclude the unauthorized disclosure of nonpublic corporate information and federal law prohibits insider trading on the basis of such information. But if market prices incorporate such news prior to public announcement, then the market already knows the information, or someone with access to it has been trading. See *infra* notes 39-47 and accompanying text.) Tests of strong form efficiency that examine the returns made by corporate management who trade in their own stock suggest that these are positive, indicating that stock prices may not successfully incorporate all nonpublic information. See R. BREALEY & S. MYERS, *supra* note 22, at 270. On the other hand, evidence that public announcements of merger agreements and takeover bids are usually preceded by dramatic run-ups in the prices of the target corporations may indicate that a certain amount of nonpublic information is, albeit imperfectly, incorporated into price. See Brown, *Corporate Secrecy, the Federal Securities Laws, and the Disclosure of Ongoing Negotiations*, 36 CATH. U. L. REV. 93, 146 (1986) (citing studies).

Because more accurate stock prices are believed to lead to more optimal resource allocation, "strong form" efficiency is more desirable, from a policy perspective, than "weak" or "semi-strong" efficiency. See *infra* notes 47, 152-58.

can't beat the market.²⁹

The ECMH addresses only how quickly stock market prices react to new information.³⁰ One could imagine other forms of efficiency that could be desired in securities markets.³¹ But no other vision of efficiency has captured the hearts and minds of the securities culture to the degree that informational efficiency has.³² In the words of Professors Gilson and Kraakman, "the ECMH is now *the* context in which serious discussion of the regulation of financial markets takes place."³³

Initial debate on the ECMH focused on whether it accurately described modern securities markets.³⁴ Researchers marshalled considerable empirical evidence that supported (or at least did not discredit) the view that many stocks' prices rapidly adjust to reflect all relevant public information.³⁵ But policymakers are no longer content to debate *whether* the stock market is informationally efficient to any particular degree; they now debate *how* it might be made more so. Improving efficiency has become a goal of securities policy on a par with more traditional goals such as investor protection or fair and

29. Of course, if the market is perfectly efficient no stock will ever be under- or over-valued, and there will be no incentive for the analyst to seek out new information. See Grossman & Stiglitz, *On the Impossibility of Informationally Efficient Markets*, 70 AM. ECON. REV. 393 (1980) (efficient market operates at "equilibrium amount of disequilibrium").

30. See Gilson & Kraakman, *supra* note 1, at 560 (critical question in determining market efficiency is how fast prices adjust to new information). Strong form efficient markets that embody nonpublic corporate information into stock prices can be said to reflect such information more "quickly" than semi-strong markets that will not incorporate such information until it has been announced. See *supra* note 28. Strong form efficiency markets that reflect nonpublic information that would *never* be disclosed can also be described as incorporating "more" information into price. See Gilson & Kraakman, *supra* note 1, at 558-60 (strength of claim that market is efficient in incorporating available information depends in part on the threshold of distribution required to make information "available").

31. See Friend, *The SEC and the Economic Performance of Securities Markets*, in ECONOMIC POLICY AND THE REGULATION OF CORPORATE SECURITIES 185, 189-90 (H. Manne ed. 1969) (describing operational efficiency of market as minimizing costs of providing financial services); Langevoort, *Information Technology and the Structure of Securities Regulation*, 98 HARV. L. REV. 747, 748, 803 (1985) (referring to efficiency of investment process in minimizing information-gathering and trading costs).

32. Levmore, *Efficient Markets and Puzzling Intermediaries*, 70 VA. L. REV. 645 n.2 (1984) (implications of ECMH are "a preoccupation" of the corporate finance literature; "it is curious that so little attention has been paid to [other] forms of efficiency"); Gilson & Kraakman, *supra* note 1, at 549-50 (of all recent developments in financial economics, ECMH "has achieved the widest acceptance by the legal culture" and now "structures [the] debate over the future of securities regulation"); Hazen, *Rumor Control and Disclosure of Merger Negotiations or Other Control-Related Transactions: Full Disclosure or "No Comment" — The Only Safe Harbors*, 46 MD. L. REV. 954, 973 (1987) (referring to ECMH as currently "in vogue").

33. Gilson & Kraakman, *supra* note 1, at 550 (emphasis in original).

34. See, e.g., J. LORIE & M. HAMILTON, *supra* note 17, at 75-79 (discussing empirical support for ECMH); Fama, *supra* note 1, at 388-91 (same).

35. See *supra* note 28 (weak, strong, and semi-strong tests). But see Carney, *supra* note 27, at 878 n.72 (describing contradictory evidence); Wang, *supra* note 13, at 363-75 (same).

honest markets.³⁶ Some commentators even suggest that it is the principal goal.³⁷ With remarkable unanimity, authorities assert that more efficient stock pricing is desirable and work to demonstrate that their suggested approach will make the market more efficient.³⁸

A. Insider Trading

The need to enhance efficient stock pricing is most commonly raised in connection with insider trading.³⁹ Corporate insiders learn of changes in their corporation's fortunes long before such news is an-

36. See *supra* notes 2-10 and accompanying text (consensus that market should be efficient); Anderson, *supra* note 4, at 323, 329-30, 353 (two purposes of securities statutes are furthering market efficiency and protecting investors; SEC's emphasis in administering disclosure provisions has shifted from investor protection to promoting efficient markets); Knauss, *Disclosure Requirements — Changing Concepts of Liability*, 24 *BUS. LAW.* 43 (1968) ("initial justification" for securities laws was investor protection; second justification is public interest in an "efficient securities market which channels capital toward the most efficient companies"); Sargent, *State Disclosure Regulation and the Allocation of Regulatory Responsibilities*, 46 *MD. L. REV.* 1027, 1062 (1987) (securities scholarship is now in "post-revisionist" phase characterized by "a preoccupation with the effects of a mandatory disclosure system on the [pricing] efficiency of the market, rather than the traditional considerations of investor protection, fraud deterrence, and investor confidence"); Schoenbaum, *The Relationship Between Corporate Disclosure and Corporate Responsibility*, 40 *FORDHAM L. REV.* 565, 575-77 (1972) (principal objective of securities acts was investor protection; a second objective is "free and open" market in which price equals value so that allocative efficiency is improved; market efficiency is "bound to increase in importance as a purpose of disclosure and of securities regulation").

37. See Stigler, *Public Regulation of the Securities Markets*, 37 *J. BUS.* 117, 124 (1964) (efficient capital markets more important than investor protection for efficiency and growth of American economy); Note, *Rule 10b-5 and the Duty To Disclose Merger Negotiations in Corporate Statements*, 96 *YALE L.J.* 547, 567 (1987) (securities laws "best viewed as pursuing primarily economic goals") (emphasis in original); *infra* notes 146-51 and accompanying text ("revisionist" view).

38. Commentators who hold opposite views concerning particular securities policies nevertheless seem agreed that improved market efficiency is desirable. Compare *infra* notes 39-48 and accompanying text (insider trading desirable because it benefits market efficiency) with *infra* note 131 and accompanying text (insider trading harms efficiency); compare Banoff, *Regulatory Subsidies, Efficient Markets, and Shelf Registration: An Analysis of Rule 415*, 70 *VA. L. REV.* 135, 184 (1984) (shelf registration desirable because it aids market efficiency), with Fox, *supra* note 5, at 1032 (shelf registration under 415 undesirable because it harms market efficiency); compare Jonas & Farrell, *Program Trading: Let the Little Guy In*, *BUS. WK.*, Sept. 29, 1986, at 100 (quoting Professor Burton Malkiel that program trading in stock index futures makes the market more efficient), with Hazen, *Volatility and Market Inefficiency: A Commentary on the Effects of Options, Futures, and Risk Arbitrage on the Stock Market*, 44 *WASH. & LEE L. REV.* 789 (1987) (index futures trading may increase market inefficiencies); compare Note, *Mandatory Disclosure of Corporate Projections and the Goals of Securities Regulation*, 81 *COLUM. L. REV.* 1525, 1534 (1981) (mandatory disclosure of earnings projections undesirable as it impairs efficiency), with Note, *supra* note 22, at 338, 353, 362 (efficiency enhanced by making disclosure of projections mandatory).

39. The argument that insider trading benefits efficiency is usually credited to Professor Henry Manne. See H. MANNE, *INSIDER TRADING AND THE STOCK MARKET* 80-90 (1966) (insider trading "smoothes" price adjustment); Manne, *Insider Trading and the Law Professors*, 23 *VAND. L. REV.* 547, 565 (1970) [hereinafter Manne, *Law Professors*] ("[I]nsider trading makes the stock market function more efficiently."). Other scholars have adopted this view as well. See, e.g., Carlton & Fischel, *supra* note 5, at 866-68 (insider trading helps market efficiently incorporate nonpublic information); Lorie, *Insider Trading: Rule 10b-5, Disclosure, and Corporate Privacy: A Comment*, 9 *J. LEGAL STUD.* 819 (1980) (insider trading produces social benefit

nounced to the public. Federal law prohibits insiders from trading on the basis of nonpublic information not disclosed to the person with whom they are trading.⁴⁰ This "disclose or abstain" rule⁴¹ is denounced by those who believe that it leads to mispriced securities and, therefore, to misallocated resources.⁴²

The dilemma is well illustrated by the classic case of *SEC v. Texas Gulf Sulphur Co.*⁴³ Texas Gulf explorations found evidence of a fabulously rich mineral lode in Ontario. Because Texas Gulf had not yet acquired the mining rights to the land, public disclosure of the strike was out of the question. In the absence of insider trading, the market price for Texas Gulf stock would necessarily fail to reflect the news of the strike and would remain "incorrect" until the news was released.

Federal law prohibiting insider trading did not deter Texas Gulf employees from beating a path to their stockbrokers' doors. Texas Gulf stock rose from \$17 before test drilling began to \$30 just before news of the strike was announced.⁴⁴ In this fashion, insider trading accelerated the market's adjustment of Texas Gulf stock to the "correct" price in light of the unannounced mineral discovery. While the mechanism of such price shifts is not entirely clear, price changes may have resulted from both insider buying and other investors' extracting information from the insiders' trades through trade- and price-decoding.⁴⁵

by enhancing efficiency); Wu, *supra* note 12, at 265-69 (insider trading is economically beneficial).

40. See *In re Cady, Roberts & Co.*, 40 S.E.C. 907 (1961) (liability under antifraud provisions for insider trading); *SEC v. Texas Gulf Sulphur Co.*, 401 F.2d 833 (2d Cir. 1968), *cert. denied*, 394 U.S. 976 (1969).

41. *In re Cady, Roberts & Co.*, 40 S.E.C. at 911 (insider must disclose nonpublic information to person with whom trading or abstain from trading).

42. See, e.g., authorities cited *supra* note 39; Fischel, *Insider Trading and Investment Analysts: An Economic Analysis of Dirks v. Securities and Exchange Commission*, 13 HOFSTRA L. REV. 127, 133 (1984) (courts should not prohibit insider trading because stock prices are more efficient when insider trading is allowed); Levmore, *supra* note 12, at 147 ("the disclose-or-abstain [rule] causes misallocations because of the poor information that pervades . . . the securities market"); Macey, *From Fairness to Contract: The New Direction of the Rules Against Insider Trading*, 13 HOFSTRA L. REV. 9, 31 n.110 (1984) (some recommend legalizing insider trading to make market more efficient).

43. 401 F.2d 833 (2d Cir. 1968), *cert. denied*, 394 U.S. 976 (1969).

44. 401 F.2d at 847. In recent years, similar patterns have been observed in many cases where target firms' prices have been increased dramatically just before the announcement of a merger or takeover bid. See *supra* note 28.

45. Even assuming that large transactions lead to price pressure, see *infra* notes 212, 372-82, price changes will not persist if insider buying produces only a temporary increase in demand. In order to reap the allocative benefits perceived to accompany correct stock prices, those prices must stay correct even after the insiders make their purchases. Some argue that insider trading can lead to permanent price changes because other investors observe the trading or resulting price shift and read into this shift the possibility of a significant corporate development. These

Abandoning the "disclose or abstain" rule and allowing insider trading thus appears to promote at least two forms of efficiency. Because the corporation need not disclose nonpublic, proprietary information, it reaps the benefits of its own analysis and investigation. Such a policy preserves incentives to acquire valuable new knowledge, like the location of mineral deposits.⁴⁶ At the same time, no informationally inefficient stock mispricing results from withholding corporate information. Trading by insiders (accompanied, perhaps, by some free-riding, trade-decoding investors) ensures that stock prices reflect the news before it *is* news.⁴⁷ It is on the strength of this argument that "the deregulation of insider trading is often urged as one of the few reforms with any real promise of increasing the informational efficiency of securities prices."⁴⁸

While complete legalization of insider trading is unlikely, concern for the market's informational efficiency has had great influence on legal rules defining the scope of the insider trading prohibition. For example, the need to promote market efficiency was the "overriding rationale"⁴⁹ behind the Supreme Court's decision in *Dirks v. SEC*.⁵⁰ Raymond Dirks was an investment analyst who learned from a source inside Equity Funding of America that the corporation was fraudulently overstating its assets on a rather ambitious scale.⁵¹ Dirks and his source attempted to blow the whistle but were rebuffed by authorities, including the SEC, which found the idea of such a massive swindle incredible.⁵² Dirks meanwhile advised his institutional clients to sell Equity Funding shares. These clients sold more than sixteen million dollars in stock, and the price of Equity Funding dropped sharply.

"trade decoding" and "price decoding" investors change their evaluations of securities because of insider transactions. As a result market prices remain correct even after the insiders have completed their transactions. See Carney, *supra* note 27, at 886-91; Gilson & Kraakman, *supra* note 1, at 572-79.

46. See Levmore, *supra* note 12, at 152-53 (requiring disclosure reduces incentives for exploring and other information production); Macey, *supra* note 42, at 19, 28 n.98, 30-32 (must protect nonpublic nature of valuable firm information to maintain incentive to create such information).

47. The idea that insider trading desirably enhances the market's efficiency is predicated on the view that, from a policy standpoint, it is desirable to pursue "strong form" efficiency so that stock prices include nonpublic corporate information. See *supra* notes 28, 30.

48. Gilson & Kraakman, *supra* note 1, at 629.

49. Hiler, *The SEC and the Courts' Approach to Disclosure of Earnings Projections, Asset Appraisals, and Other Soft Information: Old Problems, Changing Views*, 46 MD. L. REV. 1114, 1120 n.14 (1987).

50. 463 U.S. 646 (1983).

51. 463 U.S. at 648-49. Dirks' primary source was Ronald Secrist, a former officer of Equity Funding. 463 U.S. at 648-49.

52. Dirks passed news of the fraud on to the *Wall Street Journal*. His inside source, Secrist, also informed various "regulatory agencies." One of these — the California Insurance Department — apparently informed the SEC of Secrist's charges. 463 U.S. at 649, 650 n.3.

The drop triggered a trading halt by the New York Stock Exchange (NYSE) and a subsequent investigation which revealed the accounting fraud.⁵³ Credit for uncovering the chicanery was laid at Dirks' door.⁵⁴

Because Raymond Dirks had advised his clients to sell on the basis of an inside tip from a corporate source, he was sanctioned by the SEC for insider trading.⁵⁵ The SEC claimed as authority, *inter alia*, Rule 10b-5's prohibition against any "device, scheme, or artifice to defraud."⁵⁶ Neither the language of the rule nor attendant case law gave clear guidance as to the nature of Dirks' conduct. But in the SEC's view he was guilty of insider trading because he had received nonpublic information from an inside source and passed it to other "tippees" who traded on it.

The Supreme Court reversed Dirks' censure.⁵⁷ In doing so, the Court claimed market efficiency as a justification for adopting a narrow definition of insider trading. Any other rule, the Court said, "could have an inhibiting influence on the role of market analysts."⁵⁸ The value of financial analysts like Raymond Dirks "cannot be gainsaid; market efficiency in pricing is significantly enhanced by [their] initiatives to ferret out and analyze information."⁵⁹ As an example of such benefits the Court noted that "until the Equity Funding fraud was exposed, the information in the trading market was grossly inaccurate."⁶⁰

The scope of the insider trading prohibition remains far from settled. Recent attention has focused on the novel "misappropriation" theory, which imposes Rule 10b-5 liability on noninsiders who trade on nonpublic information obtained through breach of a fiduciary duty,

53. 463 U.S. at 649-50.

54. *See Dirks v. SEC*, 681 F.2d 824, 829 (D.C. Cir. 1982) ("[I]argely thanks to Dirks one of the most infamous frauds in recent memory was uncovered and exposed").

55. As an employee of an SEC-registered broker-dealer, Dirks was subject to SEC censure. 463 U.S. at 652.

56. 17 C.F.R. § 240.10b-5 (1988). *See* 463 U.S. at 650-51.

57. The Court concluded that Dirks was not liable as a tippee simply because he had knowingly traded on material, nonpublic information received from a corporate insider. 463 U.S. at 657-58. More was required; the insider must have breached his fiduciary duty to his shareholders by reaping some personal benefit in disclosing the information. *See* 463 U.S. at 662 ("[a]bsent some personal gain, there has been no breach of duty to stockholders"). The tippee who knows or should know of that breach is liable as "a participant after the fact in the insider's breach of a fiduciary duty." 463 U.S. at 659 (quoting *Chiarella v. United States*, 445 U.S. 222, 230 n.12 (1980)).

58. 463 U.S. at 658 n.18.

59. 463 U.S. at 658 n.17. *See* 463 U.S. at 658 (analysts like Dirks "necessary to the preservation of a healthy market"); 463 U.S. at 658 n.18 (broad definition of insider trading which would "have serious ramifications on reporting by analysts" unwise).

60. 463 U.S. at 658 n.18.

theft, or other wrongful behavior.⁶¹ In November of 1987, the Supreme Court affirmed the "misappropriator" trading conviction of *Wall Street Journal* reporter R. Foster Winans. Winans was convicted of fraud under Rule 10b-5 and the federal mail and wire fraud statutes because he had breached his duty to the *Journal* by tipping his roommate and two brokers to the stocks he planned to recommend in the *Journal's* financial column.⁶² Because Winan's 10b-5 conviction was affirmed without significant discussion on the basis of a 4-4 split among the Justices, the Court's view of the merits of misappropriation liability remains ambiguous.⁶³ Congress recently considered clarifying legislation that would statutorily extend insider trading liability to misappropriators.⁶⁴

The misappropriation theory's expansion of 10b-5 liability to cover anyone tipping or trading on information obtained in a less-than-wholesome fashion has been criticized as chilling the legitimate collection of data by analysts and investors.⁶⁵ Increased liability, it is argued, slows the incorporation of information into stock prices and harms informational efficiency.⁶⁶ The majority in *Dirks* embraced

61. Early cases premised Rule 10b-5 liability for insider trading on the fiduciary duty an insider of the corporation owed the shareholders of that same corporation. When the insider traded with his own shareholders, he had a duty to disclose his nonpublic information or abstain from trading. See *In re Cady, Roberts & Co.*, 40 S.E.C. 907, 911 n.13 (1961) (duty to disclose or abstain arising from special facts or shareholder-fiduciary relationship). That fiduciary concept does not apply to the insider who trades in the shares of a *different* corporation. In *Chiarella v. United States*, 445 U.S. 222 (1980), a financial printer's conviction for trading in the stocks of potential takeover targets was overturned because the printer had received his inside information (the identity of the targets) not from the targets, but from his indirect employers, the bidding corporations. In response to *Chiarella*, lower courts developed the alternative "misappropriation" theory, finding a duty to disclose whenever someone trades on the basis of nonpublic information he has stolen or otherwise wrongfully obtained, regardless of with whom he trades. In a later case, a *Chiarella*-like printer who traded in the stock of targets was convicted of insider trading on a misappropriation theory. See *SEC v. Materia*, 745 F.2d 197 (2d Cir. 1984), *cert. denied*, 471 U.S. 1053 (1985).

62. *Carpenter v. United States*, 108 S. Ct. 316 (1987).

63. 108 S. Ct. at 316.

64. See S. 1380, 100th Cong., 1st Sess. (1987), *reprinted in 1987 Hearings, supra* note 3, pt. II, at 48.

65. Many potentially liable "misappropriators" do not fit typical notions of "insiders." See *United States v. Carpenter*, 791 F.2d 1024 (2d Cir. 1986), *affd. by an equally divided Court*, 108 S. Ct. 316 (1987) (reporter misappropriated from employing newspaper confidential information concerning the next day's financial column); *United States v. Reed*, 601 F. Supp. 685 (S.D.N.Y. 1985) (a son might "misappropriate" information concerning a potential tender offer from his father).

66. See *Ruder vs. Ruder*, Wall St. J., Nov. 13, 1987, at 14, col. 1 (editorial) (statutory definition of insider trading needed, but misappropriation liability chills search for valuable information that aligns stock price with value, harming capital allocation); Comment, *The Misappropriation Theory: Too Much of a Good Thing?*, 17 PAC. L.J. 111, 122 (1985) ("[E]xtensive liability for nondisclosure [of information] could result in a chilling effect on the dissemination of information that allows for an efficient market."); see also Seligman, *Reformulation*, *supra* note 12, at 1120-21 (broad insider trading prohibition can be criticized as harming the

market efficiency as a desideratum in defining insider trading.⁶⁷ In doing so the Court revealed a "macroeconomic, free-market perspective [that] elevates market efficiency over the risk of injury to individual investors."⁶⁸ Such solicitude for market efficiency will likely continue to influence whether legal rules prohibiting insider trading are expanded, or limited.

B. Trading in Stock Index Futures

A desire to cultivate informationally efficient stock markets has similarly influenced the SEC's position on the stock index futures involved in "program trading" and "portfolio insurance." Criticizing index futures trading has come into fashion on the coattails of the October 19, 1987, market crash,⁶⁹ and exchanges that trade such instruments have imposed daily limits on price swings.⁷⁰ But before the crash, index futures trading was praised as contributing to informational efficiency,⁷¹ and the SEC continues to support it on that

allocative efficiency of the market by reducing incentives to seek out new information relevant to stock values).

67. Hiler, *supra* note 49, at 1120 n.14. See 463 U.S. at 677 n.14 (Blackmun, J., dissenting) (majority "reject[ed] the existence of any enforceable principle of fairness between market participants," and adopted a view which "seems little different from the theory that insider trading should be permitted because it brings relevant information to the market"); see also Cox, *Insider Trading and Contracting: A Critical Response to the "Chicago School,"* 1986 DUKE L.J. 628 (criticizing Court's reasoning in *Dirks* that analysts further market efficiency on the ground that analysts enhance efficiency whether tipper gets personal benefit or not).

Concern for efficiency similarly influenced the Seventh Circuit's decision in *Freeman v. Decio*, 584 F.2d 186, 190, 196 (7th Cir. 1978). The court refused to recognize a corporate derivative action under Indiana law for the profits of insiders who traded on nonpublic corporate information. Judge Wood's opinion noted that broader applications of the insider trading prohibition may cause "a loss in the efficiency of the securities markets in their capital allocation function. . . . [I]nsider trading helps assure that . . . prices will reflect the best information available." 584 F.2d at 190.

68. *ABA Report, supra* note 6, at 225.

69. On October 19, 1987, the Dow Jones average of 30 industrial stocks dropped 508 points to close at 1738.74. This fall was the largest recorded drop in history. The percentage of value lost — 22.6% — was nearly double the 12.8% decline recorded on October 28, 1929. Metz, Murray, Ricks & Garcia, *The Crash of '87: Stocks Plunge 508 Amid Panicky Selling*, Wall St. J., Oct. 20, 1987, at 1, col. 5. See BRADY REPORT, *supra* note 15, at 36 (October 19 was perhaps the worst day in the history of the U.S. stock market.). Official sources refer to this financial debacle as a "market break." See DIV. OF MARKET REGULATION, U.S. SEC. & EXCH. COMM., THE OCTOBER 1987 MARKET BREAK [hereinafter SEC REPORT]; BRADY REPORT, *supra* note 15, at 15. In the interests of both style and accuracy, the term "crash" is preferred here.

70. SEC REPORT, *supra* note 69, at 3-23 n.62 (daily price change limits); Weiss, *Was Program Trading To Blame?*, BUS. WK., Nov. 2, 1987, at 51 (following crash, program trading has "critics galore — and in high places"); see *infra* note 79 (authorities criticizing index futures trading).

71. See U.S. SEC. & EXCH. COMM., THE ROLE OF INDEX-RELATED TRADING IN THE MARKET DECLINE ON SEPTEMBER 11 AND 12, 1986, at 17 (1987) [hereinafter MARCH 1987 SEC REPORT] (index futures trading offers "significant" benefit of enhanced pricing efficiency in equity markets); Jonas & Farrell, *supra* note 38, at 100 (quoting Professor Malkiel that program trading in index futures makes the market more efficient by "speeding the adjustment of prices to

theory.⁷²

Stock indexes like the Standard and Poor's Index of 500 stocks (S & P 500) or the Major Market Index of twenty "blue chip" industrials (MMI) measure the price performance of a market basket of different stocks as a means of measuring the performance of an industry segment or the stock market as a whole.⁷³ Index futures are contracts for the future delivery of the stocks that underlie the index.⁷⁴ The index futures seller, in effect, agrees to deliver at some future date a commodity — a market basket of the stocks that constitute the index — available for purchase now. Consequently, index futures contracts usually trade within a few percentage points of the current market prices for the stocks in the index.⁷⁵ A futures trader who thinks the market will rise buys futures, hoping to lock in anticipated appreciation in the stocks that make up the index at today's price. Conversely, the bearish trader sells futures, believing that in due time he can buy the stocks for delivery at a lower price than he receives in payment now.

Program traders use computers to search for discrepancies between the current price of a stock index future and the price of the stocks themselves.⁷⁶ When differences of even a point or two develop,

new information"); Hannon, *Opportunity, Thy Name Is Discrepancy*, FORBES, Sept. 22, 1986, at 156 (quoting finance Professor William Sharpe that program trading isn't "screwing up" the market but "making it more efficient."); Seligman, *Don't Fret About Program Trading*, FORTUNE, Oct. 13, 1986, at 87, 92 (SEC Commissioner John Shad believes that use of program trading for arbitrage and speculation "increase[s] market efficiency."). *But see* Hazen, *supra* note 38, at 958 (criticizing proliferation of derivative trading as magnifying existing market inefficiencies).

72. See SEC REPORT, *supra* note 69, at 3-5 (defending stock index futures trading as contributing to pricing efficiency).

73. See generally BRADY REPORT, *supra* note 15, at 5.

74. BRADY REPORT, *supra* note 15, at 5. Stock futures and options are referred to as "derivative" financial instruments because they have no intrinsic value but depend for valuation on the price of the underlying security. A stock future is a promise to deliver a particular stock at a future date. The stock is delivered regardless of whether the market price has increased (in which case the futures buyer profits and the seller loses) or declined (in which case the buyer loses and the seller profits). Stock index futures are contracts for the delivery of each of the stocks reflected in a particular market index. Options are a right to sell a stock at a particular price at some future date ("put") or the right to buy at a particular price ("call"). The option seller receives a cash payment up front from the buyer. The buyer receives the right to exercise the option or not, depending on whether the market has changed such that the option price is more favorable than prevailing market price. Stock index options also exist, but for a variety of reasons arbitrage traders strongly prefer futures to options transactions. MARCH 1987 SEC REPORT, *supra* note 71, at 14.

75. In a perfect futures market, the price of the future will equal today's cash price for the commodity plus the carrying costs of holding it until the future delivery date. The cost of carrying an index futures contract is the difference between the treasury bill rate and the dividend yield on the futures portfolio. BRADY REPORT, *supra* note 15, at 6; U.S. FED. RESERVE BD., FINANCIAL FUTURES AND OPTIONS IN THE U.S. ECONOMY: A STUDY BY THE STAFF OF THE FEDERAL RESERVE SYSTEM 11 (1986) [hereinafter FEDERAL RESERVE STUDY].

76. Program trading is more accurately described as "index arbitrage." See SEC REPORT,

traders who move quickly can make substantial profits by selling the stocks that constitute the index while buying the future at a slight discount, or by buying the stocks while selling the overpriced future. In addition to such arbitrage trading, investors may also use index futures to hedge against risk on their stock portfolios. Portfolio insurance is the practice of protecting against a market downturn by selling index futures contracts during periods of expected market decline.⁷⁷ The futures seller, in effect, "sells" stock holdings at a price near or identical to the current market price, hoping to offset any loss from a downturn in the market in general.⁷⁸

Since the inception of index futures trading in 1982, index futures have been criticized as increasing the stock market's volatility and the risk of abrupt and accelerated market declines.⁷⁹ Especially on the heels of the 1987 market crash, both program trading and portfolio insurance have been denounced by critics who claim that they caused (or at least exacerbated) the Dow's spectacular 508-point plunge on October 19, 1987.⁸⁰ On that morning sell orders generated by institutions and investors seeking to hedge against the risk of a market decline flooded the Chicago Mercantile Exchange (CME) stock index

supra note 69, at 1-3 to 1-5; BRADY REPORT, *supra* note 15, at 6. The phrase "program" trading reflects the fact that index arbitrage requires simultaneous transactions that can only be successfully done through computer programs. These programs monitor the price of the future and as many as 500 stocks making up the underlying index. Access to the computer-driven NYSE electronic order-delivery system is also essential to program trading. See SEC REPORT, *supra* note 69, at 1-5 to 1-7 (computers used extensively in program trading).

77. SEC REPORT, *supra* note 69, at 1-2 to 1-3 (describing portfolio insurance); BRADY REPORT, *supra* note 15, at 7 (same).

78. Of course, traders also can — and do — use stock index futures as a vehicle for pure speculation on the future course of the market. McMurray & Rose, *Chicago's "Shadow Markets" Led Free Fall in a Plunge that Began Right at Opening*, Wall St. J., Oct. 20, 1987, at 22, col. 1; see BRADY REPORT, *supra* note 15, at 7. To the extent that index futures trading reflects the search for speculator's profits, such trading arguably serves no social function. See Lowenstein, *Wall Street, Take a Valium*, Wall St. J., Nov. 9, 1987, at 26, col. 3 (editorial) [hereinafter *Wall Street*] ("Not much [futures and options trading] represents hedging or anything but outright speculation."); *infra* notes 92, 460-62 and accompanying text (on value of derivative products).

79. See MARCH 1987 SEC REPORT, *supra* note 71, at 16, 21 (commentators suggest index trading creates possibility of market collapse through "cascade scenario" when portfolio insurance futures sales trigger sales by index arbitrageurs that create reinforcing cycle leading to market collapse); FEDERAL RESERVE STUDY, *supra* note 75, at 14 ("Fears have long existed that futures and options markets destabilize prices in cash markets."); McMurray & Rose, *supra* note 78, at 22, col. 2 (comments of Professor Miller that "many people had feared" that the breakneck pace of trading in the five-year-old futures market might foster panic).

80. See, e.g., Weiss, *supra* note 70, at 51 (many criticize index futures' role in crash; quoting NYSE Chairman John J. Phelan Jr. that "[p]rogram trading exacerbated the decline"); Behr & Vise, *Stock Market Suffers Largest Loss in History as Dow Industrial Average Drops 508 Points: Plunge Blamed on Anxieties and Computerized Trading*, Wash. Post, Oct. 20, 1987, at 1, col. 4; McMurray & Rose, *supra* note 78, at 22, col. 1 ("panic began" in Chicago Mercantile stock-index futures pit and free-fall of index futures prices "speeded stock-price declines"); Metz, Murray, Ricks & Garcia, *supra* note 69, at 1, col. 5 ("program selling" as index futures declined triggered sales of corresponding holdings in blue chip stock).

futures pit.⁸¹ An imbalance between many sellers and almost no buyers developed. At some points, S & P 500 futures were trading at discounts of 20% below the prices of the underlying stocks.⁸² Such steep discounts created opportunities for program traders to sell their stock holdings in favor of purchasing cheaper futures contracts.⁸³ Program traders dumping large amounts of stock on the market further depressed stock prices and reinforced the cycle of decline.⁸⁴

The SEC also believes that index futures trading contributes to undesirable market volatility and the risk of a market collapse.⁸⁵ Nevertheless, both before and after the 1987 "market break," the SEC has continued to defend stock index futures trading.⁸⁶ In its report issued four months after the crash, the SEC stated that the deleterious aspects of index futures "should be viewed in the context of the benefits provided by such trading."⁸⁷ Those benefits are twofold: risk hedging for institutional investors and more efficient stock pricing.⁸⁸

81. McMurray & Rose, *supra* note 78, at 22, col. 2. See SEC REPORT, *supra* note 69, at 2-13 (heavy selling pressure first appeared in United States in CME's futures markets).

82. BRADY REPORT, *supra* note 15, at 36; Weiss, *supra* note 70, at 51.

83. Weiss, *supra* note 70, at 51.

84. Critics of stock index futures refer to this as the "cascade" scenario. See generally SEC REPORT, *supra* note 69, at 1-9 to 1-10; BRADY REPORT, *supra* note 15, at 41-42.

85. SEC REPORT, *supra* note 69, at xiii, 3-6 to 3-8; MARCH 1987 SEC REPORT, *supra* note 71, at 2. The SEC Report also suggests that knowledge of futures trading may have a "negative psychological impact" on investors. SEC REPORT, *supra* note 69, at xiii, 3-12 to 3-13 (knowledge that portfolio insurance techniques existed led potential buyers to fear that portfolio insurance triggered sales would depress prices, and knowledge that futures were trading at discounts especially gave signal that markets were headed still lower).

86. See SEC REPORT, *supra* note 69, at 3-4 to 3-5 (Index futures "offer significant benefits to today's capital markets."); MARCH 1987 SEC REPORT, *supra* note 71, at 17 (same).

87. SEC REPORT, *supra* note 69, at 3-4.

88. See SEC REPORT, *supra* note 69, at 3-5 (benefits include pricing efficiency and risk control); MARCH 1987 SEC REPORT, *supra* note 71, at 17-18 (benefits are opportunity to hedge risk through portfolio insurance, and increased pricing efficiency in equity markets).

The SEC has also suggested that stock index futures are beneficial because they offer an opportunity for investors to take positions in the equity market with greater liquidity. Increased liquidity is possible because futures have reduced margin requirements and lower transactions costs compared to transactions in the cash market itself. See SEC REPORT, *supra* note 69, at 3-5; MARCH 1987 SEC REPORT, *supra* note 71, at 17-18. (Of course, futures trading offers greater liquidity only if the futures transactions are not followed by equal stock transactions. Outside the index arbitrage context, many futures contracts normally do *not* involve delivery of the actual commodity, but are "closed out" before expiration by delivering the cash equivalent of the value of the index at the time the future is due. BRADY REPORT, *supra* note 15, at VI-18; FEDERAL RESERVE STUDY, *supra* note 75, at 3, 4).

It is difficult to see any social benefit from such "liquidity" except a derivative benefit from enhancing hedging opportunities or pricing efficiency. In addition, lowered margin requirements and transactions costs may encourage destabilizing speculative trading. See SEC REPORT, *supra* note 69, at xv (suggesting review of futures trading margin requirements to see if higher requirements might add stability); BRADY REPORT, *supra* note 15, at 65-66 (margin requirements, by limiting leverage, control speculative behavior that destabilizes markets; questioning "[i]f, from a public policy viewpoint, a given margin level for investment in stocks makes sense, [whether] lower margins and the potential for more financial leverage and speculative investment [should]

The SEC had noted in earlier reports that "index products appear to have a significant effect on the prices of securities. Economic events that would be expected to affect stocks generally are quickly reflected in futures prices; these price effects are transmitted rapidly to individual stock prices through index arbitrage."⁸⁹ The result, the SEC believes, is that stock index futures "offer significant benefits to today's capital markets" by adding "substantial . . . pricing efficiency to equity markets."⁹⁰

The SEC's defense of program trading on the grounds that it helps stock prices to adjust to new information more quickly is instructive in two respects. First, the efficiency argument favoring program trading resembles the argument for insider trading in that the informational efficiency "benefits" of each may be *de minimis*. Insider trading on nonpublic information due to be announced in the future only accelerates a price change that will occur in any event when the information is eventually disclosed days or weeks later.⁹¹ In the case of program trading, index futures transmit information into public stock prices only minutes or hours before it would otherwise arrive.⁹²

Second, the failure of portfolio insurance to protect institutional investors on October 19 has cast doubt on the efficacy of index futures

be allowed for market participants investing in stocks via derivative instruments"). A principal purpose of the 1934 Securities Exchange Act was to increase margin requirements in order to reduce speculative trading. See Securities Exchange Act of 1934, § 7, 15 U.S.C. § 78g (1982) (establishing margin requirement to reduce speculation). The "liquidity efficiency" claimed as a benefit may be more accurately described as a detriment. See SEC REPORT, *supra* note 69, at xv (suggesting that "the ease with which an institution or investment firm can [take an equity position] through the purchase or sale of derivative index products creates an environment in which investors buy and sell much larger positions than they might otherwise," contributing to speculation and volatility).

89. MARCH 1987 SEC REPORT, *supra* note 71, at 17.

90. SEC REPORT, *supra* note 69, at 3-5; see MARCH 1987 SEC REPORT, *supra* note 71, at 2 (allowing program trading "tend[s] to make markets more efficient by keeping futures and underlying stock prices in tandem").

The efficiency argument raised by the SEC in support of index futures trading has also been used to vindicate other forms of derivative trading, such as options and futures on individual stocks. See JOINT STUDY OF TRADING IN FUTURES, *supra* note 6, at I-11, II-24 to II-25.

91. See, e.g., *Chiarella v. United States*, 445 U.S. 222 (1980) (trading on the basis of information concerning tender offer targets to be disclosed within days); *United States v. Carpenter*, 791 F.2d 1024 (2d Cir. 1986), *aff'd. by an equally divided Court*, 108 S. Ct. 316 (1987) (trading on the basis of nonpublic information contained in newspaper column to be published within the next few days); *In re Cady, Roberts & Co.*, 40 S.E.C. 907 (1961) (trading on the basis of information concerning dividend cut that was made public within two hours); see also Easterbrook & Fischel, *Mandatory Disclosure and the Protection of Investors*, 70 VA. L. REV. 669, 682 (1984) (insider trading on news "bound to come out anyway . . . is not of much moment for allocative efficiency").

92. The Federal Reserve Board has suggested that "[w]hile [enhanced pricing efficiency through] price discovery and price basing are important roles of futures in physical commodities, they do not appear to be major roles for financial futures — cash and forward markets for many financial instruments are highly developed, competitive national markets that [already] rapidly process new information." FEDERAL RESERVE STUDY, *supra* note 75, at 36.

as a hedging device, and the use of portfolio insurance has declined substantially following the crash.⁹³ These developments call into question the second principal advantage attributed to index futures trading — risk shifting. Pricing efficiency thus may be the sole remaining justification for allowing index futures trading.

C. Disclosure of Merger Negotiations and Other Soft Information

The Securities Act of 1933 (1933 Act) and the Securities Exchange Act of 1934 (1934 Act) prescribe an extensive disclosure regime requiring corporations to provide investors and the SEC with certain information at certain times.⁹⁴ In addition to requiring that specific facts be disclosed, these statutes also generally require disclosure of “any material fact” necessary to make the information actually disclosed “not misleading.”⁹⁵

An area of disclosure policy that has proved particularly fertile ground for dispute is the treatment of “soft” information.⁹⁶ Soft infor-

93. “Portfolio insurance” or “dynamic hedging” usually involves institutional investors who buy or sell index futures in response to pre-determined changes in market price. SEC REPORT, *supra* note 69, at 1-2. The portfolio insurer sells futures after a drop in the market in the hope of stopping further losses. The problem with portfolio insurance as a hedging technique is that the futures seller can only effectively hedge risk if there is a buyer ready and willing to accept risk. *Id.* at 1-3, 3-16. Otherwise, the imbalance between many sellers and few buyers drives future prices down so the portfolio insurers must take a market loss after all: neither stocks nor stock futures can be sold at prior prices. This imbalance is exactly what happened in October 1987. See BRADY REPORT, *supra* note 15, at 55-56; Bleeke, *Portfolio Insurance: When, Not What*, Wall St. J., Dec. 11, 1987, at 24, col. 3; Wells, *The Markets: Some “Heavy Tinkering” Ahead*, BUS. WK., Nov. 9, 1987, at 40, 42. The drop in institutional use of portfolio insurance after the crash implies that market participants no longer believe that index futures carry substantial risk-shifting benefits. See Sease, *Dreary Street: In Wake of the Crash, Stock Market Turns Cautious - - and Dull*, Wall St. J., Apr. 11, 1988, at 1, col. 5 (Portfolio insurance did not provide expected hedging benefits in October 1987 and its use has shrunk since then.); Smith, *Use of Portfolio Insurance Fell After the Crash*, Wall St. J., Jan. 12, 1988, at 4, col. 1 (Portfolio insurance has “shrunk two-thirds or more” since the crash.).

94. The Securities Act of 1933 requires that any issuer selling securities to the public must file a registration statement with the SEC and provide a prospectus to potential investors. Those documents must disclose extensive information concerning the issuer and the proposed sale. The Securities Act of 1934 requires corporations with stock traded on a listed exchange, or corporations of a certain size and number of shareholders, periodically to file with the SEC and provide to shareholders issuer information similar to that required under the 1933 Act. See Securities Act of 1933, § 5, 15 U.S.C. § 77e (1982); Securities Exchange Act of 1934, § 12, 15 U.S.C. § 78l (1982); 17 C.F.R. §§ 240.13a-1, 240.15d-1, 249.310 (1988); 17 C.F.R. § 229.10-.702 (1988) (Regulations S-K; standard instructions for contents of statements filed under 1933 and 1934 Acts). See generally L. LOSS, *FUNDAMENTALS OF SECURITIES REGULATION*, at 148-65, 459-522 (1983) (describing disclosure system); M. HALLORAN, *GOING PUBLIC* 28-38, 49-57 (5th ed. 1983) (describing disclosure requirements of publicly held companies and those issuing stock to public for the first time).

95. See, e.g., Securities Act of 1933, § 10(b), 15 U.S.C. § 77j(b) (1982) (prospectus must include any material information necessary to make prospectus not misleading); 17 C.F.R. §§ 240.12b-20 (1988) (reports under 1934 Act must include other material information necessary to make reports not misleading).

96. See, e.g., Kerr, *supra* note 4; Hiler, *supra* note 49; Schneider, *Nits, Grits and Soft Information in SEC Filings*, 121 U. PA. L. REV. 254 (1972).

mation is information of a subjective or speculative nature, such as news of preliminary merger negotiations, appraisals of asset values, management's opinions and predictions for the future, and projections of future dividends or earnings.⁹⁷ While much soft information is clearly material to investors, the SEC for many years adopted the view that disclosure of soft information was strongly disfavored and, in some circumstances, prohibited.⁹⁸ Corporate disclosure was supposed to deal in fact, not speculation or prophecy. The SEC feared that allowing expression of subjective information might tempt management to make unduly optimistic claims or might induce unsophisticated investors to attach too much importance to information which held little factual basis.⁹⁹

Any provision limiting the dissemination of material information definitionally reduces the market's ability to incorporate that information and increases the likelihood that market prices will depart from intrinsic value.¹⁰⁰ The prohibition on soft information has been criticized accordingly for increasing the stock market's inefficiency and, it is assumed, the risk of resource misallocation.¹⁰¹ In recent years, the SEC has modified its hardline stance against soft information by permitting — and even encouraging — certain forms of soft information disclosure.¹⁰² For example, in 1979 the SEC adopted Rule 175 to encourage disclosure of projected future revenues. Rule 175 provides a "safe harbor" insulating management from liability for harm resulting from such disclosure as long as the projections had a reasonable basis

97. Kerr, *supra* note 4, at 1071 n.2. "Hard" information generally refers to objective statements of historical, verifiable fact. *Id.*; see Schneider, *supra* note 96, at 254-55. Obviously, "hard" and "soft" are not absolutes but describe opposite ends of a continuum of possible information. *Id.* at 256.

98. Hiler, *supra* note 49, at 1114-16; Steinberg & Goldman, *Issuer Affirmative Disclosure Obligations — An Analytical Framework for Merger Negotiations, Soft Information, and Bad News*, 46 MD. L. REV. 923, 934-46 (1987). For example, at one point SEC rule 14a-9 provided that the disclosure of projected dividends in management's proxy materials was *per se* misleading. See 17 C.F.R. § 240.14a-9 (1970).

99. Kerr, *supra* note 4, at 1073; Steinberg & Goldman, *supra* note 98, at 935.

100. As in the case of insider trading, requiring disclosure of soft information such as projections and merger negotiations enhances efficiency if we adopt "strong form" efficiency as a goal. See *supra* notes 28, 47.

101. See, e.g., Dennis, *Mandatory Disclosure Theory and Management Projections: A Law and Economics Perspective*, 46 MD. L. REV. 1197, 1213 (1987) ("More complete access to management's views on future worth should enhance market efficiency."); Kerr, *supra* note 4, at 1110 ("[T]he traditional SEC approach to soft information . . . defeats another SEC policy: promotion of an efficient market."); Note, *The Efficient Capital Market Hypothesis, Economic Theory and the Regulation of the Securities Industry*, 29 STAN. L. REV. 1031, 1067 (1977) (should allow disclosure of more soft information to keep stock prices efficient).

102. Kerr, *supra* note 4, at 1072-75; Steinberg & Goldman, *supra* note 98, at 937-39.

and were made in good faith.¹⁰³ Traditional prohibitions against appraisals of asset values have also been softened.¹⁰⁴ Nevertheless, the SEC has stopped short of actually requiring the disclosure of material soft information in circumstances where other material information must be disclosed. Some commentators suggest that the SEC should take that further step and maximize market efficiency by requiring disclosure of material soft information.¹⁰⁵

One soft-disclosure issue which has received much recent attention is whether corporations must disclose merger negotiations which have not yet produced a finalized agreement.¹⁰⁶ Corporations negotiating a merger may prefer to avoid public announcement of such matters for a number of reasons. Early disclosure creates the risk that the negotiation process might suffer under public scrutiny, or that the fear of attracting rival suitors will discourage bidders from identifying and approaching potential targets.¹⁰⁷ On the other hand, failure to disclose reduces market efficiency by slowing the market's incorporation of highly relevant information.¹⁰⁸

The importance of the issue has been highlighted by the Supreme Court's recent decision in *Basic Inc. v. Levinson*.¹⁰⁹ That case dealt with the ticklish position of corporate management who were involved in confidential merger discussions and were called on by NYSE au-

103. See 17 C.F.R. § 230.175 (1987); Safe Harbor Rule for Projections, Securities Act Release No. 6084, [1979 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 82,117 (June 25, 1979).

104. Kerr, *supra* note 4, at 1074-75.

105. See Dennis, *supra* note 101, at 1213, 1217 (mandatory disclosure enhances market efficiency more than voluntary soft disclosure system because general rather than selective release of projections may lead to more rapid incorporation of information into market); Note, *supra* note 22, at 351-52 (mandatory disclosure of soft information necessary to enhance efficiency).

106. Goelzer, *Disclosure of Preliminary Merger Negotiations — Truth or Consequences?*, 46 MD. L. REV. 974, 975 n.4 (1987) (preliminary merger negotiations "the subject of considerable recent commentary"); see, e.g., *Basic Inc. v. Levinson*, 108 S. Ct. 978 (1988); Brown, *supra* note 28; Gabaldon, *The Disclosure of Preliminary Merger Negotiations as an Imperfect Paradigm of Rule 10b-5 Analysis*, 62 N.Y.U. L. REV. 1218 (1987); Hazen, *supra* note 32.

107. See Easterbrook & Fischel, *The Proper Role of a Target's Management in Responding to a Tender Offer*, 94 HARV. L. REV. 1161, 1178-79 (1981); Hazen, *supra* note 32, at 954; Steinberg & Goldman, *supra* note 98, at 925-27. Some jurists and scholars also argue that unsophisticated investors may attribute too much significance to tentative preliminary contracts which never lead to any agreement. See Staffin v. Greenberg, 672 F.2d 1196, 1206 (3d Cir. 1982); Steinberg & Goldman, *supra* note 98, at 925. But see *Basic Inc. v. Levinson*, 108 S. Ct. at 984 (this view assumes investors are "nitwits" unable to appreciate that mergers are risky propositions) (quoting Flamm v. Eberstadt, 814 F.2d 1169, 1175 (7th Cir.), cert. denied, 108 S. Ct. 157 (1987)).

108. See Gabaldon, *supra* note 106, at 1249-50, 1267, 1281 (affirmative duty to disclose merger negotiations improves efficient allocation of capital by enhancing information in market); Goelzer, *supra* note 106, at 1022 (SEC position in favor of allowing "no comment" discourages misleading disclosure at the expense of the dissemination of accurate information to the trading market); Hazen, *supra* note 32, at 954 (accurate information concerning merger negotiations necessary for efficient market).

109. 108 S. Ct. 978 (1988).

thorities to explain unusual trading in the merger target's stock. In *Basic*, the target's management chose to respond with a public statement that it was unaware of any corporate development which would explain the heavy trading.¹¹⁰ That assertion seems false on its face.¹¹¹ Nevertheless, the Third Circuit in *Greenfield v. Heublein, Inc.*¹¹² had upheld just such a "no corporate development" statement. It did so on the theory that soft information concerning merger negotiations need not be disclosed because it is "immaterial as a matter of law," given the importance of secrecy and the danger that investors will treat negotiations as *faits accomplis*.¹¹³

In *Basic*, the Supreme Court declined to address whether federal law required disclosure of preliminary merger negotiations.¹¹⁴ The opinion focused instead on the *Greenfield* issue of whether news of negotiations could be described as "immaterial as a matter of law" in the face of a voluntary and misleading statement.¹¹⁵ However, in addressing another question arising in the case — the legitimacy of the "fraud-on-the-market" theory of investor reliance — Justice Blackmun's opinion for the majority voiced a concern for efficient stock pricing that would support mandatory disclosure of merger negotiations.¹¹⁶

The fraud-on-the-market theory responds to the need for reliance as an element of a plaintiff's claim for fraud under Rule 10b-5.¹¹⁷ The theory presumes that the stock market does, indeed, efficiently process information, so that securities prices embody all available data.¹¹⁸

110. 108 S. Ct. at 979.

111. Prior to *Basic*, NYSE authorities had taken the position that if management believed that a leak of confidential information concerning negotiations had occurred, the negotiations themselves must be disclosed. If, however, management believed that confidentiality had been maintained, they could respond that they were "unaware of any corporate development" which would explain the rumors or trading. Note, *supra* note 37, at 551. See New York Stock Exchange Listed Company Manual § 202.03, reprinted in 3 Fed. Sec. L. Rep. (CCH) ¶¶ 23,513-23,557, at 17,212 (Aug. 23, 1985). The theory underlying this distinction was that if management did not believe that news of the negotiations had leaked, they had no reason to believe the unusual trading was attributable to the negotiations. In *Basic*, the Supreme Court gave short shrift to such fine distinctions, approving in a footnote the Sixth Circuit's "more natural" reading of a "no comment" statement as emphasizing no knowledge of any corporate development, rather than no knowledge of a leak of a development. See 108 S. Ct. 988 n.20.

112. 742 F.2d 751 (3d Cir. 1984), *cert. denied*, 469 U.S. 1215 (1985).

113. 742 F.2d at 756. The Third Circuit held that negotiations would remain immaterial until agreement on both price and structure of the merger had been reached. 742 F.2d at 756-57.

114. 108 S. Ct. 979 (1988). Of course, the Court's holding that preliminary merger negotiations are *not* immaterial by law is consistent with a concern for enhancing informational efficiency.

115. 108 S. Ct. at 985, n.13.

116. See 108 S. Ct. at 988-90.

117. 108 S. Ct. at 989.

118. 108 S. Ct. at 988-89.

False or misleading statements that affect market price can “therefore defraud purchasers of stock even if the purchasers do not directly rely on the misstatements.”¹¹⁹ *Basic* approved the use of the fraud-on-the-market theory by holding that a showing that the defendant’s misstatements had distorted market price could establish a presumption of reliance for purposes of certifying a class of plaintiffs. In doing so, the Court could have simply found sufficient causation and reliance under 10b-5 in proof that the plaintiff purchased stock at a price affected by the fraud. Instead, the Court went on to suggest that fraud-on-the-market is a desirable doctrine because it expands liability in a fashion that promotes pricing efficiency.¹²⁰

Justice Blackmun’s opinion for the Court described the issue as one of price “integrity,” defined as a market in which investors can rely on the price of a stock “as a reflection of its value.”¹²¹ The fraud-on-the-market theory permits lawsuits by investors who purchased securities at a price distorted by fraud even if those investors never read or relied on the fraudulent statement.¹²² According to *Basic*, allowing such plaintiffs to sue serves a “congressional policy embodied in the 1934 Act”¹²³ that “‘market price reflects as nearly as possible a just price,’” and that markets operate “‘as indices of real value.’”¹²⁴ This dictum implies that market efficiency is a fundamental goal of securities policy to be pursued through the expansion of 10b-5 liability if necessary.¹²⁵

The *Basic* opinion does not directly address whether there is a duty to disclose merger negotiations in instances where other material information must be disclosed.¹²⁶ But cautious counsel will surely take

119. 108 S. Ct. at 988-89 (quoting *Peil v. Speiser*, 806 F.2d 1154, 1160-61 (3d Cir. 1986)).

120. See 108 S. Ct. at 989-90.

121. 108 S. Ct. at 990 (quoting *Peil v. Speiser*, 806 F.2d 1154, 1161 (3d Cir. 1986)). See 108 S. Ct. at 996 (White, J., concurring in part and dissenting in part) (majority opinion defines “market integrity” as market in which stock prices reflect value).

122. 108 S. Ct. at 996-97 (White, J., concurring in part and dissenting in part).

123. 108 S. Ct. at 990-91.

124. 108 S. Ct. at 991 (quoting H.R. REP. NO. 1383, 73d Cong., 2d Sess. 11 (1934)).

125. *Basic* seems to view the legitimacy of fraud-on-the-market reliance as a policy debate in which fraud-on-the-market liability wins approval because it creates incentives for increased and more accurate disclosure of information. Such disclosure in turn promotes market efficiency. Compare Note, *Fraud on the Market: An Emerging Theory of Recovery Under SEC Rule 10b-5*, 50 GEO. WASH. L. REV. 627, 645-46 (1982) (noting that fraud-on-the-market liability promotes efficient markets by creating incentives for increased and more accurate disclosure of information), with Fischel, *Use of Modern Finance Theory in Securities Fraud Cases Involving Actively Traded Securities*, 38 BUS. LAW. 1, 14 (1982) (noting that fraud-on-the-market theory liability may reduce market efficiency because investors who believe they can sue and recover if market price is distorted by fraud may spend less effort investigating worth of securities).

126. At present, it appears management has no abstract duty to disclose preliminary contacts along with other “material” information. See Gabaldon, *supra* note 106, at 1264 (prevailing view

a hint from the Court's observation that "[j]ust as artificial manipulation tends to upset the true function of an open market, so the hiding and secreting of important information obstructs the operation of the markets as indices of real value."¹²⁷ If market efficiency is a goal of securities law, and if disclosing all important nonpublic information serves that goal, merger negotiations must be disclosed.

D. Summary

The legal rules that legitimize insider trading, allow index futures trading, or require corporations publicly to disclose merger negotiations are, to put it mildly, controversial matters. Many believe such rules improve market efficiency and support them.¹²⁸ Others, who think the costs of the rules outweigh the benefits, oppose them.¹²⁹

But even those who oppose insider trading, index futures trading, or mandatory disclosure of merger negotiations generally do not dispute the purported benefits of efficient markets. They may argue that such policies do not contribute to market efficiency or even contend that they harm it. For example, some adversaries of insider trading question whether the amount of trading involved is large enough to move stock prices significantly.¹³⁰ Others argue that permitting insider trading creates incentives for management to withhold news of important corporate developments until after they have traded on the information, thereby decreasing efficiency.¹³¹ Some opponents of

among courts that no duty to disclose); Steinberg & Goldman, *supra* note 98, at 923 (neither courts nor SEC recognize general duty to disclose). An obligation to disclose may arise under particular circumstances. For example, a corporation trading in its own stock is under a duty to disclose such information to the stockholders with whom it trades. Also a corporation that has previously denied negotiations might have to disclose when subsequent events make the earlier statement misleading.

127. 108 S. Ct. at 991 (quoting H.R. REP. No. 1383, 73d Cong., 2d Sess. 11 (1934)).

128. See *supra* notes 39-48, 86-90 & 105-08 and accompanying text.

129. See, e.g., Brudney, *Insiders, Outsiders, and Informational Advantage Under Federal Securities Laws*, 93 HARV. L. REV. 322 (1979) (criticizing insider trading); Cox, *supra* note 67 (same); Schotland, *infra* note 131 (same); L. LOWENSTEIN, WHAT'S WRONG WITH WALL STREET 69-75 (1988) (Index futures trading encourages destabilizing speculation without providing commensurate benefits.); Laderman & Nussbaum, *The Big Board's Crusade Against Program Trading*, BUS. WK., Mar. 23, 1987, at 134 (NYSE Chairman John Phelan criticizes index futures providing opportunities for manipulation of prices); Hazen, *supra* note 32, at 961 (disclosing merger negotiations can harm negotiations and lead to misleading rumors); Steinberg & Goldman, *supra* note 98, at 925-27 (opposing mandatory disclosure of preliminary negotiations).

130. See Cox, *supra* note 67, at 646-48 (criticizing view that insider trading "nudges" price on theory that surreptitious trading is insufficient to achieve equilibrium price); Gilson & Kraakman, *supra* note 1, at 631-32 (insider trading does not aid efficiency by moving stock prices in the correct direction because the amounts involved are too small to move stock prices significantly). But see Carney, *supra* note 27, at 889-91 (insider trading can "signal" other investors and change prices).

131. See ABA Report, *supra* note 6, at 228-29 (legalizing insider trading may harm market efficiency by creating incentives for managers to delay disclosure of information until after they

mandatory disclosure of merger negotiations similarly assert that disclosure leads to rumors that prevent stock prices from reflecting intrinsic values.¹³² But whatever their opinion of the merits of a particular law or rule, judges, scholars, and SEC policymakers alike seem to assume that informationally efficient markets must be nurtured and promoted.

This belief remains strong even when a particular rule is shown to provide only small efficiency benefits. Government intervention is not a prerequisite for markets to incorporate information. Even if there were no SEC or securities laws, private incentives to provide and to seek out profitable information would ensure that stock prices embodied a great deal of data concerning stocks' values.¹³³ Indeed, the belief that private market forces ensure that the stocks of large, publicly held corporations are efficiently priced was one premise for the SEC's adoption of the "integrated" disclosure system which reduced the disclosure responsibilities of such firms.¹³⁴ Government policies that enhance efficiency do so only *at the margin*. In many cases, the efficiency benefits of a particular policy appear to be limited to accelerating the market's reaction to information by only hours or days.¹³⁵

Nevertheless, the perceived need to fine-tune the market's effi-

have traded on it); Schotland, *Unsafe at Any Price: A Reply to Manne*, 53 VA. L. REV. 1425, 1448-49 (1967) (same). *But see* Cox, *supra* note 67, at 635-42 (describing and critiquing this view).

132. *See* Hazen, *supra* note 32, at 954, 956, 969; Comment, *Corporate Disclosure of Merger Negotiations — When Does the Investor Have a Right To Know?*, 36 SYRACUSE L. REV. 1155, 1159 n.27 (1985).

133. *See* Easterbrook & Fischel, *supra* note 91 (describing private incentives for firms to disclose, and investors to seek out and trade on, information relevant to stock price); *see also* Benston, *Required Disclosure and the Stock Market: An Evaluation of the Securities Exchange Act of 1934*, 63 AM. ECON. REV. 132, 153 (1973) (arguing that 1934 Act has not significantly improved the information available to investors).

134. Gilson & Kraakman, *supra* note 1, at 550 n.4 (ECMH the "intellectual premise" of integrated disclosure). Under the integrated disclosure system, very large corporations that make periodic disclosure under the 1934 Act need not provide investors with information concerning the corporation but can simply "incorporate by reference" information disclosed in previous SEC filings. *See supra* note 94 (describing 1934 Act disclosure). Integration reduces the burdens of the disclosure system on corporations by reducing duplicative filings. The integrated system is predicated in part on the belief that the market is "semi-strong" efficient with respect to large corporations, so that all available public information, whether widely disseminated or not, is incorporated into price. *See generally* L. Loss, *supra* note 94, at 148-54 (integrated disclosure). If the stock market were to become so inefficient that integration became inappropriate even for the relatively few large companies which can now take advantage of it, it could be argued that government intervention to improve efficiency would be justified to preserve the regulatory savings that follow from integration. The analysis at this point becomes a simple balancing of administrative costs (*i.e.*, the cost of administering efficiency-enhancing programs measured against the lost savings that follow from integration). The fact that the SEC has denied the benefits of integrated disclosure to the vast majority of firms suggests that the savings resulting from integration are insufficient to overcome the costs of achieving the efficient pricing upon which integration is premised.

135. *See supra* notes 91-92 and accompanying text.

ciency pervades security policy discussions. Virtually any issue touching upon corporate disclosure or the regulation of trading markets can be expected to affect the market's speed in adjusting to new information. As a result, efficiency objectives have been raised not only in connection with insider trading, program trading and soft information disclosures, but with each of the following issues as well: stabilizing markets by halting trading or imposing daily price change limits;¹³⁶ "shelf" registration of securities;¹³⁷ the integrated disclosure system;¹³⁸ the development of a national market system;¹³⁹ computerized electronic filing and other developing information technology;¹⁴⁰ the appropriate role of management faced with a hostile tender offer;¹⁴¹ the value of arbitrageur speculation in takeover stocks;¹⁴² the role of mutual funds;¹⁴³ federal preemption of state takeover statutes;¹⁴⁴ and the value of federal antifraud provisions.¹⁴⁵

The current preoccupation with market efficiency is perhaps best illustrated by the "revisionist" critique¹⁴⁶ of the mandatory disclosure

136. Compare BRADY REPORT, *supra* note 15, at 66 (recommending price change limits and trading halts as "circuit breakers" which facilitate "price discovery" by giving market time to pause and evaluate impact of new information), with Vise, *Six Months After Collapse, Markets Near Pact on Trading Halts*, Wash. Post., Apr. 20, 1988, at D1, col. 2, D8, col. 1 (quoting Michael Duval of First Boston Corp. that trading halts would "significantly [weaken] the efficiency of the capital markets" and Robert Rubin of Goldman, Sachs that trading halts distort the market's ability to set prices).

137. Compare Banoff, *supra* note 38, at 184 (shelf registration allows issuers to sell securities at correct prices, benefiting allocation efficiency), with Fox, *supra* note 5, at 1032 (shelf registration reduces underwriter due diligence, harming market efficiency and economy).

138. Fox, *supra* note 5, at 1032-33 (Integration may reduce underwriter due diligence and reduce allocative benefits of an efficient market.).

139. See SEC POLICY STATEMENT, *supra* note 12, at D-1 (central market system can maximize market efficiency); Gilson & Kraakman, *supra* note 1, at 627-28 n.206 (adoption of market system might further informational efficiency, as "market structure has a substantial impact on the cost of information, and therefore on relative marketing efficiency").

140. See Langevoort, *supra* note 31, at 803 (new technology improves market efficiency).

141. See *infra* notes 362-67 and accompanying text.

142. See Easterbrook & Fischel, *supra* note 107, at 1183 n.60 (defending arbitrageurs as contributing to efficiency).

143. Levy & Robbins, *The SEC Forgets Its Economics*, COLUM. J. WORLD BUS., May-June 1967, at 9 (expertised mutual funds direct capital into most attractive channels, "thereby improving the efficiency of the market and enabling companies that operate in areas of greatest economic promise to raise equity capital more easily").

144. *Ramifications of Black Monday Discussed at Annual PLI Conference*, 19 Sec. Reg. & L. Rep. (BNA) No. 45, at 1726, 1729 (Nov. 13, 1987) (remarks of panelist at PLI's November 5-7, 1987, 19th Annual Institute on Securities Regulation that market cannot operate efficiently under regulation by a host of different statutes); Ruder *Restates Support for Measure To Preempt State Antitakeover Laws*, Sec. Reg. & L. Rep. (BNA) No. 46, at 1759 (Nov. 20, 1987) (November 13, 1987, remarks of SEC Chairman David Ruder that limitations on transferability of shares imposed by the current generation of state takeover statutes "diminish the efficiency, depth and liquidity of the nation's security markets," justifying federal preemption of the area).

145. See Easterbrook & Fischel, *supra* note 91, at 673-79 (antifraud rules enhance efficiency).

146. Professor Coffee appears to be the first to apply the term "revisionist" to securities

system developed under the 1933 and 1934 Acts.¹⁴⁷ There is evidence that the extensive information corporations file with the SEC and provide to investors under those statutes does not change stock prices.¹⁴⁸ From these findings, some conclude that the information disclosed has already been incorporated into stock price through other channels — in other words, mandatory disclosure does not make the market more efficient.¹⁴⁹ On the strength of this observation, some revisionists argue that the mandatory disclosure scheme upon which more than a half-century of securities policy has been premised is valueless and should be abandoned.¹⁵⁰

The position that mandatory disclosure serves no useful function if it does not enhance market efficiency is an extreme one.¹⁵¹ But it illustrates well the perceived importance of efficient markets in securities policy. Such a view treats informational efficiency as not merely an important objective of securities policy, but as the *only* objective.

II. THE ECONOMIC FUNCTIONS OF STOCK PRICES

Why are efficient markets such a compelling goal? Commentators who stop to address the question generally conclude that informa-

scholars who believe that if markets are already informationally efficient, no purpose is served by disclosure regulation. See Coffee, *supra* note 5, at 717. See also Dennis, *supra* note 101, at 1205-06 (describing "revisionist" work of Professor George Benston); Sargent, *supra* note 36, at 1062 (referring to "post-revisionist" preoccupation with market efficiency).

147. See *supra* note 94.

148. See Benston, *supra* note 133, at 153.

149. *Id.*; Wolfson, *A Critique of the Securities and Exchange Commission*, 30 EMORY L.J. 119, 129-30 (1981).

150. See Benston, *supra* note 133, at 153 (no evidence 1934 Act was needed or desirable); Dennis, *supra* note 101, at 1209 (Some argue that if securities prices reflect information mandatorily disclosed before filing, eliminating mandatory disclosure does not harm investors and reduces compliance costs.). See also Wolfson, *supra* note 149, at 129-30 (SEC's economic theory "fundamentally" flawed as pertinent information is usually received and evaluated by market long before it is dispersed through SEC-mandated reports). But see Seligman, *The Historical Need for a Mandatory Corporate Disclosure System*, 9 J. CORP. L. 1, 16 (1983) (if mandatory disclosure causes corporation to publish information that would not otherwise be announced, "it is of trivial significance" whether data first published in SEC filings or elsewhere).

151. There are reasons to encourage corporate disclosure and discourage fraud apart from their effect on stock prices. Professor Coffee argues that mandatory disclosure may compensate for underproduction of information to investors due to its public-good nature, discourage wasteful private expenditures to obtain information, discipline management by overcoming incentives to withhold information or disseminate false information, and help investors who cannot diversify and need information on diversifiable risk factors. See Coffee, *supra* note 5, at 721-23; see also Schulte, *The Debatable Case for Securities Disclosure Regulation*, 13 J. CORP. L. 535, 539-542 (1988) (controlling fraud and abuse also enhances investor "confidence" in the stock market by ensuring that public investor's returns are not systematically diminished by fraudulent conduct, and federal scheme may prevent states from protecting in-state issuers by exploiting out-of-state investors); Seligman, *supra* note 150, at 9 (historical analysis shows that mandatory disclosure reduces fraud and excessive underwriter and insider compensation while increasing investor confidence).

tional efficiency — which addresses only the market's speed in adjusting prices to new information — is desirable because it serves allocative efficiency — the proper allocation of scarce resources among competing alternate uses.¹⁵²

The grail of economic analysis is the optimal allocation of resources so that no redistribution would allow some consumers to be made better off without others being made worse off.¹⁵³ A market economy relies on the pricing mechanism to channel goods and services to their most highly valued use.¹⁵⁴ Economists thus consider correct pricing to be essential to maximizing social welfare in a market system.¹⁵⁵ If economists regard accurate pricing as necessary to the efficient allocation of commodities, it seems natural that efficient pricing is crucial to the securities market as well. As a rule, scholars and policymakers assume that mispriced securities do misallocate resources because stock prices influence the production, distribution, and consumption of goods and services. Thus, informational efficiency in stock prices is thought to improve allocative efficiency in general.¹⁵⁶

However, unlike most goods and services distributed by the econ-

152. See, e.g., Coffee, *supra* note 5, at 734 (Securities prices are important "not so much because of their distributive consequences on investors but more because of their effect on allocative efficiency."); Schulte, *supra* note 151, at 539 (securities prices important because of their effect on allocative efficiency); sources cited *supra* note 12.

153. See R. LIPSEY & P. STEINER, *ECONOMICS* 12, 918 (4th ed. 1975); P. SAMUELSON, *ECONOMICS* 631-32 (9th ed. 1973). This articulation of efficiency incorporates notions of both pure efficiency (maximizing total wealth or production without concern for ultimate distribution) and "pareto-optimality" (the notion that the economic well-being of one actor cannot be increased by increasing production through another's sacrifice unless full compensation is paid to the "loser"). Compare Schulte, *supra* note 151, at 537 (wealth maximized if market efficiently allocates resources) with Seligman, *supra* note 12, at 1119 (ideally, market would allocate resources so that no reallocation could make anyone better off without making another worse off). See generally Coffee, *Regulating the Market for Corporate Control: A Critical Assessment of the Tender Offer's Role in Corporate Governance*, 84 *COLUM. L. REV.* 1145, 1174 n.76 (1984) (importance of compensation to pareto-optimality).

154. Schulte, *supra* note 151, at 537. See R. LIPSEY & P. STEINER, *supra* note 153, at 63-65, 925; P. SAMUELSON, *supra* note 153, at 43-47.

155. A free market relies on a willingness to pay, as measured in monetary terms, to determine how highly individual consumers value particular goods. A good is presumed to be worth most to the consumer who will pay the highest price for it. Market distortions may shift price from the equilibrium that would be set by supply and demand in a perfect market. Whether these distortions are the result of price controls (such as minimum wage laws), monopoly, or the slow incorporation of information concerning value, they are assumed to produce sub-optimal allocations of resources. These diminish the total wealth available to be distributed and reduce social welfare. See P. SAMUELSON, *supra* note 153, at 390-94, 497-98 (price controls and monopoly distort pricing and hurt resource allocation).

156. Mundheim, *Selected Trends in Disclosure Requirements for Public Corporations*, 3 *SEC. REG. L.J.* 3 (1975) (increased pricing efficiency through disclosure of material information "generally thought" to enhance allocational efficiency); see, e.g., sources cited *supra* notes 12, 152; *JOINT STUDY OF TRADING IN FUTURES*, *supra* note 6, at I-11 to I-12 (defending stock futures and options as enhancing informational efficiency of underlying stock prices, and asserting, without supporting citation, that this trading "also promote[s] efficiency in the production, distribution, and consumption of goods and services over time"); Note, *supra* note 38, at 1529

omy, stocks have no intrinsic value.¹⁵⁷ They are only instruments representing other, possibly valuable, rights. Investors do not “consume” them. “Producing” securities requires no more than the paper and ink needed to print them. The connection between securities prices and the allocation of real resources is thus inherently uncertain.

Recognizing the ambiguity of that link, commentators have developed a number of theories to explain why stock prices have economic effects and why the stock market should be viewed as “an instrument of social control” that “monitors and structures the allocation of scarce resources in the economy.”¹⁵⁸ The most significant of these are the “capital-allocation” theory and its two variations, the “investor-confidence” and “substitute-good” theories. Other arguments raised in support of promoting the market’s efficiency are the “managerial-signaling” theory; the “wealth-effect” theory; and the “market-for-control” theory. This section will examine each in turn. In each case, there is reason to question the extent to which securities prices influence real economic events.

A. *Efficient Markets and the Allocation of Investment Capital Among Corporations*

The argument most frequently raised in defense of the importance of efficient markets is that stock market prices allocate investment capital among corporations competing to raise investment funding.¹⁵⁹ The capital-allocation hypothesis asserts that in an informationally efficient stock market, all firms will face the same equity “cost of capital” (*i.e.*, the expected return that investors demand for each dollar

(improving informational efficiency through disclosure “necessarily” improves allocational efficiency).

157. Because securities are not consumables, proper pricing cannot maximize subjective happiness or “utility” by allocating a particular security to the individual who receives the most pleasure from it. A share of stock rationally expected to produce a stream of income with a present value of \$25 will be worth exactly \$25 to all investors. *See* W. BAUMOL, *supra* note 25, at 47; S. KEANE, STOCK MARKET EFFICIENCY: THEORY, EVIDENCE AND IMPLICATIONS 6 (1983). The price mechanism may help to allocate consumables efficiently to those who subjectively value them most (*e.g.*, only those who get the greatest subjective pleasure from expensive Italian shoes will be willing to pay for them). But to the extent that consumers differ in their valuations of securities, they do so because their predictions of the future earnings of the stocks differ, not because they subjectively “like” AT&T more than IBM. *See infra* note 276 (heterogeneous opinions).

158. Fox, *supra* note 5, at 1009, 1015.

159. *See, e.g.*, Freeman v. Decio, 584 F.2d 186, 190 (7th Cir. 1978) (accurate securities prices route capital to its most productive uses); Anderson, *supra* note 4, at 314 (efficient markets better allocate capital); Barry, *supra* note 5, at 1318 (continual impoundment of information into prices “essential” to efficient capital allocation); Dennis, *supra* note 5, at 375 (efficient markets allocate capital into most profitable areas); Gilson & Kraakman, *supra* note 1, at 613 (moving information quickly into market leads to more effective capital markets); Macey, *supra* note 42, at 31 n.110 (“efficient” markets guide capital investment); sources cited *infra* note 167.

they invest in common stock).¹⁶⁰ A thriving corporation with high earnings can sell shares at a proportionately higher price than a less successful firm with the same assets but lower earnings.¹⁶¹ As long as stock prices reflect the company's expected future earnings, investment capital will "migrate to those companies and projects that seem most likely to succeed."¹⁶² Efficient prices thus "maximize welfare by allocating scarce resources to investment opportunities promising the greatest return."¹⁶³

The capital-allocation hypothesis views the stock market as "the nation's primary mechanism for allocating economic resources among competing companies"¹⁶⁴ and "the allocator of capital resources *par excellence*."¹⁶⁵ If we want to channel society's savings to their most productive use, it is essential that stock prices accurately reflect the prospects of the underlying corporations. Because "our capital allocation mechanism affects . . . the long-run prospects of our entire economy,"¹⁶⁶ stock market efficiency becomes a public issue of critical importance, and capital allocation becomes the stock market's "most important" economic function.¹⁶⁷

The capital-allocation hypothesis is perhaps the most compelling justification raised in support of pursuing informationally efficient stock markets. Its limitations are evident only if we recognize two realities of corporate financing behavior. The first is that corporations rarely rely on equity issues for funding, and stock prices have little or no influence on other, more commonly used sources of capital.¹⁶⁸ The second reality is that, while informational efficiency is normally sought and discussed in the context of public trading on organized exchanges and in the over-the-counter (OTC) market, the funds that corpora-

160. See Barry, *supra* note 5, at 1316 n.46; Fischel, *Efficient Capital Market Theory, The Market for Corporate Control, and the Regulation of Cash Tender Offers*, 57 TEXAS L. REV. 1, 4-5 (1987); Friend, *supra* note 31, at 190. The "cost" of equity capital is the dividends and other payouts that shareholders expect in return for their equity investment. BRADY REPORT, *supra* note 15, at VII-2.

161. See Barry, *supra* note 5, at 1317-18 ("When investors who see promise in a company bid up the price of its securities they enable it to pursue its various projects more intensively by using less expensive capital."); Wu, *supra* note 12, at 264 (Companies that are likely to be profitable will be able to sell their stock for more than companies whose futures are gloomy.).

162. Barry, *supra* note 5, at 1317.

163. *Id.*

164. R. KARMELE, *supra* note 17, at 259.

165. W. BAUMOL, *supra* note 25, at 4.

166. *Id.* at 2.

167. See Fischel, *supra* note 160, at 4 (efficient capital allocation is "most important" economic goal of securities markets); Friend, *supra* note 31, at 190 (allocation of capital is market's "most important" economic function); Wu, *supra* note 12, at 263 (allocation of capital is market's "most important" function).

168. See *infra* notes 178-204 and accompanying text.

tions receive when they do sell equity are not determined by prices in the trading markets but by prices set in negotiations between underwriters and issuers.¹⁶⁹ There are reasons to believe that trading market prices have little influence on the pricing of many issues in the underwriting market, and that underwriters persistently misprice many issues for reasons that have nothing to do with the efficiency or inefficiency of the trading markets.¹⁷⁰ In other words, efficient stock markets may be neither necessary nor sufficient for the proper allocation of capital among corporations.

1. *The Unimportance of Equity as a Source of Capital*

When a corporation first sells shares to investors and uses this money to hire employees, buy machinery, or expand its physical plant, that transaction involves the allocation of real resources to the production of goods or services for consumption.¹⁷¹ But stock, once issued, is neither depreciated nor consumed. Instead it is sold and resold at changing prices in the over-the-counter and exchange markets. However significant these subsequent sales are to the individuals who participate in them, they do not add a penny of additional investment capital to the corporation's coffers.¹⁷² When one investor sells stock to another investor, the two are essentially gambling on their expectations for the corporation's prosperity.¹⁷³ The terms of the bargain they strike only reallocate wealth between them, as parimutuel wagering reallocates wealth among bettors at the racetrack.¹⁷⁴

169. See *infra* notes 206-11 and accompanying text.

170. See *infra* notes 212-67 and accompanying text.

171. Of course, the reality is that investors almost invariably buy their shares not from the issuer, but from an underwriter (or dealer who purchased from an underwriter) who purchased from the issuer. Only the underwriter's purchase provides proceeds to the corporation. See *infra* notes 207-11 and accompanying text.

172. See Levmore, *supra* note 12, at 156 (firm receives capital when stock is issued; subsequent changes in price "affect the relative wealth of individual shareholders, but not the amount of capital that is at the company's disposal").

173. When investor *A* sells a share of stock to investor *B* for \$20, *A* is gambling that the issuing corporation's financial status will decline; *B* hopes it will improve. If *A* is right and the price of the stock declines to \$10, we may say that resources have been "reallocated" in the sense that the winner, *A*, is \$10 better off, while loser, *B*, is \$10 poorer. But while such reallocations are important to the transaction's participants, no social consequences follow. Whether *A* is richer or *B* poorer has no predictable impact on the overall level of production of the economy, unless we have some reason to believe that *A* will use the money more productively than *B* would. See Coffee, *supra* note 5, at 733 (can regard trading markets for securities as pursuit of gain that does not increase social wealth, because one party's gain must come from another's loss); Fox, *supra* note 5, at 1010 (stock trading among investors as a zero-sum game in which one player's gain is another's loss).

174. The point was well put by Professor Berle:

When I buy AT&T or General Motors, I do not remotely "invest in" either concern. I have bought from Nym, who bought from Bardolph, who bought from Pistol, who bought through ten thousand predecessors in title from Falstaff, who got the stock when originally

Any careful investigation of the allocative function of stock markets must therefore distinguish between two types of transactions: corporate issuances of shares, and subsequent transactions in those shares among investors in the public trading markets of the stock exchanges and the over-the-counter National Association of Securities Dealers Automatic Quotation (NASDAQ) system.¹⁷⁵ The importance of the distinction is underlined by the disparity in the sizes of the two markets. In 1985, corporations issued seventeen billion dollars in common stock. Yet in the same year, over one trillion dollars was traded on the organized exchanges, with another \$223 billion in equity traded on NASDAQ.¹⁷⁶ The dollar volume of trading in outstanding shares on the exchanges and in the over-the-counter market generally outweighs corporate issues by a ratio of nearly thirty to one.¹⁷⁷

a. *Firms rarely use equity issues to raise capital.* Corporations can finance their projects through a number of means other than issuing stock. Many expenditures can be met through internally generated revenues.¹⁷⁸ A host of forms of debt (including commercial loans, public or private bond sales, accounts payable, commercial paper, and letters of credit) also can provide capital to the corporation.¹⁷⁹ The

issued. Let us assume Falstaff was a genuine investor — that he bought the stock directly from the corporation . . . This contribution, the only real “investment” in the chain, was probably an infinitesimal fraction of the price I paid to Nym. Now what Nym does with the price he receives from me nobody knows; the one certainty is that he does not contribute any of it to AT&T or General Motors.

Berle, *supra* note 14, at 446.

175. See Poser, *Restructuring the Stock Markets: A Critical Look at the SEC's National Market System*, 56 N.Y.U. L. REV. 883, 886 (1981) (“two distinct” markets for corporate issues and trading in outstanding shares).

176. NEW YORK STOCK EXCH., NEW YORK STOCK EXCHANGE FACT BOOK 64 (1986) [hereinafter 1986 NYSE FACTBOOK] (\$17.3 billion issued); *id.* at 74 (\$1.2 trillion in exchange trading, calculated from table “Market Value of Shares Sold on Registered Exchanges”); NATIONAL ASSN. OF SEC. DEALERS, INC., NASDAQ FACT BOOK 11 (1986) [hereinafter 1986 NASD FACTBOOK] (\$233 billion NASDAQ trading).

177. Between 1978 and 1985, approximately \$218 billion in stock was issued to the public. See 1986 NYSE FACTBOOK, *supra* note 176, at 64 (table of annual public issues of equity from 1978 to 1985). During the same years, approximately \$5.2 trillion in outstanding stock was traded on the registered exchanges. See *id.* at 74 (table of market value of shares sold on exchanges). Another \$878 billion was traded on the OTC market. See 1986 NASD FACTBOOK, *supra* note 176, at 4 (dollar volume of trading in NASD shares). The total dollar ratio of trading in outstanding shares to equity issued during these years was therefore 27.9 to 1.

178. Retained earnings account for the majority of corporate expenditures. See *infra* notes 193-95 and accompanying text.

179. This article focuses on the economic advantages of efficient equity markets. Of course, corporations sell debt as well as equity to the public, and bonds are also traded in the securities markets. Indeed, corporations depend far more on bonds sales than stock issues for financing. Of the \$355 billion in corporate securities sold to the public between 1980 and 1984, 63% was debt, while only 24% was common stock. Hybrid instruments like convertible debt, convertible preferred, and preferred stock accounted for the remaining 13%. Smith, *Investment Banking and the Capital Acquisition Process*, 15 J. FIN. ECON. 3 (1986).

However, there are reasons to believe that informationally inefficient markets are far more

argument that efficient stock markets are essential to allocate properly investment capital assumes that, despite a plethora of alternate financing sources, corporations rely primarily on stock issues for raising funds. That assumption is at odds with actual corporate financing behavior. In fact, firms largely appear to avoid the stock market as a source of funding.¹⁸⁰

Public issues of equity generally take two forms. The first is the initial public offering (IPO), or "new issue." An IPO occurs when a privately held corporation decides for the first time to sell common stock to the public. In doing so, it subjects itself to the SEC registration and disclosure requirements applicable to publicly held firms.¹⁸¹ IPOs account for approximately 70% of all public issues of stock.¹⁸²

The second form of equity issue is the "seasoned" issue. After going public, a corporation desiring to raise further capital may sell additional stock, similar to that already held by public shareholders and traded in the public markets. Such issues are called seasoned because, in contrast to the IPO, a public market for the corporation's stock already exists. Seasoned issues are less common than IPOs, accounting for only 30% of corporate issues.¹⁸³

Many successful firms never "go public" at all, and the health of privately held firms is itself evidence that public equity issues are not an essential ingredient of financing success.¹⁸⁴ More importantly, once a corporation has gone public it might never again return to the equity

likely to misprice equity than debt, and, correspondingly, efficient markets are far less likely to improve the accuracy of debt pricing. Pricing bonds is much simpler than pricing stocks. While the value of stocks depends on a host of different factors relating to the macroeconomy and the issuing corporation, *see infra* notes 215-23 and accompanying text, bond prices are determined by only two variables: prevailing interest rates, and risk of issuer bankruptcy and default. Note, *Auctioning New Issues of Corporate Securities*, 71 VA. L. REV. 1381, 1404 n.128 (1985). Rarely is firm-specific information so grave that the issuer's default risk is seriously altered. Information on prevailing interest rates is cheaply and readily available from a number of sources outside the SEC's jurisdiction. Securities policies that help or hinder market efficiency are correspondingly limited in their influence on bond prices. *See infra* text accompanying note 222.

180. *See infra* notes 184-91 and accompanying text.

181. *See supra* note 94.

182. This average can be calculated from figures provided in U.S. SEC. & EXCH. COMM., SEC MONTHLY STATISTICAL REVIEW 29 (Feb. 1988) [hereinafter 1988 SEC STATISTICAL REVIEW] (Table M-455, listing number of issues and dollar amounts for seasoned and unseasoned common stock distributions for cash by corporation, 1984-1987).

183. *See supra* note 182. However, seasoned issues tend to be for larger amounts than IPOs: nearly 62% of the corporate capital raised through the public sale of common stock is raised through a seasoned issue. Unseasoned issues account for only 38.3%. This average is calculated from figures provided in 1988 SEC STATISTICAL REVIEW, *supra* note 182, at 29 (table M-455, listing number of issues and dollar amounts for seasoned and unseasoned common stock distributions for cash by corporation, 1984-1987).

184. Similar evidence is found in the numerous "going private" transactions that occur every year. *See generally* Lowenstein, *Management Buyouts*, 85 COLUM. L. REV. 730 (1985).

market.¹⁸⁵ On average, publicly held corporations issue only once every eighteen years — less often than locusts.¹⁸⁶ In addition, equity issues (whether seasoned or unseasoned) provide a negligible fraction of corporate funding. Between 1973 and 1982, net stock issues annually provided an average of only 2.1% of corporate funding, never exceeding 6% in any one year.¹⁸⁷ In some years, net stock financing was negative because corporations repurchased more shares than were issued.¹⁸⁸

Corporate reluctance to raise capital by issuing equity has been recognized for decades.¹⁸⁹ Professor Baumol has suggested that

there appears to be only one inescapable conclusion: that a very substantial proportion of American business firms manage to avoid the *direct* disciplining influences of the securities market, or at least to evade the type of discipline which can be imposed by the provision of funds to inefficient firms only on extremely unfavorable terms.¹⁹⁰

From this, Baumol continues, “[o]ne might almost venture to conclude . . . that the market in fact does not allocate much of the economy’s capital.”¹⁹¹

185. See G. DONALDSON, CORPORATE DEBT CAPACITY 56-58 (1961) (“[T]he large majority [of American firms] had not had such a sale [of common stock] in the past 20 years and did not anticipate one in the foreseeable future.”); M. FOX, *supra* note 27, at 143 (corporations that dominate industrial sector issued “bulk” of equity 50 to 100 years ago and have since financed expansion predominantly through retained earnings and debt).

186. Between 1983 and 1986, the SEC received an annual average of 344 registrations for seasoned issuances of common stock by public corporations. See 1988 SEC STATISTICAL REVIEW, *supra* note 182, at 29 (table M-455, listing annual registrations from 1984 to 1987). During the same period, approximately 6355 firms had common stock traded on the NYSE, AMEX, or NASDAQ markets. Seligman, *Equal Protection in Shareholder Voting Rights: The One Common Share, One Vote Controversy*, 54 GEO. WASH. L. REV. 687, 708 (1986). Dividing 6,355 firms by an annual average of 344 registrations for seasoned issues indicates that publicly held corporations issue seasoned stock, on average, every 18.5 years. These findings are consistent with the findings of Donaldson more than a quarter century before. See G. DONALDSON, *supra* note 185, at 56-58.

187. This average is calculated from figures presented in R. BREALEY & S. MYERS, *supra* note 22, at 291 (table 14-3, net stock issues from 1965-1982). In the decade from 1973 to 1982, net stock issues have provided from -3% to 6% of corporate funding. *Id.* These figures overstate the role of public equity in corporate finance as they include both public sales and private placements of stock. In the recent past, private placements have accounted for between 10% and 30% of equity sales. See 1986 NYSE FACTBOOK, *supra* note 176, at 64 (table for dollar amounts of private equity placement and total equity issues from 1978 to 1985).

188. R. BREALEY & S. MYERS, *supra* note 22, at 291 (table 14-3, showing net stock issues of -2% and -3% in 1979 and 1981, respectively).

189. See W. BAUMOL, *supra* note 25, at 69 (Corporations seem to avoid equity markets for capital.); G. DONALDSON, *supra* note 185, at 56 (Management avoids common stock issues as much as possible.).

190. W. BAUMOL, *supra* note 25, at 70.

191. *Id.* at 79. Professor Fox uses the observation that firms avoid external finance as a basis for suggesting that corporation management prefers internal finance because the lack of outside monitoring permits management to run firms relatively inefficiently, investing in projects with inadequate returns. Fox recommends policies that encourage greater dividend payout from earnings and, correspondingly, greater reliance on external funds. M. FOX, *supra* note 27, at 335-39.

b. Equity prices do not significantly influence the cost of other sources of capital. The fact that most firms avoid the stock market as a source of investment capital undermines the contention that capital allocation is the stock market's most important function. Supporters of market efficiency (including Baumol) have responded by suggesting that even if corporations do not rely on equity for raising funds, the market for their shares influences the availability and cost of other types of financing.¹⁹² That claim raises the question of where firms *do* find investment capital if they are not finding it in the stock market.

The "most striking" aspect of corporate behavior in choosing among alternate sources of funding is the predominance of internally generated cash.¹⁹³ Operating revenues finance an average of 61% of corporate expenditures.¹⁹⁴ Efficient stock prices are irrelevant to this most important source of funding.¹⁹⁵

That portion of corporate funding which does not come from retained earnings or equity, about 36%, is raised through corporate borrowing.¹⁹⁶ Baumol and others have defended the importance of stock prices by suggesting that the corporation whose stock is rising can borrow more, at a lower interest rate, than the corporation whose stock price is declining.¹⁹⁷ While the argument has intuitive appeal, the assumption of cause and effect is problematic. The corporation that is highly valued by the stock market may be able to borrow more readily not because its stock price is high, but because the same optimistic information that leads the market to view the firm's prospects favorably also makes the firm a more attractive borrower.¹⁹⁸ For example,

192. See, e.g., W. BAUMOL, *supra* note 25, at 81 ("[t]he performance of a company's shares can . . . influence the terms of which it can obtain funds from other sources"); Fox, *supra* note 5, at 1017 (share price can affect costs of other sources of capital); H. KRIPKE, *supra* note 14, at 123 (size of corporation's equity can significantly affect company's borrowing power or the interest rate it pays by affecting debt-equity ratio).

193. R. BREALEY & S. MYERS, *supra* note 22, at 290.

194. This figure is calculated from the table presented in R. BREALEY & S. MYERS, *supra* note 22, at 291 (table 14-3, summarizing the sources and uses of funds by nonfinancial corporations between 1965 and 1982).

195. The 61% figure cited in note 194 and accompanying text measures operating revenues as cash generated by operations, less cash dividends paid to shareholders. R. BREALEY & S. MYERS, *supra* note 22, at 291. To the extent that corporations elect not to pay cash dividends, even greater amounts of internally generated capital would be available if needed. See *id.* at 349-50 (Managers tend to set a "fair" dividend rate and try to pay out equivalent amounts each year, but dividend payout should be targeted sufficiently low that the company can "minimize its reliance on external equity.").

196. The average is calculated from figures presented in R. BREALEY & S. MYERS, *supra* note 22, at 291 (Table 14-3, summarizing net borrowing, including long-term debt, short-term debt, and accounts payable, by nonfinancial corporations between 1965 and 1982).

197. See W. BAUMOL, *supra* note 25, at 81; H. KRIPKE, *supra* note 14, at 123; Fox, *supra* note 5, at 1017 (citing Kripke).

198. Professor Fox implicitly recognizes this point when he argues that "the misinformation

suppose Texas Gulf Sulphur announces a major mineral strike. While that announcement would likely increase both the firm's stock price and its borrowing capacity, the former would not cause the latter.

Inefficient stock prices will not distort the firm's cost of borrowing unless changes in stock price alone — as opposed to changes in information relevant to both stock price and creditworthiness — influence the firm's ability to borrow. In other words, insider trading by Texas Gulf employees would not enable the company to borrow more, at a lower rate, unless an unexplained rise in Texas Gulf stock made banks more eager lenders even before the mineral strike was announced. This causal link, however, is highly questionable.

The usual theory raised to explain why stock price *per se* may be significant to creditworthiness is that lenders evaluating firms as potential borrowers compare the market price of the firm's equity to its outstanding debt in order to measure "leverage" (*i.e.*, the size of the firm's debt load relative to total worth).¹⁹⁹ The flaw in the debt-to-equity ratio argument is that it assumes that banks evaluate leverage by measuring debt load against market equity prices, rather than against the value of the corporation's underlying earnings and assets.²⁰⁰ The bank that readily lends on the basis of high share value unsupported by assets or revenues is unlikely to stay in the banking business long.²⁰¹ Nor would rational lenders be deterred by depressed

that causes inaccuracies in the prices . . . as well as the share prices themselves," affects the terms on which financial intermediaries are willing to make loans. Fox, *supra* note 5, at 1017 (emphasis added).

199. See H. KRIPKE, *supra* note 14, at 123 (market appraisal of equity affects borrowing power or interest rate); Fox, *supra* note 5, at 1017 (citing Kripke); see also W. BAUMOL, *supra* note 25, at 81 ("[L]enders are likely to base their risk estimates, and hence their interest terms, in part on the market's evaluation of the corporation's stocks."). Highly leveraged firms are regarded as riskier borrowers because a larger portion of the firm's revenues must be devoted to fixed debt charges and is unavailable for operating expenses or investment. M. FOX, *supra* note 27, at 122.

200. See W. BAUMOL, *supra* note 25, at 81 (suggesting, without citation, that lenders base their risk estimates in part on the market value of the company's equity); H. KRIPKE, *supra* note 14, at 123 (suggesting, without supporting, that banks prefer to measure debt level against market equity, as "[t]he market appraisal of the equity is considered by most analysts a far better indication of that equity than the accountant's computation").

201. Of course, a new stock issue brings in money that increases the corporation's net worth. In this sense, issuances that increase net worth may lower the cost of debt capital. See M. HAL-LORAN, *supra* note 94, at 3 (public offerings increase firm's net worth and should make it easier to borrow); Schneider, Manko & Kant, *Going Public: Practice, Procedure and Consequences*, 27 VILL. L. REV. 1, 3 (1981) (benefits of going public include "improv[ing] net worth, enabling the company to borrow capital on more favorable terms"). But net worth will be increased whether the new issue sells at an efficiently "correct" price or not. The company that feels its shares are undervalued can simply sell more of them. R. BREALEY & S. MYERS, *supra* note 22, at 292 (company can always raise money by selling shares as long as price is low enough). Of course, such action dilutes the financial interests of existing shareholders. That may result in wealth reallocations from existing shareholders to the new shareholders, but it has no other economic consequence. See *infra* note 270 and accompanying text (sales of undervalued equity).

stock prices if the assets and revenues to support the loan exist. Banking literature confirms that lenders prefer to measure risk by comparing outstanding debt against the value of a corporation's underlying assets, rather than the market price of its stock.²⁰²

These observations imply that equity markets that do not speedily reflect all available information need not produce misallocations in the corporate debt market. Of course, misinformation that causes the stock market to misprice a firm's equity may also induce lenders to misjudge the firm's creditworthiness. Suggesting that efficient stock pricing is less important to capital allocation than generally supposed does not imply that we should be unconcerned about misinformation or fraud. Nevertheless, the issue of misinformation and the issue of efficient pricing are not identical.²⁰³ Moreover, misinformation in the public stock markets is not necessarily mirrored by similar misinformation in other capital markets such as the markets for private placements or commercial lending.²⁰⁴ Even if Texas Gulf Sulphur could

202. Many of the credit-scoring formulas used by commercial lenders to evaluate the creditworthiness of corporate borrowers do not consider stock price at all. See J. SINKEY, *COMMERCIAL BANK FINANCIAL MANAGEMENT IN THE FINANCIAL SERVICES INDUSTRY* 408-09, 412-14 (2d ed. 1986) (describing Libby and Chesser tests of accounting ratios as predictors of creditworthiness; none of ratios include market equity as a factor); 3 *CONTEMPORARY STUDIES IN ECONOMIC AND FINANCIAL ANALYSIS, Application of Classification Techniques in Business, Banking and Finance*, 167-89, 255-78, 284, 294 (E. Altman & I. Walter eds. 1981) (describing series of credit-scoring models by Libby, Beaver, Blum and Elam, in which market equity does not appear as a factor); *HANDBOOK FOR BANKING STRATEGY* 483-89 (R. Aspinwall & R. Eisenbeis eds. 1985) (outlining credit-scoring models that rely on cash flow to evaluate risk of a commercial loan). Those credit-scoring models that do consider market equity price consider it as only one out of five or more factors, and a lightly weighted one at that. See J. SINKEY, *supra*, at 409-13 ("Zeta" analysis method of using five unevenly weighted ratios to predict bankruptcy risk; five-year average of common stock prices to debt a factor in only one, and most lightly weighted, of ratios); *HANDBOOK FOR BANKING STRATEGY, supra*, at 489-94 (same). In contrast, direct asset valuation is a weighty factor in virtually all the models. See J. SINKEY, *supra*, at 408, 410, 413; *HANDBOOK FOR BANKING STRATEGY, supra*, at 486, 488, 491. The literature also emphasizes that financial credit-scoring models are no substitute for close attention to the circumstances of the particular corporation. J. SINKEY, *supra*, at 410; *HANDBOOK FOR BANKING STRATEGY, supra*, at 494-95. Surely one circumstance that would be considered by any rational lender would be whether a debt-equity ratio was distorted by market over- or under-pricing. Banks, like other economic actors making decisions concerning the circumstances of a particular corporation, are better off if they gather information about those circumstances directly rather than relying on the proxies of stock prices or financial ratios reflecting past economic performance. See *infra* notes 327-43 and accompanying text.

203. There can be misinformation without inefficiency. For example, insider trading can move market price to the "correct" or efficient valuation even if the information underlying the insider trading remains nonpublic, and the public remains misinformed. See *supra* notes 39-48. There can also be inefficiency without misinformation. Trading halts or daily price limits can prevent market price from incorporating information even if the public may be fully informed. Nor is public "misinformation" always a bad thing. Current disclosure requirements recognize that not all corporate information should be disclosed, even when this action by definition reduces misinformation and enhances efficiency. See *supra* notes 106-08 (merger negotiations and other soft information); Fischel, *supra* note 125, at 13-14 (recognizing corporation's property right in useful proprietary information desirably preserves incentives to create such information).

204. Corporations can disclose to private investors and commercial banks proprietary infor-

not publicly announce the ore strike until it obtained mineral rights in the land, it can confidentially relay the news to a lender. As a result, efficient and accurate markets for corporate borrowing could exist in the face of policies that permit inefficient and uninformed public stock prices.

2. *The Limited Influence of Trading Market Prices on the Proceeds Received by Corporations Making Equity Issues*

Evidence that corporations usually avoid the stock market as a source of finance, and that stock market prices have little or no influence on firms' abilities to raise funds from other sources, reveals as somewhat threadbare the assertion that stock prices determine the allocation of capital among corporations. However, we cannot conclude that equity prices are unimportant to all corporations all of the time. Speculative ventures with no assets or operating history cannot depend on retained earnings and may be unable to borrow except at usurious rates. In addition, when a corporation does issue equity, the price at which the new shares are sold (together with the number of shares sold) determines the amount of additional investment capital provided to the firm. The allocative implications when corporations *do* issue shares, however rarely, suggest that efficient stock markets may remain a worthwhile goal.²⁰⁵ To test the persuasiveness of this view, we must begin with an inquiry into the peculiar nature of the equity issues market.

a. *The corporate issues market is discrete from the public trading markets.* The issue of market efficiency is almost invariably raised in the context of securities trading on listed exchanges or in the over-the-counter (OTC) market.²⁰⁶ But corporations do not sell issues directly

mation they would hesitate to make public, and such financial intermediaries have both the opportunity and the incentive to create new information by direct investigation into the corporation's affairs. See M. FOX, *supra* note 27, at 138 (information can be provided in confidence to investor in private placement); H. KRIPKE, *supra* note 14, at 121, 135 (institutional investors in the private placement market have ability to obtain information they require, and have ignored SEC's attempts to influence nature of disclosure).

205. See Fox, *supra* note 5, at 1023-24 ("Whatever the effect of securities prices on the investment behavior of firms that do not engage in any public offerings, it is much harder to argue that prices have no such effect on those that do. . .").

206. Studies seeking to test "market efficiency" generally do so by examining the price performance of shares traded in the public markets. See Fama, *supra* note 1, at 390, 396-98, 405, 409 (describing studies which test ECMH by observing behavior of indices of heavily traded stocks and stocks listed on NYSE).

Similarly, the need to ensure efficient pricing normally is raised with respect to securities publicly traded in an exchange or OTC. For example, insider trading is defended as contributing to efficient pricing. See *supra* notes 39-48 and accompanying text. Such trading normally involves transactions in the public trading market, whether on an exchange or OTC. See, e.g., *Dirks v. SEC*, 463 U.S. 646, 650 (1983) (trading in Equity Funding shares on NYSE); *SEC v. Texas Gulf Sulphur Co.*, 401 F.2d 833, 846-47 (2d Cir. 1968), *cert. denied*, 394 U.S. 967 (1969)

to investors on the exchanges or OTC.²⁰⁷ Equity issues are sold in a discrete market of an essentially private nature: the underwriting market.

Most firms planning a public issue of stock contract with a syndicate of underwriting firms that takes responsibility for the pricing and sale of the new issue.²⁰⁸ The most common form of underwriting is "firm commitment" underwriting, in which the syndicate purchases the entire issue from the corporation at a negotiated price.²⁰⁹ The syndicate assumes the risk of loss should the issue prove unmarketable.²¹⁰

The amount of new capital received by an issuing corporation consequently depends more directly on the price received from the underwriting syndicate than the price prevailing in the public markets where outstanding shares are traded.²¹¹ Efficient trading markets can only

(trading in Texas Gulf shares on Midwest Stock Exchange and NYSE); *In re Cady, Roberts & Co.*, 40 S.E.C. 907, 908 (1961) (trading in Curtiss-Wright on the NYSE). Trading in stock index futures is also defended on the ground that it enhances the pricing efficiency. See *supra* notes 71-72 and accompanying text. But index futures can only enhance the pricing efficiency of the stocks that comprise that particular index, generally blue chip issues traded on the NYSE. See SEC REPORT, *supra* note 22, at I-5, I-8 (describing indices). Disclosure of merger negotiations usually involves NYSE-listed companies who are called on by exchange authorities for a public statement explaining unusual trading. See *Basic Inc. v. Levinson*, 108 S. Ct. 978 (1988) (target NYSE-listed company denying merger negotiations in "no corporate development statement" issued in response to exchange request). Only a few scholars have investigated the existence or consequences of pricing inefficiency in other markets for stock. See, e.g., Banoff, *Regulatory Subsidies, Efficient Market, and Shelf Registration: An Analysis of Rule 415*, 70 VA. L. REV. 135, 154 (1984) (noting mispricing in new issues market and defending shelf-registered offerings as reducing mispricing); Brandi, *Merit Securities Regulation, Market Efficiency, and New Issue Stock Performance*, 12 J. CORP. L. 699, 712 (1987) (concluding that state law merits regulation and improves the pricing efficiency of new issues); Ibbotson, *Price Performance of Common Stock New Issues*, 2 J. FIN. ECON. 235 (1975) (investigating pricing of new issues of stock by the corporation).

207. Note, *supra* note 179, at 1381 (corporations do not sell to public directly but issue securities "almost exclusively" by negotiated sale to underwriters); see Poser, *supra* note 175, at 886-87 (distinguishing between new issue markets in which companies issue securities through syndicates of underwriters, and trading markets of exchanges and over-the-counter market in which outstanding issues are sold).

208. R. BREALEY & S. MYERS, *supra* note 22, at 304-05; M. HALLORAN, *supra* note 94, at 12.

209. M. HALLORAN, *supra* note 94, at 14-15. The other principal form of underwriting used to bring new issues to markets is "best-efforts" underwriting. Here the underwriter acts as the corporation's agent in bringing the issue to the market. See *In re National Assn. of Sec. Dealers, Inc.*, Exchange Act Release No. 17,371, [1980 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 82,705, at 83,849 (Dec. 12, 1980) (describing firm commitment and best-efforts underwriting); M. HALLORAN, *supra* note 94, at 14-15 (same). As in the case of firm-commitment underwriting, best-effort underwriters normally advise the corporation in setting a sale price for the issuance, which is then fixed under applicable law. Note, *supra* note 179, at 1382-83; see *infra* note 235.

210. Firm-commitment underwriters not only midwife the birth of the new issue: they buy the baby. In this fashion, they may perform a risk-shifting insurance function for issuers. See Ibbotson, *supra* note 206, at 262-63 (underwriters bear risk that market price will fall below offering price); Schneider, Manko & Kant, *supra* note 201, at 24 (same).

211. See L. SODERQUIST, *SECURITIES REGULATION* 37-38 (2d ed. 1988) (issuers enter agreement with underwriter, including agreement as to price, before securities are ever sold to public).

serve the ultimate goal of optimal capital allocation if trading market prices produce accurate pricing in the underwriting market. This in turn depends on whether the distribution in question is seasoned stock, or an initial public offering.

b. The influence of trading market prices on the pricing of seasoned issues. The underwriter trying to select a proper price for a seasoned issue finds that trading market prices have obvious value. What better way to gauge the market's receptiveness to the issue than to observe the price the public is currently willing to pay for identical, outstanding stock?

This fact does not necessarily mean that trading market prices determine the prices set by underwriters for seasoned issues. Despite some theoretical arguments to the contrary, most underwriters believe that issuing large amounts of stock increases the supply available on the market and, in the absence of a corresponding increase in demand, depresses market price below prior prevailing levels.²¹² If that belief is

Given the substantial commission demanded by most underwriters, see *infra* note 251, it is a puzzle why issuers use underwriters instead of selling their shares directly to the public. The question becomes more focused in the case of best-efforts underwriting, as such "underwriting" does not shift risk the way firm-commitment underwriting does. See *supra* notes 209-10. One answer is that underwriters, as long-term players in the securities business, may allow issuers to sell at higher prices because the "stamp of approval" of a senior banking house provides credibility that a first-time issuer may lack. See Gilson & Kraakman, *supra* note 1, at 602 (issuers who use best-efforts underwriters may be "renting" the underwriter's reputation in the market to overcome investor suspicion of a new business entity). But such a service could arguably be performed by private rating services similar to that operated by Moody's and Standard & Poors for corporate debt. See Langevoort, *supra* note 31, at 752, 775-76 (underwriter due diligence may perform quality signaling function that could be replaced by private rating services). Another possibility is issuers who must sell at a fixed offering price rather than "at the market," see *infra* notes 244-47, have great need for both accurate pricing advice and the underwriter's retail capacity to distribute a large issue quickly, before market conditions change. See L. SODERQUIST, *supra*, at 27, 38; Langevoort, *supra* note 22, at 752.

212. Pegging, Fixing and Stabilizing Security Prices, Release No. 34-2446, 3 Fed. Sec. L. Rep. (CCH) ¶ 22,512 (Mar. 18, 1940). See R. BREALEY, SECURITY PRICES IN A COMPETITIVE MARKET: MORE ABOUT RISK AND RETURN FROM COMMON STOCKS 81 (1971) (institutional fund managers believe large purchases or sales affect stock price); Scholes, *The Market for Securities: Substitution versus Price Pressure and the Effects of Information on Share Prices*, 45 J. BUS. 179, 180-81 (1972) (many in financial services industry believe that large sales of stock depress prices). The extent to which this depression occurs will depend upon the amount issued and the "elasticity of demand" for the particular stock. See generally Levmore, *supra* note 32, at 651-54 (effect of demand elasticity on market prices). Some economists believe that issuing new stock should have no influence on prevailing market price. These economists argue that different stocks ought to be perfect substitutes for each other, see *infra* notes 309-12 and accompanying text, and therefore demand for any particular stock should be perfectly "elastic." See R. BREALEY & S. MYERS, *supra* note 22, at 278-79 (stocks should be perfect substitutes, and demand infinitely elastic); Scholes, *supra*, at 206-07 (concluding that demand for stocks is perfectly elastic). Obviously, perfectly elastic demand for stock is at odds with underwriters' belief that stock prices are not perfectly elastic and that changes in price produce only marginal, finite changes in demand. Empirical evidence also suggests that the demand curve for stocks may be downward-sloping. See Shleifer, *Do Demand Curves for Stocks Slope Down?*, 41 J. FIN. 579, 588-89 (1986) (citing empirical evidence of price elasticity). Theoretical support for the view that stock prices are not, in fact, perfectly elastic, and that different stocks are not perfect substitutes

correct, trading market prices can only signal a ceiling above which the seasoned issue's offering price should not rise; they do not necessarily inform the underwriter of how much lower she must set the price to ensure the issue's success.²¹³ Nevertheless, to the extent that efficient trading market prices help underwriters accurately price seasoned issues and to the extent that seasoned issue prices affect the allocation of capital among the firms that use them, an informationally efficient stock market helps properly allocate capital.²¹⁴

c. *The influence of trading market prices on the pricing of initial public offerings.* In contrast to the case of a seasoned issue, the underwriter for an initial public offering (IPO) must set a price at a time when, by definition, no public market for that particular stock exists.²¹⁵ There are reasons to suspect that the market prices of different stocks provide little guidance. Stock values are influenced by a host of different factors, many of which are unique to the corporation in question. The underwriter setting IPO price must consider the size of the offering, the nature and prospects of the issuer's business, its assets and earnings, management expertise, and the markets in which it competes.²¹⁶ Because the factors relevant to equity pricing are numerous, and vary widely from corporation to corporation, the trading price of any particular outstanding issue may provide little or no information concerning the appropriate price of a different new issue.²¹⁷ The rational underwriter pricing an initial public offering must judge the offering on its own merits, and cannot set the offering price of a speculative new firm based on the price at which IBM is currently

for each other in the mind of the investor, is found in recently developed economic models that assume investors have differing beliefs concerning the value of stocks. See *infra* notes 372-78 and accompanying text.

213. Marginal trading in the seasoned-issuance context, by signaling a ceiling rather than a floor, appears to perform a mirror-image of its function in the control-change context. See *infra* notes 372-78 and accompanying text.

214. Initial Public Offerings tend to be for much smaller amounts than seasoned issues. See *supra* note 183 and accompanying text. This fact suggests that the companies that make initial public offerings are smaller, more speculative ventures with shorter operating histories. If such firms find borrowing more difficult than large established corporations do, and lack the substantial operating revenues of bigger firms, IPOs may be more allocatively significant than seasoned issues. See *supra* notes 183-96 and accompanying text.

215. The exact issuance price of the security and the proceeds to be received by the corporation from the underwriting syndicate is usually fixed on the last business day before the offering date "on the basis of general market conditions and preliminary expressions of interest by potential investors." M. HALLORAN, *supra* note 94, at 17. As a result, the issuer cannot observe the offering's performance in the marketplace until after the issue has already been sold to the underwriter. Note, *supra* note 179, at 1389.

216. See M. HALLORAN, *supra* note 94, at 15-17 (listing numerous factors underwriters must consider in setting price); Schneider, Manko & Kant, *supra* note 201, at 6 (same).

217. Note, *supra* note 179, at 1390 (number of variables involved in pricing securities "makes it difficult to price securities by comparing them to each other").

trading. These observations explain why underwriters find it much more difficult to price equity than debt, and why unseasoned equity is the most notoriously difficult to price of all securities.²¹⁸

The principal fashion in which trading market prices seem to influence IPO prices is by providing information as to the typical price/earnings (P/E) ratios prevailing in the marketplace.²¹⁹ However, there are two reasons to doubt that reduced market efficiency would produce distorted P/E ratios which in turn would produce mispriced IPOs. First, to the extent that underwriters use P/E ratios as ballpark measurements of macroeconomic factors, such as prevailing interest rates or inflation expectations, that information is readily available elsewhere and the underwriter is unlikely to be misled by inefficient prices.²²⁰ Second, P/E ratios are normally calculated by looking at several similar stocks, not a single company.²²¹ Consequently, unless policies that allow inefficiency produce mispricing that is both widespread and uniform (so that all stocks are either under- or overpriced), such policies will not distort P/E ratios in a fashion that leads to IPO mispricing.

Securities policies that allow the market to digest firm-specific information more slowly or incompletely seem unlikely to produce such wholesale inflation or deflation of market prices. For example, the prohibition on insider trading would not affect all stocks in the same

218. See R. BREALEY & S. MYERS, *supra* note 22, at 306 (underwriters find it easiest to price seasoned issues and high-grade debt; pricing is most difficult for unseasoned issues, where there is very little guidance for the market value of the security); Note, *supra* note 179, at 1404 n.128 (equity more difficult for underwriters to price than debt, because it is more complicated); see also Gordon & Kornhauser, *supra* note 1, at 821 (arguing against shelf registration for unseasoned issues on the ground that there is not enough information available to aid in setting an appropriate price).

219. See M. HALLORAN, *supra* note 94, at 17 (for companies with an earnings record, price can be set on basis of similar P/E and other financial ratios for other firms "and on the basis of market conditions"); see also R. BREALEY & S. MYERS, *supra* note 22, at 57-58 (P/E ratios "sometimes" helpful in evaluating stocks "if you can find a traded firm that has the same profitability, risks, and growth opportunities"). For the uses, and weakness, of P/E ratios for other firms in the appraisal context, see Seligman, *supra* note 27, at 851-54 (earnings ratios are only "a crude surrogate for market value"; any recent market price for that particular stock, no matter how limited the trading activity, will usually be superior).

220. Professors Gilson and Kraakman recount the case of a video game manufacturer, Imagic, which had to lower its IPO price because a competitor, Atari, disclosed lower-than-expected sales and earnings. This disclosure "caused a sharp drop in the stock prices of video game manufacturers and, presumably, the price at which the Imagic issue could be sold." Gilson & Kraakman, *supra* note 1, at 617 n.187. It seems likely that the Imagic underwriters were responding less to reduced prices of video stocks than to the obvious implications of Atari's disclosures — that the market for video games was flagging. See *infra* notes 327-43 and accompanying text for a discussion of the defects of any signaling argument.

221. See M. HALLORAN, *supra* note 94, at 17 (underwriters setting prices look at ratios of similar "companies"). The smaller the sample of companies the underwriter looks at in evaluating typical P/E ratios, the more likely an instance of inefficient mispricing will affect that calculation.

fashion; where one firm's "inside" information is good tidings, another's may well be bad news. Policies that slow the market's incorporation of macroeconomic news, like a change in the prevailing interest rate, will affect all firms in the same fashion. But the production and disclosure of such macro information is a matter beyond the SEC's disclosure mandate.²²² Consequently, the only SEC policies likely to harm the market's efficiency in incorporating such news would be policies that limit trading, such as the introduction of marketwide trading halts, or the elimination of index futures trading. Because trading policies only seem likely to slow the incorporation of information by a few hours or days, persisting distortions of P/E ratios that lead to substantial IPO mispricing are unlikely.²²³

3. *The Likelihood of Mispricing Initial Public Offerings in an Efficient Market*

The observation that trading market prices provide little guidance to underwriters outside the seasoned issue context raises an interesting puzzle. If trading market prices are of little value in setting prices for the IPOs that comprise the majority of stock issues, how *are* such issues priced?²²⁴

Estimating the likely demand for an IPO is a notoriously difficult and unscientific business.²²⁵ Indeed, it is the custom to state in an IPO

222. See *supra* note 94.

223. While informational inefficiency seems unlikely to lead to widespread and uniform mispricing, other factors may produce markets that are, on the whole, over- or under-valued. A dearth of information concerning corporate issuers may produce marketwide underpricing if investors who lack information assume the worst. Judge Easterbrook and Professor Fischel have persuasively argued that effective anti-fraud provisions will do much to ameliorate such investor pessimism. Easterbrook & Fischel, *supra* note 91, at 673-74, 680-85 (describing and rebutting "market for lemons" argument). Moreover, although lack of information may lead to mispriced securities, that is not due to informational inefficiency *per se*; the question of market efficiency generally relates only to how quickly information is incorporated into price, not to the amount of information incorporated. Cf. *supra* notes 28 & 36; *infra* note 433.

Another possible source of marketwide mispricing is the "irrational" market. Many believe the stock market has succumbed, on occasion, to speculative "bull" markets followed by precipitous market corrections. Such wholesale mispricing is not due to informational inefficiency, in the sense that markets do not quickly incorporate information, but to market prices incorporating the wrong sort of information — the mass market psyche, rather than rational earnings expectations. See *infra* notes 407-19 and accompanying text. In such a market, inflated P/E ratios may indeed serve investment bankers trying to price new issues as a barometer of investor "bullishness" or "bearishness" unrelated to objective economic conditions. However, the resulting inflated new issues prices cannot be attributed to lack of efficiency. The problem is one of market irrationality.

224. The importance of the question is heightened by the suspicion that underwriter pricing of initial public offerings may be more likely to influence the real investment decisions of corporations than seasoned issue mispricing. See *supra* note 214.

225. See R. BREALEY & S. MYERS, *supra* note 22, at 306 (underwriters have "very little guidance" in setting prices for unseasoned stock); Note, *supra* note 179, at 1390, 1404 (estimating market-clearing price of new issues "very difficult" and "complicated"). See also *Peil v. Speiser*,

prospectus that offering price has been determined "arbitrarily."²²⁶ Comparing other stocks' prices is of limited value because the new firm must be evaluated in terms of its own unique assets, operating history, management quality, product market, and so on.²²⁷ Faced with a dearth of hard information, underwriters making their best guess of likely market-clearing price generally rely on informal polling of potential customers for indications of interest.²²⁸

a. *Empirical evidence of IPO mispricing.* If IPO prices are underwriter "guesstimates" based on soft information and speculation, it follows that underwriters are likely to misjudge investor interest and set *ex ante* IPO prices that differ from the *ex post* equilibrium price in the trading markets. One way to test this hypothesis is to compare the announced offering prices of IPOs with the "aftermarket" prices at which the newly issued shares trade in the public markets. Empirical studies confirm that underwriters systematically fail to set offering prices which conform to eventual equilibrium market-clearing prices.²²⁹

Professor Ibbotson has described the differences between initial public offering prices and prices immediately following the beginning of distribution as "an extremely skewed and disperse distribution" with a standard deviation of 35.2%.²³⁰ This is 50% more variation in a two-week period (on average) than the stock market shows in an entire year.²³¹ Out of Ibbotson's sample of 112 IPOs, nearly a quarter had lost more than 10% of their value by the close of the month in which distribution began;²³² just over a quarter had gained more than 25%.²³³

806 F.2d 1154, 1161 n.10 (3d Cir. 1986) (fraud-on-the-market theory of reliance under rule 10b-5 rests on assumption that market price reacts to and reflects all available information; this assumption may not apply to newly issued stock, and applicability of fraud-on-the market to new-issues cases is unclear).

226. Schneider, *supra* note 96, at 297. Another common phrase is that price has been determined by "negotiations" between the issuer and underwriter. *Id.* at 297 n.109.

227. See *supra* notes 216-18 and accompanying text.

228. L. SODERQUIST, *supra* note 211, at 36; Banoff, *supra* note 38, at 151; Note, *supra* note 179, at 1390. Client expressions of interest cannot be more than "informal" as federal law prohibits the making of formal agreements to purchase or sell before the registration statement has become effective, an event that usually occurs the day that public distribution begins. Banoff, *supra*, at 145 n.81.

229. See Brandi, *supra* note 206, at 699-700 (summarizing research findings); Ibbotson, *supra* note 206, at 235-36 (same).

230. Ibbotson, *supra* note 206, at 250 (measuring difference between offering price and trading market prices reported at the close of the month in which distribution began).

231. See R. BREALEY & S. MYERS, *supra* note 22, at 123 (between 1926 and 1981, annual standard deviation of common stock portfolio was 21.9%).

232. See Ibbotson, *supra* note 206, at 248 (Table 8) (table of sorted residuals).

233. *Id.* See Beatty & Ritter, *Investment Banking, Reputation, and the Underpricing of Ini-*

Some of this underwriter error may be due to insufficient information concerning the new company.²³⁴ Private companies generally are not subject to federal disclosure requirements or the scrutiny of financial analysts, and it may be more difficult for underwriters to investigate such firms thoroughly.²³⁵ Accurate IPO pricing might be served by developing additional ways for underwriters to gather information cheaply concerning the issuing corporation and the likely market for the issue.²³⁶ But there are reasons to believe that simple lack of information cannot explain all of the mispricing phenomenon. For one

tial Public Offerings, 15 J. FIN. ECON. 213, 217 n.6 (1986) ("not unusual to see an underwriter misestimate the aftermarket price by 20 percent or more"). These statistics may understate the inaccuracy of offering price because aftermarket price in the month or two following the distribution may often be artificially manipulated to resemble offering price through the "stabilization" purchases of underwriters. See *infra* note 217.

234. See Levmore, *supra* note 32, at 662 (underwriters bidding for new issues face "substantial search costs" in evaluating worth of shares, and it is "quite likely that no single underwriter will expend sufficient resources to uncover such information").

235. Privately held companies are not subject to the federal disclosure requirements of the 1934 Act. See *supra* note 94; Securities Exchange Act of 1934, §§ 12(a), 12(g), 13, 15 U.S.C. §§ 78l(a), 78l(g), 78m (disclosure requirements apply only to corporations with stock traded on registered public exchange, or with assets of a certain value and stock held by more than 500 shareholders). Also, as professional analysts study only a small portion of listed, publicly held companies, they are still less likely to focus much attention on private companies making IPOs. See Coffee, *supra* note 5, at 731 (only 1,000 of existing 10,000 publicly held companies that file reports under 1934 Act are regularly followed by securities analysts). Underwriter mispricing cannot be explained by the fact that companies making IPOs tend to be smaller and have shorter operating histories than publicly held companies, so that their futures are more speculative. Underwriters ought to be able to discount the stock's price to reflect its speculative nature just as well as the public does. Underwriter mispricing that manifests itself in the form of significant differences between issuance price and the prices set in the aftermarket only hours or days later cannot be attributed to human lack of foreknowledge. This observation follows because it is unlikely that aftermarket prices reflect new information unavailable to underwriters at the time price was set.

236. IPO mispricing seems especially regrettable when we consider that IPOs account for the majority of public stock issues, see *supra* note 182 and accompanying text, and that IPOs may be more allocatively significant than seasoned issues, see *supra* note 214. Policymakers hoping to improve the allocation of capital among corporations may do better to pursue informational efficiency in the IPO underwriting market than in the trading markets. One fashion in which issuers and underwriters could obtain additional information to help them price IPOs more accurately would be to lengthen the distribution period in order to allow an aftermarket to develop, and to sell IPOs at "at-the-market" prices. Limited use of such delayed distributions for seasoned issues is authorized under the Rule 415 "at-the-market" shelf registration provision. See Fox, *supra* note 5, at 1005. Of course, in the case of firm-commitment underwriting, delayed distribution still poses no allocative benefits because the issuing corporation has, in effect, already sold the entire issue and subsequent changes in price redound only to the benefit or detriment of the underwriters. See Banoff, *supra* note 38, at 148-49 (approximately one half of equity sold through shelf registration is "bought deal" where underwriter purchases entire issue); Gordon & Kornhauser, *supra* note 1, at 822 (most popular shelf registration technique is bought deal). But in the case of "best-efforts" underwriting, delayed distribution at the market price might enable issuers to alter the price of the securities to reflect new information concerning the public market's response. Unfortunately, federal law compounds the problems of IPO mispricing and underpricing by prohibiting delayed sales of IPOs. At-the-market, shelf-registered delayed offerings are restricted to seasoned equity issues by large corporations. See Banoff, *supra* note 38, at 143 (shelf-registered at-the-market offering restricted to S-3 filing corporations); Gordon & Kornhauser, *supra* note 1, at 822 (at-the-market offerings limited to seasoned issues).

thing, the evidence indicates the error is not random. While instances of overpricing are common, studies of new issue pricing conclude that, on average, underwriters *underprice* new issues.²³⁷ For example, Ibbotson found that the IPO investor enjoys an average 11.4% increase in the value of his stock by the end of the first month of trading, and an average 7.6% increase in the second month.²³⁸ Other studies have found average increases of up to 41.7% in the first month of trading.²³⁹

If the underwriting business were a competitive one, corporations presumably would choose the underwriting syndicate willing to pay the highest possible price for a new issue. Underwriters competing for the highest bid would err, if at all, by overpricing — the proverbial winner's curse.²⁴⁰ Why, then, the "now familiar puzzle" of underpricing?²⁴¹ Why the anecdotal accounts of "hot issue" markets in which the demand for new issues far outstrips the number of shares available, and aftermarket prices soar above offering prices?²⁴²

b. IPO market imperfections resulting from the nature of underwriter compensation and the influence of federal law. One plausible explanation for IPO underpricing is that it is the natural result of market imperfections arising from the form of underwriters' fees and the requirements of federal law. Issuers usually compensate underwriters by the "spread" between the discount price the underwriting syndicate pays the corporation for the stock, and the offering price at which underwriters sell the issue to the public.²⁴³ Because federal law pro-

237. See Beatty & Ritter, *supra* note 233, at 214-15 (on average new issue prices increase, but "a large fraction" of new issues suffer price declines); Brandi, *supra* note 229, at 699-700 (summarizing studies showing average excess returns in first month from 3.36% to 41.7%); Ibbotson, *supra* note 206, at 235-37, 262 (empirical study concludes that "positive initial performance can only be attributed to a downward bias in the offering price"). The result is that the lucky investor who can regularly purchase new issues at the public offering price will discover that they bring a risk-adjusted return significantly exceeding that of a market portfolio. Not surprisingly, many new issues are oversubscribed and there is evidence that underwriters ration "hot" issues and tend to shunt them to favored clients. See *infra* note 315; Ibbotson, *supra* note 206, at 265 n.22.

238. Ibbotson, *supra* note 206, at 246, 250.

239. Brandi, *supra* note 206, at 699.

240. In an auction market of bidders with different expectations of value, the participant with the most optimistic — perhaps overoptimistic — view will win. Hence the observation that auction markets are likely to lead to overinflated prices, except perhaps where bidders are repeat participants who either learn to avoid overpaying or are "weeded out." See Hiler, *supra* note 49, at 1192 n.328.

241. Levmore, *supra* note 32, at 657.

242. See D. RATNER, SECURITIES REGULATION 471-86 (3d ed. 1986) (materials describing "hot issues" problem). The exception to the rule of new issues underpricing is the case of the extremely speculative "penny" stock. See *infra* note 386.

243. See *In re* National Assn. of Sec. Dealers, Inc., Exchange Act Release No. 17,371 [1980 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 82,705, at 83,850 (Dec. 12, 1980) (underwriter compensation is gross spread). In the case of firm-commitment underwriting, the underwriters

hibits adjusting the offering price once distribution has begun, underwriters bear the risk that an overpriced issue may not sell out and that they will be left "holding the bag" of shares the public does not care to purchase.²⁴⁴ On the margin, underwriters maximize compensation by ensuring that all the shares sell rather than trying to set the highest possible price *ex ante*.²⁴⁵ Underwriters thus can be expected to err on the side of underpricing,²⁴⁶ which helps ensure that all the shares sell quickly and they receive the spread on the entire issue.²⁴⁷

agree to pay a fixed amount for the issue and the corporation is effectively insulated from any change in market price for the securities. Even if the underwriters themselves were unable to sell a single share to the public, the corporation's capital is secured. *See supra* note 210.

In the case of best-efforts underwriting, the amount of money to be received by the corporation will be determined by the percentage of shares sold. Best-efforts underwriters are also generally compensated by spread, although the underwriter does not bear the risk of unsold shares. *See supra* note 209.

244. Federal law requires issuers and underwriters to file a registration statement with the SEC and to wait until that filing becomes effective before selling securities to the public. Securities Act of 1933, § 5, 15 U.S.C. § 77(e) (1982). The registration statement must include disclosure of the public offering price. *See* 17 C.F.R. § 229.501(c)(7) (1987). Public sale at any other price renders the registration misleading and the sale in violation of law. *See* Securities Act of 1933, § 17, 15 U.S.C. § 77(q) (1982); *see also* Banoff, *supra* note 38, at 150 ("[T]he terms of the [traditional underwritten] offering are generally fixed once the registration statement becomes effective and [price] cannot be adjusted to meet shifting market demands."); Levmore, *supra* note 32, at 660 n.50 (presumed illegality of changing offering price). The typical underwriting agreement also binds underwriters and selected dealers from selling to the public at any price other than the selected offering price. Banoff, *supra* note 38, at 163 n.141. NASD regulations similarly require underwriters to sell at the stated offering price. R. BREALEY & S. MYERS, *supra* note 22, at 305; Ibbotson, *supra* note 206, at 262-63. The result is that federal disclosure requirements and private contractual arrangements prohibit underwriters from adjusting the price of a new issue to reflect the market's reaction once sale of the stock to the public has begun.

Such a fixed-price system poses problems for pricing seasoned issues as well as initial public offerings. Underwriters who correctly price a seasoned issue at the outset of the distribution are precluded by federal law from subsequently adjusting the offering price to reflect new information or the public market's reaction. The result is that underwriters are under great pressure to complete distribution of the issue as quickly as possible, before "market conditions" change. L. SODERQUIST, *supra* note 211, at 27.

245. Limited room is left for underwriters to respond to market conditions not by altering price but by altering quantity. Underwriting agreements may contain "overallotment" provisions that require issuers to issue, and entitle underwriters to sell, up to ten percent more stock than the original underwriting agreement calls for. Schneider, Manko & Kant, *supra* note 201, at 25.

246. Banoff, *supra* note 38, at 152 n.82 (underwriters have incentive to underprice to avoid risk security will not sell); Brandi, *supra* note 206, at 700 (underwriters may use underpricing strategy to ensure sale); Ibbotson, *supra* note 206, at 262 ("The primary legal requirement that could [explain underpricing] is the constraint that new issues must be offered at a fixed price."); Note, *supra* note 179, at 1390 (firm-commitment underwriters bear risk issue may not sell, but commission system precludes them capturing all the economic gain from raising price, with result that underwriters have incentive to underprice). Another hypothesis raised in explanation of underpricing is that, because the investing public knows that underwriters ration underpriced "hot issues" and direct them to favored clients, underwriters must underprice overall in order to induce the public to buy new issues. *See* Rock, *Why New Issues Are Underpriced*, 15 J. FIN. ECON. 187 *passim* (1986). The problem with this hypothesis is that it does not explain why underwriters are so eager to subsidize favored clients at the risk of alienating the issuers whose offerings are underpriced.

247. The result is that federal law, by requiring new issues to be distributed at a fixed price,

c. *IPO market imperfections resulting from the separation of ownership and control in the corporation.* That underwriters have an incentive to underprice cannot, alone, answer the puzzle of persistent new issue mispricing. If corporate management viewed stock prices as crucial to the firm's ability to raise capital, underwriting firms that underprice would lose business to firms that do not.²⁴⁸ One explanation for corporate management's tolerance of habitual underpricing is that, while management plans to raise money by making an equity issue, they are relatively unconcerned with the *price* at which those funds are obtained. Such behavior seems irrational at first glance. But that attitude becomes more understandable when one recognizes the transaction costs and political consequences associated with equity issues and the fact that management's personal interests in making an IPO may differ from the interests of shareholders.²⁴⁹

When a corporation first contemplates an initial public offering it may have only a vague idea of what price its stock will command, or whether the offering will be successful.²⁵⁰ But it can be certain that the costs of the undertaking will be substantial. Underwriters' fees alone siphon off 7% to 10% of the proceeds.²⁵¹ There are other expenses as well, including fees for accounting and legal advice, financial printing, and possibly indemnity insurance.²⁵² Total expenses for underwritten equity run as high as 15%.²⁵³ Given such hefty transaction

contributes to inefficiency in the market for underwriting corporate issues — a market with far more direct allocative impact than the trading markets where efficiency is normally pursued.

248. See Levmore, *supra* note 32, at 658 (questioning why issuers tolerate underpricing).

249. The consequences of separating ownership of the corporation (which rests with the shareholders) from control (which rests with management, whose personal interests may well differ from shareholders') was first explored thoroughly in the classic work on the modern corporation, A. BERLE & G. MEANS, *THE MODERN CORPORATION AND PRIVATE PROPERTY* (1932). As agents, corporate management faces conflicts between their own self-interest and their shareholders' interests. When management pursues self-interest to the detriment of shareholders it reduces shareholders' returns, imposing "agency costs." See generally Fama, *Agency Problems and the Theory of the Firm*, 88 J. POL. ECON. 288 (1980); Jensen & Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305 (1976). We rely on the market for management, product market, credit market, and market for corporate control to police these and other management failings. See L. LOWENSTEIN, *supra* note 129, at 96; Coffee, *supra* note 153, at 1154-55; Fischel, *supra* note 160, at 8-9.

250. See W. BAUMOL, *supra* note 25, at 75; M. HALLORAN, *supra* note 94, at 17, 20 (most underwriters will not state a price during negotiations with issuer but rather suggest a range; price is not fixed until close of business on last day before public offer begins; not unusual for offering to be postponed or cancelled if conditions change); Schneider, Manko & Kant, *supra* note 201, at 24-25 (The uncertainty of offering size or success is a risk borne by the issuer during the waiting period. As a result, the issuer incurs "very substantial expenses with no assurance that the offering will take place.").

251. M. HALLORAN, *supra* note 94, at 24; Schneider, Manko & Kant, *supra* note 201, at 29.

252. M. HALLORAN, *supra* note 94, at 24-25; Schneider, Manko & Kant, *supra* note 201, at 29-33.

253. See R. BREALEY & S. MYERS, *supra* note 22, at 303 (Table 15-1). In addition to the expense of meeting disclosure requirements under the 1933 Act, a corporation going public can

costs, it is not surprising that the corporate culture regards equity as one of the most expensive means of raising capital.²⁵⁴

Moreover, the political consequences of going public are so grave it would be foolish for management publicly to distribute stock simply to raise funds at a slightly lower rate. Publicly held companies are subject to costly federal disclosure requirements and restrictions on insider transactions inapplicable to the private firm.²⁵⁵ Management also faces the specter of losing control through a proxy battle, public stock purchases, or tender offer.²⁵⁶ These observations imperil the view that corporations issue stock simply to raise investment capital more cheaply than by borrowing or relying on operating revenues.²⁵⁷

Perhaps most significantly, anecdotal evidence suggests that management regards an initial public offering as "successful" if the price of the issue in the aftermarket rises substantially above the offering price.²⁵⁸ Such satisfaction is hardly rational if the corporation issues

expect continuously to incur similar costs of complying with continuing disclosure mandated under the 1934 Act. *See supra* note 94; *see also* S. PHILLIPS & J. ZECHER, *THE SEC AND THE PUBLIC INTEREST* 51 (1981); M. HALLORAN, *supra* note 94, at 3, 50-52 (describing continuous reporting requirements as disadvantage of going public).

254. *See* S. FRIEDLAND, *THE ECONOMICS OF CORPORATE FINANCE* 228 (1966) (common stock is probably the "most expensive" source of raising capital). *See also* Myers, *The Capital Structure Puzzle*, 39 J. FIN. 575, 581-82, 589 (1984) ("pecking order" theory of corporate finance in which issuers prefer internal sources to external and debt to equity). Another "cost" of public stock issuances is exposure to liability under the 1933 and 1934 Acts for misleading disclosures. *See* M. FOX, *supra* note 27, at 138.

255. *See supra* note 94 (disclosure requirements); Securities Exchange Act of 1934, § 16, 15 U.S.C. § 78 (p) (1982) (insider stock transactions).

256. *See* M. HALLORAN, *supra* note 94, at 4 (possible loss of control is a disadvantage of going public); Schneider, Manko & Kant, *supra* note 201, at 5 (same). Other disadvantages attendant on going public include: increased shareholder oversight of management's compensation, perquisites, and business decisions; dilution of equity values; management's possible preoccupation with stock price changes rather than true profits; resources devoted to shareholder relations; and the need to readjust dividend policy to reflect desires of other shareholders. *See* W. BAUMOL, *supra* note 25, at 74-76 (explanations for reluctance to issue equity); M. HALLORAN, *supra* note 94, at 4-5 (disadvantages of public issue); Schneider, Manko & Kant, *supra* note 201, at 4-5 (same).

257. Similar considerations may operate in the case of seasoned issues, which also carry political consequences. In selling stock on the public market, the corporation is selling control (in the form of voting shares) to unknown persons who may at some future time disagree with, and pose a threat to, management's interest. Also, existing shareholders may perceive an issuance of new shares as a negative event that dilutes the voting strength of their own holdings or the value of their shares. *See* W. BAUMOL, *supra* note 25, at 74 (new issues can dilute equity, harming present shareholders); Schneider, Manko & Kant, *supra* note 201, at 5 (subsequent issues of additional seasoned stock dilutes original shareholder's holdings). Finally, investors may perceive seasoned issues as a negative signal of the firm's financial prospects. This perception may explain why announcements that a seasoned issue is planned generally are followed by a decline in the price of already-outstanding stocks. *See* Asquith & Mullins, *Equity Issues and Offering Dilution*, 15 J. FIN. ECON. 61, 85-87 (1986) (announcing seasoned equity offering reduces stock prices by approximately 3%); Smith, *supra* note 179, at 4 (announcing common stock sale depresses price).

258. *See, e.g.*, R. BREALEY & S. MYERS, *supra* note 22, at 306-07 (citing example where issuer praised underwriter, suggesting that \$15 issue price may have helped stock price rise to

stock to obtain investment capital as inexpensively as possible. It is quite rational, however, if management is issuing stock for reasons other than simply raising capital cheaply. The advantages to going public include the status and prestige of listing, the creation of a public market for insiders' shares, and enhanced ability to acquire other businesses for shares instead of cash.²⁵⁹ These motives may predominate over any desire to obtain funds at a low price relative to other sources of funding. In such a case, management may be tempted to serve its self-interest and underprice, thus tempering the danger of passing voting shares into strangers' hands by ensuring that these new shareholders will be pleased with their investment's performance — and with management's.²⁶⁰

The possibility that management views stock issuances in this fashion poses an answer to issuer tolerance of underpricing. It also suggests that while any stock issue brings additional investment capital to the corporation, the *price* at which new stock may be sold and the implied cost of that new equity capital may play only a weak role in management's decision to make an issue. In other words, in those rare circumstances where the corporation raises capital by issuing equity, management may be relatively indifferent to the possibility that shares worth \$10 might be underpriced by underwriters at \$8, or overpriced at \$12. The result is that issuers countenance new issue mispricing and underpricing, and underwriters lack any incentive to correct it.²⁶¹

d. IPO mispricing and the corporation's cost of equity capital. The capital-allocation theory asserts that in a perfectly efficient market all stocks are correctly priced, so that all firms face the same cost of equity capital. Companies with better earnings sell their shares at more

\$50 in aftermarket, and observing that "[c]ontentment at selling an article for one-third of its ultimate worth is a rare quality"); M. HALLORAN, *supra* note 94, at 17 (suggesting that "it is not necessarily advantageous for the company's stock to be sold for the highest possible price"); Schneider, Manko & Kant, *supra* note 201, at 7-8 (issuer should select underwriters whose prior issues show good aftermarket performance; not necessarily wise to issue at highest possible price).

259. See M. HALLORAN, *supra* note 94, at — (listing advantages of going public; new capital is only one of four); Schneider, Manko and Kant, *supra* note 201, at 3-5 (increasing working capital is only one of the seven reasons listed for going public).

260. See M. HALLORAN, *supra* note 94, at 12-13 (suggesting that issuer should select underwriter who can assure "good price performance" of shares after issuance and place securities with investors to avoid large blocks of shares coming into the hands of persons or institutions who might try to oust management); Ibbotson, *supra* note 206, at 264 (underpricing new issues may serve underwriters and issuers as a form of insurance against investor lawsuits). See also *infra* note 270; Dent, *Unprofitable Mergers: Toward a Market-Based Legal Response*, 80 Nw. U. L. REV. 777, 782 (1986) (when management publicly issues stock, it may not care about underpricing because the loss falls on existing shareholders).

261. See Levmore, *supra* note 32, at 665-67 (recommending underwriting agreements that tie underwriter compensation to accurate pricing).

favorable prices and receive proportionately more funding than companies that do poorly. Private savings are allocated by Adam Smith's "invisible hand" to the firms likely to use them most productively. Society achieves, without the expenditure of thought or effort, the best of all possible economic worlds.

But reality departs from theory. Underwriter mispricing of new issues means that corporations going public may face wildly differing costs of equity capital; some firms sell stock at steep discounts while others raise funds at bargain basement rates. Any resulting misallocations are not due to inefficiency in trading market prices, but to defects in the IPO underwriting market.²⁶²

To speak of efficient stock markets optimally allocating capital under these circumstances is, to say the least, a bit nearsighted.²⁶³ Policies that promote efficient trading markets may help underwriters set more accurate prices for seasoned distributions, but trading market prices appear to give little guidance to an underwriting market that persistently misprices and underprices the IPOs that account for 70% of public equity issues.²⁶⁴ It is a paradox that the current regulatory system actively promotes trading market efficiency while neglecting the problem of new issue mispricing and, indeed, contributing to it through SEC rules that require new issues to be distributed at fixed prices.²⁶⁵ If capital allocation is truly the stock market's most important economic function, this policy is the equivalent of frantically working to save the bath water while the baby goes unnoticed.²⁶⁶ At-

262. See *supra* notes 243-61 and accompanying text.

263. A few commentators have addressed the pricing imperfections of the new issues market, but none appear to have thought out the implications of this reality for the sensibility of adopting efficient trading markets as a goal. See, e.g., Banoff, *supra* note 38; Note, *supra* note 179.

264. See *supra* note 182.

265. See *supra* notes 244, 247. The SEC's "stabilization" provisions add insult to efficiency injury: If the market price of an issue declines following the start of distribution underwriters may buy back shares in the public trading market in the hope that this artificial increase in demand will prevent any further decline. In other words, while issuers and underwriters may not alter issue price to reflect new information or aftermarket performance, they are permitted to manipulate the market price to conform to the incorrect issue price! This sort of dog-wagging is authorized by Rules 10b-6 and 10b-7, 17 C.F.R. §§ 240.10b-6, 240.10b-7 (1987), which allow underwriters to buy back shares and support sagging prices that threaten the "orderliness" of a distribution. Such manipulative transactions for the purpose of influencing market price are normally prohibited by federal law. See Securities Exchange Act of 1934, § 9, 15 U.S.C. § 78(i) (1982).

266. We have a regulatory paradox. Current policy promotes efficient pricing in the exchange and over-the-counter markets, relying on the supposed capital allocation benefits that follow. Yet in the market that most directly allocates capital to corporations — the market for underwriting new issues — our regulatory scheme not only tolerates persistent mispricing of initial public offerings but exacerbates it. Expanded use of the Rule 415 "shelf-registration" provision, allowing "at-the-market" shelf offering, might ameliorate some of this mispricing were the Rule not so restricted in its application, and were issuers not so apparently uninterested in taking advantage of the opportunity it presents. See *supra* note 236; Banoff, *supra* note 38, at 144

taining pricing efficiency in the market for underwriting new issues must be emphasized over achieving efficiency in the trading markets.²⁶⁷

4. *The Limited Misallocative Consequences of Corporate Issues Mispricing*

However, there are reasons to question whether it is worthwhile to sacrifice other policies to advance the efficiency of either the underwriting or trading markets. Economic theory suggests that even if corporate issues mispricing causes substantial capital to be misallocated, the economic losses resulting from such misallocation may be limited in scope. This is true whether corporate issues mispricing results from an inefficient trading market distorting seasoned issue prices or from an imperfect IPO underwriting market distorting new issue prices.

The point is most obvious in the case of the firm whose stock is inefficiently undervalued. Such a corporation can turn to other sources for the capital necessary to finance revenue-producing projects.²⁶⁸ More established firms can finance projects from operating revenues. A truly promising project can always find backers in the private placement or corporate borrowing markets (though perhaps at a higher cost).²⁶⁹ As a result, only the most marginal projects at the most marginal firms are likely to fail for lack of funding.²⁷⁰

(issuers make limited use of shelf registration for equity, and at-the-market equity is especially rare).

267. See *supra* notes 236, 247.

268. See Levmore, *supra* note 32, at 661-62 (positing that a firm that fails to raise sufficient funds in a public offering will turn to commercial lenders or make another offering at a lower price).

269. See *Planned Offerings of Firms Are Victims of Market Fall*, Wall St. J., Oct. 21, 1987, at 27, col. 5 (after market crash of October 19, 1987, many corporations planning initial public offerings scuttled their plans because of poor market conditions; these actions did not affect the development plans of most of the firms involved as they could turn to other sources of funding).

270. Rational corporate management ranks potential projects in order of expected returns, with the most profitable projects ranked above those less so. See generally R. BREALEY & S. MYERS, *supra* note 22, at 10-22, 69-108, 408-24. Projects are then undertaken in their order of priority, so long as expected revenue of the project (R^x) continues to exceed the return that could be achieved by individual shareholders (R^{sh}). If the firm cannot raise enough money on its own to undertake all revenue-positive projects but must seek financing elsewhere, an inflated cost of capital due to inefficient stock underpricing does not change the firm's investment priorities (all projects where $R^x > R^{sh}$, in descending order of returns) but may limit its ability to pursue those last few projects at the margin that still have revenue-positive returns.

The above analysis ignores, of course, the fact that the corporation is not really "borrowing" at any particular rate. It is simply selling pieces of paper which can be produced at little or no direct cost, and receiving money in return. If a firm identifies a project with a higher return than its shareholders can achieve for themselves, it "can always raise money by the sale of shares so long as it sets the price sufficiently low." R. BREALEY & S. MYERS, *supra* note 22, at 292. Such financing techniques may be unpopular with the original shareholders if the sale of stock to

The mirror image of this problem is the firm whose stock is overvalued by the market. Selling equity at grossly inflated prices allows overvalued firms to raise funds more cheaply than other, perhaps more promising, businesses which lack this advantage.²⁷¹ The high transaction costs of issuing equity, as well as empirical evidence that underwriter error tends toward undervaluation, may lead us to conclude that misallocations from inefficient overpricing are rarer than misallocations from underpricing.²⁷² But if a firm does raise bargain-basement capital by selling inefficiently overpriced stock, those excess funds are unlikely to be wasted in unproductive projects.

Substantial waste is unlikely because a corporation deciding whether to invest in a project will do so only if the expected revenue from the project exceeds that which the shareholders could achieve if they invested the money themselves. Otherwise, the shareholders are

others at bargain basement prices dilutes their proportionate stake in the revenues that result: but so long as the venture produces sufficient revenue it may be undertaken. *See Dent, supra* note 259, at 782 (If management sells underpriced stock, loss is borne by existing shareholders.). Indeed, if the project is so profitable that the additional revenues can be expected to more than make up for any dilution of the original shareholders' interest, all parties will be better off. W. BAUMOL, *supra* note 25, at 74 (dilution of present shareholders' equity by underpricing new issue does not harm present shareholders so long as funds are invested in project with rate of return that exceeds implicit cost of new equity).

271. Fox, *supra* note 5, at 1017 (if stock overvalued, J corporation likely to finance project by selling shares rather than other sources); *see* Barry, *supra* note 5, at 1317 (Increasing the price of securities reduces the costs of capital because the corporation "will rarely pay more for alternative sources.").

272. *See supra* text accompanying note 237. Misallocations from overpricing may be more likely if corporate management, recognizing overpricing, takes steps to issue stock that it otherwise would not issue. But such a scenario seems doubtful. First, the high transactions costs and political consequences of issuing equity suggest that a firm's stock would have to be very overvalued indeed to tempt the corporation to issue equity simply to take advantage of an opportunity for cheap financing. *See supra* notes 250-56 and accompanying text (discussing political consequences and costs of going public). Seasoned issues also carry political consequences. *See supra* note 257. Underwriting fees and transactions costs associated with both seasoned and unseasoned issues are high, and during the time it takes to prepare an offering, the issuer faces the risk that macroeconomic conditions or the corporation's circumstances will so change that a significant revision in the offering price will be required. Second, corporate management will not take advantage of the opportunity to raise capital cheaply by selling overpriced stock unless they both perceive that the market is overpriced, and expect that the inefficient overpricing will persist long enough to take advantage of it. In the case of an initial public offering, prior to the offering there is no public market for the corporation's shares. It is difficult indeed for management to recognize market overpricing in the absence of a market. Management of a privately held corporation may believe that the corporation can sell equity at inflated prices if they perceive a "hot" bull market in which virtually any form of equity can be sold at a premium price. But such market-wide mispricing is far less likely to be the result of inefficiency in incorporating information into the market, than of investor psychology that leads prices to incorporate the wrong sort of information. *See supra* note 223 and accompanying text.

In addition, in the case of both new and seasoned issues, obtaining an underwriter and preparing the registration statement can require weeks or months of work before the issue is brought to market. Few of the sources of inefficiency most commonly mentioned (such as the nonincorporation of inside information through insider trading or the nondisclosure of soft information) seem of a sort which management can rely on to persist for so long a period. *See supra* text accompanying notes 91-92.

better off if the corporation simply passes the money along directly in the form of dividends.²⁷³ If a firm sells overvalued shares, the money so gathered from new shareholders should be passed along in the form of dividends to the old shareholders. Such a transaction has wealth-transfer effects but, apart from the transaction costs incurred, no allocational significance.

Alternatively, self-aggrandizing management may prefer to retain control over excess cash rather than passing it along as dividends.²⁷⁴ However, management will still invest the money in some fashion that brings a positive return, possibly by expanding existing business lines or acquiring another, more productive, firm. While such projects may produce slightly lower rates of return than shareholders could achieve for themselves, they are nevertheless revenue-positive.

The point is that capital misallocations do not result in the complete loss or destruction of the misallocated funds. If the market inefficiently undervalues a particular firm's stock, investors who have bought the stock "too cheaply" may put their unspent money into banks or insurance companies which, in turn, lend to the corporation through a loan or private placement. Or they may purchase stock in a second, overvalued firm, which then uses their funds to "invest" in the undervalued firm by acquiring it. Rates of return, like water, seem to seek their own level, and if an inefficient stock market fails to allocate investment capital to its most productive uses directly, the money may arrive there indirectly. We can expect to incur marginal losses in the process, in the form of increased transaction costs or slightly lower

273. This argument is derived from Miller and Modigliani's famous proposition that in a perfect capital market, a firm's dividend policy is independent of its capital structure. *See generally* R. BREALEY & S. MYERS, *supra* note 22, at 331-40. It suggests that if corporate management acts rationally and in the best interests of shareholders, they will invest in corporate projects only so long as the rates of return exceed those achievable by shareholders themselves. Excess funds are returned as dividends. *See* M. FOX, *supra* note 27, at 21, 122-27 (management ranks projects by rate of return and should not invest if return falls below shareholders' potential outside return); Fox, *supra* note 5, at 1016 n.36 (noting "theoretical" argument that overpriced shares will not affect management's decision to undertake a project and that management will return excess funds raised in offering as dividends, but suggesting that "[t]here is little evidence, however, that corporations behave this way").

274. Fox suggests that such behavior is rational for management that wishes to maximize their compensation, perquisites, and authority. Such management will pay dividends only grudgingly, investing corporate funds in projects that produce returns below shareholders' to the extent this action can be taken without incurring shareholder wrath or a possible takeover bid. M. FOX, *supra* note 27, at 123, 126-27. *See infra* notes 327-43, 361-68 and accompanying text (managerial signaling and market for control theories). Of course, such losses are primarily the result of agency costs resulting from the separation of ownership and control of the corporation, rather than the consequence of market inefficiency. *See supra* note 249 (agency costs). They will be incurred whether management collects excess funds from retained earnings or from a new stock issue.

rates of return. But unless those losses are large, they may not justify spending resources and sacrificing other goals to avoid them.

B. *Variations on the Capital-Allocation Theme: The Influence of Trading Market Prices on Investor Confidence and Demand for New Corporate Issues*

While the classic version of the capital-allocation theory addresses the role of stock price in allocating capital among numerous competing corporations, another variation focuses on the interaction between efficient prices and investor willingness to invest in the stock market in general. According to the “investor-confidence” theory, inefficient pricing erodes investor trust in the market’s “integrity,” discouraging investor participation in the stock market and reducing capital formation.²⁷⁵

However, investor willingness to participate in trading on the exchanges or in the OTC market — that is, one investor’s willingness to buy an outstanding share from another investor — does nothing directly to enhance firms’ abilities to raise capital. Public confidence in the trading markets is allocatively pointless unless it leads to enhanced willingness to buy new corporate issues. Like the argument that efficient trading markets help underwriters correctly price corporate issues, the argument that efficient markets enhance investor confidence is premised on the assumption of a relationship between corporate issues prices and trading market prices.

The interaction between a seasoned issue’s price and the trading market price for identical outstanding stock has already been discussed.²⁷⁶ This section focuses on the more subtle connections that may exist between IPO prices and trading market prices in general. Such relationships might take two forms. First, the trading markets may encourage investor confidence in new issues by promising a liquid aftermarket in which investors can dispose of their shares. Second, trading market prices may influence demand for new issues to the extent that investors perceive IPOs and outstanding issues to be substitute goods.

275. See *Basic Inc. v. Levinson*, 108 S. Ct. 978, 991-92 (in well-developed market, price reflects all available information; investors rely on market price’s integrity and would be less inclined to invest without it); Note, *supra* note 101, at 1071 (The SEC should promote informational efficiency “so that investors can purchase securities with confidence that their market prices best reflect their true values.”).

276. See *supra* notes 212-14 and accompanying text.

1. *Investor Confidence and the Need for Liquidity*

An investor purchasing shares in an IPO may plan to sell those shares at some point in the future. Such an investor looks for liquidity as well as long-term performance in an investment, and values new issues more highly if they can be sold at short notice without taking too much of a loss.²⁷⁷ Resales of new issues (which have become by then outstanding issues) generally take place in the trading markets.²⁷⁸ Stock performance in the trading markets may consequently influence investor confidence and willingness to buy new issues.²⁷⁹

a. Portfolio theory and investor valuation of stock performance.

Exploring how pricing inefficiency affects investor perceptions of stock performance upon resale in the trading markets requires a theory of how investors measure performance. Modern financial theory predicts that rational investors judge a stock's performance according to only two factors.²⁸⁰ The first is the expected return on the stock, measured by anticipated dividends and appreciation or depreciation in price upon resale.²⁸¹ The second is the stock's expected nondiversifiable or "beta" risk.²⁸² To financial scholars, the concept of "risk" is a specialized one referring to variation in return.²⁸³ Stocks which are very volatile (*i.e.*, stocks which experience sharp changes in price or dividends over time) are "riskier" than stocks whose prices and earnings are sta-

277. See Poser, *supra* note 175, at 886 (economic function of trading markets is to create liquidity so that new issues can be sold); Wu, *supra* note 12, at 263 ("The ever-present possibility of disposing of shares rapidly at a 'reasonable price' provides investors with liquidity and thereby reduces their investment risk. Because of the secondhand markets where shares can be sold readily, savers are generally more willing to invest.").

278. Shareholders selling large blocks of outstanding stock may sometimes sell through an underwriter rather than directly to the trading public. Such "secondary offerings" comprise only a small portion of equity offerings. See 1988 SEC STATISTICAL REVIEW, *supra* note 182, at 6 (Table A-405, showing, on a preliminary basis, that secondary offerings accounted for approximately \$8.9 billion of \$181.15 billion of common stock and other equity offerings in fiscal year 1987).

279. See R. WEST & S. TINIĆ, *THE ECONOMICS OF THE STOCK MARKET* 5 (1971) (trading market influences the allocation of capital by augmenting the flow of short-term funds to new issues through promise of liquidity); Easterbrook & Fischel, *supra* note 91, at 684 (can sell new issue at higher price if value in aftermarket is assured); Wu, *supra* note 12, at 263 (good secondary market makes investors more willing to invest).

280. Most financial scholars believe that securities should be evaluated according to the doctrine known as the Capital Asset Pricing Model ("CAPM"). See generally R. BREALEY & S. MYERS, *supra* note 22, at 128-58; J. LORIE & M. HAMILTON, *supra* note 17, at 113-24, 198-210.

281. The total income a shareholder receives from stock, including both dividends and appreciation, is referred to as the "return." Return is a function of the firm's earnings. See generally, J. Lorie & M. Hamilton, *supra* note 17, at 113-24. In calculating return, income to be received in the future must be discounted to reach its "present value." R. Brealey & S. Myers, *supra* note 22, at 10-13.

282. See generally R. BREALEY & S. MYERS, *supra* note 22, at 128-36; J. LORIE & M. HAMILTON, *supra* note 17, at 211-27.

283. See generally R. BREALEY & S. MYERS, *supra* note 22, at 117-58.

ble, even when the average returns of the two are the same.²⁸⁴ Financial theory assumes that most investors are risk-averse and view risky stocks as worth less than stable stocks with the same average returns.²⁸⁵ As a result, investors will not buy riskier stocks unless they are paid a risk premium in the form of greater expected returns.²⁸⁶

Portfolio investors are more concerned about some types of risk than others. Some corporations prosper when others fail, and the prices of differing stocks are unlikely to change at exactly the same time in exactly the same fashion.²⁸⁷ While an investor owning only one stock may experience large variations in return,²⁸⁸ an investor owning stock in several corporations reduces overall risk because variations in the returns of the differing companies can offset each other.²⁸⁹ However, diversification cannot eliminate risk completely. Some economic developments affect all corporations at the same time: in a depression, all business tends to suffer.²⁹⁰ The portfolio investor evaluating the riskiness of a particular stock therefore distinguishes between two kinds of risk. "Diversifiable," "unsystematic," or "unique" risk is risk specific to an individual firm which can be diversified away by holding a number of stocks. "Beta," "systematic," and "market" risk are all terms referring to that nondiversifiable risk attributable to factors that affect the market as a whole — the kind of

284. A stock that pays a \$10 dividend in year one and no dividend in year two is "riskier" than a stock which pays \$5 in both years, although their average expected return is the same.

285. R. BREALEY & S. MYERS, *supra* note 22, at 12-13, 117-36; J. LORIE & M. HAMILTON, *supra* note 17, at 171, 200.

286. See generally R. BREALEY & S. MYERS, *supra* note 22, at 117-36. Returning to the example of note 284 *supra*, the risk-averse investor choosing between receiving a \$5 dividend unconditionally or tossing a coin for \$10 or nothing will choose the \$5. But he might be indifferent between receiving \$5 unconditionally, and tossing a coin for \$11 or nothing.

287. The classic examples are the hypothetical corporations of Warco, a weapons manufacturer and Peaceco, a recreational vehicle producer. Warco thrives in times of hostility among nations, while Peaceco languishes. After armistice their roles are reversed. See V. BRUDNEY & M. CHIRELSTEIN, *CORPORATE FINANCE: CASES AND MATERIALS* 82-83 (3d ed. 1987).

288. Stocks are by their nature risky investments, as the fortunes of corporations rise or fall from year to year. See R. BREALEY & S. MYERS, *supra* note 22, at 123-24 (between 1926 and 1981, the risk of a T-bill portfolio as measured by the standard deviation from the expected return was 3.1%; the standard deviation of even a diversified market portfolio during the same period was 21.9%; deviations of individual stocks were on average even higher).

289. See R. BREALEY & S. MYERS, *supra* note 22, at 123-26. In the case of Warco and Peaceco, see *supra* note 287, the variations in their return are said to be "negatively" correlated; if one goes up, we may expect the other to go down. But this correlation is not required for diversification to reduce risk. So long as stocks are not perfectly positively correlated — they do not rise or fall by exactly the same amount at exactly the same time — diversification can reduce risk. If the returns of the stocks in a portfolio are randomly correlated (in statistical terms, independent), risk may be diversified away completely. See R. BREALEY & S. MYERS, *supra* note 22, at 124-25.

290. *Id.* at 125-26; V. BRUDNEY & M. CHIRELSTEIN, *supra* note 287, at 84-85.

macroeconomic tides on which all boats rise or fall.²⁹¹

Let us return again to the risk-averse investor seeking to value her portfolio. The investor will, of course, consider the expected returns of the stocks that constitute the portfolio. But in discounting those returns for risk, she will consider only beta, or market, risk. The investor will not devalue the stock of a speculative corporation with a high unique risk because unique risk may be diversified away.²⁹² Financial theory consequently predicts that inefficient markets will harm the portfolio-holding investor's confidence in the trading market (thereby reducing demand for new issues) only if inefficiency reduces stocks' expected returns, or increases nondiversifiable risk. Let us consider whether inefficient markets change investors' evaluations of risk or return in such a fashion.

b. The effect of inefficiency on expected average returns. One version of the investor confidence argument assumes that investors who believe the trading markets do not efficiently reflect new information will be less interested in purchasing IPOs because they fear they might be forced to sell their stock in the future at a price that is "incorrect" in light of available data.²⁹³ In *Basic Inc. v. Levinson*, Justice Blackmun described this perceived problem as one of market "integrity."²⁹⁴ Noting that "the market price of shares traded on well-developed markets reflects all publicly available information," Blackmun concluded that the "investor who buys or sells stock at the price set by the market does so in reliance on the integrity of that price."²⁹⁵ After all, "[w]ho would knowingly roll the dice in a crooked crap game?"²⁹⁶

291. See R. BREALEY & S. MYERS, *supra* note 22, at 125 nn.12-13 ("unique" and "unsystematic" risk is diversifiable risk; "market" risk is nondiversifiable); V. BRUDNEY & M. CHIRELSTEIN, *supra* note 287, at 84-85 ("systematic" and "unsystematic" risk).

292. R. BREALEY & S. MYERS, *supra* note 22, at 128-35; J. LORIE & M. HAMILTON, *supra* note 17, at 198-210. Stocks with identical expected returns and risk will carry identical values. It may, of course, turn out that one stock does substantially better than the other. But their expected returns *ex ante* are the same.

293. See *supra* note 275 and accompanying text. A similar "investor confidence" argument is frequently raised in response to proposals to legalize insider trading. It is claimed that public knowledge of widespread insider trading will reduce the outside investor's confidence in his ability to sell his stock at a fair price, which depresses prices in the new issues market and reduces capital formation. See Schotland, *supra* note 131, at 1440-42 (if insider trading is allowed, outsiders will lose overall to insiders, discouraging outside participation in the stock market and harming capital formation); Seligman, *supra* note 12, at 1115-20 (insider trading increases risks of market). But see Carney, *supra* note 27, at 894 (discounting of securities values due to investor knowledge of insider trading should be trivial).

294. 108 S. Ct. 978, 992 (1988).

295. 108 S. Ct. at 991-92. *Contra* 108 S. Ct. at 995-96 (White, J., dissenting) (criticizing majority for defining market integrity as investor entitlement to rely on price of stock as reflection of its true value).

296. 108 S. Ct. at 995 (quoting *Schlanger v. Four-Phase Sys., Inc.*, 555 F. Supp. 535, 538 (S.D.N.Y. 1982)).

The problem with this view is that in an inefficient trading market the odds of selling at an incorrectly low price are no greater than the chance of a windfall by selling at an incorrectly high price.²⁹⁷ Inefficient stock markets (like efficient ones) may well be a crap game, but not necessarily a crooked one. If inefficiency is as likely to lead to overvaluation as undervaluation, inefficient pricing will not affect investors' average returns.²⁹⁸ Consequently, inefficiency should not erode investor confidence in the market's expected returns.²⁹⁹

c. *The effect of inefficiency on nondiversifiable risk.* A second version of the investor confidence argument asserts that inefficient pricing hurts investor confidence in the trading market because it increases the variance of returns by adding the risk of windfall gains and losses to preexisting investment risk.³⁰⁰ The short answer to this proposal is that if the "risk" of a mispriced purchase or sale in an inefficient market is diversifiable risk — and there seems to be no reason why it should not be — portfolio investors will not be concerned with it at all.³⁰¹ But a more significant flaw in this argument is that it mistakes the manner in which shareholders calculate "gains" and "losses."

The only shareholder whose returns are affected by stock price is the shareholder who actually sells his stock.³⁰² This shareholder

297. See generally Coffee, *supra* note 5, at 734 (securities prices are fair game even if inefficient); Fox, *supra* note 5, at 1011 (market inefficiency is "unbiased").

298. When an additional variable has an equal probability of increasing or decreasing a particular value, the statistical or expected effect on that value is zero. See Coffee, *supra* note 5, at 734 (if the market is a "zero-sum game," investors only need fairness from a regulatory disclosure system that ensures unbiased price differentials); Friend & Herman, *The SEC Through a Glass Darkly*, 37 J. BUS. 382, 401 (1964) (Gains to investors from "closer correspondence of market and [true] equilibrium prices can easily be exaggerated. . . . To the extent that individual investors are both buying and selling different stocks at the same time, some of which are relatively inflated and others deflated, [increased efficiency gives] little service."). See also *supra* notes 222-23 and accompanying text.

299. Investor confidence in average returns may be eroded, however, in a market made more "efficient" by insider trading. Insiders move price to the correct position through their trades. But until price gets to the "right" point, the insider has a systematic advantage denied others. This advantage decreases outside investors' average returns. See *infra* text accompanying notes 431-32; Schotland, *supra* note 131, at 1440-42 (insider trading causes outsiders to "lose" overall to insiders). In this instance, a policy that enhances efficiency (e.g., legalizing insider trading) decreases investor confidence by eroding expected returns. Again, we must distinguish the pursuit of informationally efficient markets from the pursuit of honest markets.

300. See Lorie, *supra* note 39, at 819 ("[I]n an efficient market, the relationship of prices to values is more stable, thus reducing the variance in prices.").

301. Even if investors recognized and cared about "windfall" gains or losses due to inefficiency, the investor who holds a portfolio will be indifferent to such variation as long as it is diversifiable. There is no reason to believe that variance due to inefficiency would not be random. See *supra* text accompanying notes 222-23; Fox, *supra* note 5, at 1010, 1013-14 (if inefficiency increases risk, this will bother the investor who holds one stock but not the investor with a diversified portfolio; inefficiency is an unsystematic risk that is randomly distributed (in statistical terms, independent) so inaccuracies due to inefficiency are of little import to investors as differing inefficiencies "cancel" each other out and can be diversified away).

302. The exception to this rule is the shareholder who is using his stock as collateral for a

measures his return on that transaction as the difference between the price he paid when he bought the stock, and the price he receives when he sells it; he does *not* measure it by the difference between price received and "value" when sold.³⁰³ Investors who want to reduce variance in their portfolio returns will therefore worry less about informational inefficiency (which causes price to depart from the price that would be set if the market incorporated all available information) than about volatility (which causes price to depart from historical price). The risk-averse investor finds far more comfort in assurances that tomorrow's price will be the same as today's, than in assurances that tomorrow's price will speedily reflect information received in the meantime.³⁰⁴

That point was brought home on October 19, 1987. Investors surely found little solace in the belief that the Dow may have "accurately" reflected decreased economic expectations when that index lost 22% of its value in a single day.³⁰⁵ Subsequent investigations have focused on the need to reduce volatility in the markets.³⁰⁶ Rapid shifts in price that cause investors to perceive the markets as risky pose far more danger to investor participation in the trading markets than the possibility that prices will depart from "true value" because of informational inefficiency.

Inefficiency, therefore, should not hurt investor confidence or willingness to invest unless inefficient markets are more volatile markets. In fact, there are reasons to believe that inefficient markets are less volatile. A market that rapidly incorporates new information will be a market in which prices change often and quickly to reflect that infor-

loan. In such a case, an increase or decrease in stock price can lead to similar changes in borrowing capacity because the stock value acts as a signal of the shareholder's wealth to banks. On the importance of efficient prices to evaluating shareholder wealth, see *infra* notes 344-60 and accompanying text.

303. To the short-term shareholder who intends to part with his shares, any concept of "intrinsic" value beyond sale price is meaningless. See *infra* notes 345-50 and accompanying text.

304. Cf. Banoff, *supra* note 38, at 181 (efficient market is not risk-free); Levmore, *supra* note 32, at 656 (suggesting SEC should sacrifice some market efficiency if this reduces volatility); Posner, *Law and the Theory of Finance: Some Intersections*, 54 GEO. WASH. L. REV. 159, 170 (1986) (volatile markets harm investors).

305. Whatever the ultimate cause of the crash, many believe that the October 1987 decline leading up to the crash was the result of new information concerning the economy. BRADY REPORT, *supra* note 15, at V-1 to V-3 (survey of market participants found that 77% thought fundamental economic changes were primary cause of decline during the week preceding October 19); see Ruder Says Markets Are Still Volatile: Proxmire to Push for Reform Legislation, 20 Sec. Reg. & L. Rep. (BNA) 795, 796, May 27, 1988 [hereinafter *Ruder Says Markets Still Volatile*] (Statement of Federal Reserve Chairman Alan Greenspan that daily volatility reflects market's enhanced ability to obtain information).

306. See SEC REPORT, *supra* note 69, at xi-xii (volatility undesirable; reduces investor confidence); BRADY REPORT, *supra* note 15, at 53 (extreme volatility threatened integrity of market on October 19 and 20, 1987).

mation.³⁰⁷ On the other hand, a more inefficient market takes longer to digest new information, resulting in slower price changes and less volatility. In this fashion, policies that allow inefficient markets may even enhance investor confidence by reducing variance in stock returns.³⁰⁸

2. Outstanding Issues and New Issues as Substitute Goods

The investor-confidence argument outlined above is premised on the trading market's role in providing a liquid aftermarket in which IPO investors may dispose of their shares. But intuition suggests that the prices of outstanding stocks may influence investor demand for IPOs even if the investor is uninterested in resale. The economic explanation for this phenomenon centers around the concept of substitute goods.³⁰⁹

The classic examples of substitute goods are butter and margarine. Because consumers can use margarine as a substitute for butter, an increase in the price of butter leads to an increase in demand, and eventually price, for margarine.³¹⁰ Like butter and margarine, new issues of stock and outstanding issues may be substituted for each other by the consumer seeking to defer income. After all, both represent ownership interests in a corporation and the hope of profit. Inefficient pricing of stocks in the trading markets may thus lead to changes in new issue prices, with allocative repercussions.³¹¹

The strength of any substitution effect depends on the similarity of

307. See SEC REPORT, *supra* note 69, at xi-xii (volatility is "a measure of how quickly prices react to new information"; in periods of economic uncertainty, increased volatility occurs); Schotland, *supra* note 131, at 1446 (an "informed" (efficient) market is characterized by "sharp price shifts when the information changes"); Stigler, *supra* note 37, at 133 (if we appraise markets by their efficiency, we must abandon criteria of constant prices over time; criticizing SEC's fixation on orderly market and smooth price changes as inconsistent with efficient market).

308. For example, index futures trading is believed to enhance market efficiency by helping to incorporate information into equity prices more quickly, but is also believed to add to market volatility. See *supra* notes 69-93 and accompanying text. Eliminating stock index futures trading would make the market less efficient but, by reducing volatility, would increase investor confidence.

309. See generally R. LIPSEY & P. STEINER, *supra* note 153, at 75-76; R. MILLER, INTERMEDIATE MICROECONOMICS: THEORY, ISSUES AND APPLICATIONS 76, 100 (1982).

310. R. LIPSEY & P. STEINER, *supra* note 153, at 98. If the costs of the dairy business rise, the price of butter will rise as well, and some consumers will change consumption patterns away from the consumption of now-pricey butter in favor of (relatively) less expensive margarine. The increase in demand for margarine will soon lead to an increase in the price for margarine. So the prices of butter and margarine "follow" each other. The relationship also works in reverse: increases in the price of margarine increase demand for butter. See R. LIPSEY & P. STEINER, *supra* note 153, at 75-76, 98; R. MILLER, *supra* note 309, at 94, 100. The extent to which changes in the price of one good induce changes in demand for a substitute depend on the "cross-elasticities" of the goods involved. See *id.* at 101.

311. If outstanding issues are overpriced, this fact will increase demand for new issues and drive up price, which may lead to an inefficient "oversupply" of funds to new issues. See

the goods involved and the ease with which the investor can shift from one good to its substitute.³¹² In the absence of empirical data, it is impossible to be certain *a priori* whether, and to what extent, new issues and outstanding stock act as substitute goods. But there are reasons to suspect that on an individual basis the consumer is unlikely to regard any particular outstanding issue as a substitute for any particular IPO. New and outstanding stocks differ as investment vehicles. IPOs tend to be made by smaller, more speculative ventures and are notoriously "risky" compared to outstanding issues. Accordingly, they carry higher risk premiums.³¹³ Also, because such companies are more likely than established firms to withhold dividends so as to retain earnings for growth, they should attract an investment clientele of "young accumulators." In contrast, more staid and income-oriented investors prefer blue chip issues.³¹⁴ Finally, many authorities believe that underwriters direct underpriced new issues to favored customers, so that investing in new issues requires different industry contacts than investing in outstanding shares.³¹⁵ All of these factors suggest that the substitution effect of any particular outstanding stock on any particular IPO will be very weak if it exists at all. Given thousands of outstanding stocks to choose from, the substitute-seeking investor who believes that IBM stock is overpriced will look to AT&T, ITT, and other stocks of similar seniority, performance, and structure long before he turns to a speculative new issue like Home Shopping

Levmore, *supra* note 12, at 156 (positing how suspension of trading in outstanding Texas Gulf stock might cause funds to "flow too easily" into new issues).

312. The more similar two products are in function and use, the more likely they are to be "perfect" substitutes. For perfect substitutes, an $x\%$ increase in the price of one leads to an identical $x\%$ increase in the other. See generally R. MILLER, *supra* note 309, at 99-100 (cross-elasticities of demand).

313. See Ibbotson, *supra* note 206, at 258-61 (new issues show greater risk and volatility which declines with seasoning). The Capital Asset Pricing Model, see *supra* notes 280-92 and accompanying text, suggests that outstanding stocks and new issues may be perfect substitutes because a stock's risk premium should bear a linear relationship to its "beta" or market risk, and an investment portfolio of high-beta new issues can be replicated by borrowing to hold a larger portfolio of outstanding stocks with a normal market beta. Limitations on investors' credit and the transaction costs of borrowing, along with different tax treatment of capital gains and dividends, limit the applicability of this aspect of the theory to actual investor behavior.

314. The OTC Market, which is comprised of relatively young, speculative stocks, is believed to attract a different clientele than the organized exchanges. See Banoff, *supra* note 38, at 172. As initial public offerings are even riskier and more speculative than OTC stocks, still greater differences in investor tastes may exist.

315. New issues tend to be underpriced, see *supra* notes 254-61 and accompanying text, and many believe that underwriters "channel" underpriced new issues to preferred clients. See Beatty & Ritter, *supra* note 233, at 215 n.4 (rationing may be "severe"; citing case of IPO investor who received less than 5% of IPO shares requested); Ibbotson, *supra* note 206, at 265 n.22 (evidence that many offerings are "rationed"); Rock, *supra* note 246, at 192 ("common complaint" that underwriters favor certain customers).

Network.³¹⁶

It might be argued that substitution effects are more likely when we compare not individual stocks, but a diversified portfolio of outstanding issues and a diversified portfolio of IPOs. Investors who perceive inefficiently inflated prices throughout the trading markets may be tempted to divest their trading portfolios in order to buy relatively inexpensive new issues. That may increase demand for new issues and artificially lower the cost of equity capital.³¹⁷

However, it seems unlikely that inefficiency in the trading markets will lead to mispricing in the new issue market. First, as discussed earlier, policies that slow the incorporation of firm-specific information into price are unlikely to lead to the uniform inflation or deflation of a diversified portfolio.³¹⁸ Second, in the absence of empirical evidence of consumer tastes we should not assume that, even on a portfolio basis, consumers regard IPOs as the nearest available substitute for outstanding issues. The investor driven from the trading market by inflated prices may well turn to treasury notes, certificates of deposit, or other low-risk investments before he buys stock in the sort of speculative venture that produces most new issues. A bullish market for one does not necessarily follow from a bullish market for the other.³¹⁹

In summary, the argument that inefficient trading market prices will distort demand for new issues is a weak one. It is unconvincing

316. When Home Shopping Network went public in 1986, its stock price doubled on the first day of trading and enjoyed an 800% increase in its first year. Feast was followed by famine when the stock dropped from \$47 to \$4 per share in 1987. Knight, *A Medium in Search of a Message? Home Shopping Network, Despite Roller Coaster Past, Still a Made-for-TV Drama*, *The Washington Post*, June 5, 1988, at H1, col. 2.

317. The relationship also works in reverse. If entrepreneurial success in the new issues market leads to enhanced demand for new issues and a rise in their price, some of this new investor interest is likely to be squandered on secondary market purchases that transfer wealth from the new shareholder to the old, but do not result in additional funds for investment. See Gupta, *Small Firms Bite the Bullet and Prepare To Go Public at Post-Crash Lower Prices*, *Wall St. J.*, May 19, 1988 at 51, col. 1 (quoting mutual fund manager that "[a]s long as new issues are underpriced relative to the values available in public [trading] markets, investors will continue to be receptive . . . but when deals come overpriced, we have plenty of seasoned companies in the public market to choose from").

318. See *supra* note 222 and accompanying text. Such marketwide mispricing — if it exists at all — is usually attributed to "waves" of irrational investor bullishness or bearishness. The possibility of such psychological phenomena only casts further doubt on the wisdom of pursuing efficient markets. See *infra* notes 407-19 and accompanying text.

319. Support for this view is found in the opinions of analysts who, at various times, have regarded the trading market as inflated vis à vis the new issues market, and vice versa. See R. JENNINGS & H. MARSH, *SECURITIES REGULATION* 18-19 (6th ed. 1987) (during 1970s, new issues market was stagnant while investors focused on blue chip companies). Investors may regard the closest substitute for new issues as not publicly traded outstanding stocks but such high-risk derivative instruments as stock-index futures and options. See FEDERAL RESERVE STUDY, *supra* note 75, at 25 (opportunity to invest in risky futures and options may reallocate risk capital away from venture capital investments, initial public offerings, or other offerings by small firms).

because informational inefficiency *per se* affects neither the overall risk nor the overall expected return of stocks in the trading market, and because new issues and outstanding issues can be expected to have only very weak substitution effects on each other outside the context of marketwide mispricing. In addition, the same caveats that apply to the classic version of the capital allocation theory apply to its investor-confidence and substitute-good derivatives. Whatever the value of an optimal overall willingness to buy newly issued stock, that value is seriously diluted if an imperfect IPO underwriting market misprices IPOs so that investors do not direct their savings into the *right* new issues.³²⁰ Similarly, investors who lack confidence in the stock market may shift their savings into other investment vehicles, such as bonds or insurance policies, that provide capital to corporations more indirectly.³²¹ Only marginal losses (in the form of transaction costs or slightly reduced rates of return) are suffered. Economic analysis again suggests that we should question the prevailing wisdom that efficient stock market prices are important to the optimal allocation of corporate capital, whether directly or indirectly.

C. Stock Prices as Signals

Whatever the merits of the capital-allocation argument, it can only apply to corporations that actually issue stock.³²² If after "going public" a company never issues stock again (not an unlikely scenario), why should we care whether investors later buy and sell those shares at informationally efficient prices?³²³

Some commentators argue that even if trading market prices do not influence the flow of investment capital to corporations, those prices carry more indirect economic consequences because shareholders use them as information-carrying "signals" when they allocate other resources.³²⁴ According to the management quality-signaling theory, stock prices determine who manages the corporation's assets

320. See *supra* text accompanying notes 261-67.

321. If investor "unconfidence" precludes firms from raising funds through equity issues, other sources of funding, such as corporate borrowing, remain available. Similarly, if investor "overconfidence" in the stock market enables firms to raise equity capital too cheaply, these firms will not throw away the excess funds but will return them to shareholders in the form of dividends or invest them in other projects with a positive return, albeit a slightly lower one. The point is simply that, as in the case of individual misallocations of capital, any misallocations due to "incorrect" levels of investor confidence in the stock market will produce losses only at the margin. See *supra* notes 267-73 and accompanying text.

322. See Fox, *supra* note 5, at 1014, 1023-24 ("[I]f the market consisted only of secondary trades of previously issued securities, . . . the market would have no effect on real economic events.").

323. See *supra* notes 178-91.

324. See Barry, *supra* note 5, at 1316 n.46 (stock prices act as signals to economy); Fox,

because shareholders rely on stock price to indicate whether incumbent management is running the corporation well or poorly.³²⁵ A second argument, the "wealth-effect" theory, focuses on the importance of stock prices to investors calculating their net worth when choosing between savings and consumption.³²⁶

1. *Stock Prices as Signals for the Selection and Compensation of Management*

If stock prices in an efficient market accurately reflect corporate earnings, better managers who extract greater profits from the corporation will cause stock price to rise. Incompetent or dishonest management will reduce corporate profits and depress share price.³²⁷ In this fashion, it is argued, efficient markets signal shareholders how to select management.³²⁸ If share price rises, the corporation is doing well and management should be retained; if price declines, management should be shown the door.³²⁹ A variation on this theme is the use of stock or stock options to compensate management, a practice which is thought to create incentives for better management performance by "bonding" management's self-interest with that of the shareholders.³³⁰

The argument that efficient markets should be cultivated in order to aid shareholders in evaluating and compensating management illus-

supra note 5, at 1015 (trading markets as "nerve center" directing the real economy); Levmore, *supra* note 12, at 158 (inaccurate price signals lead to resource misallocations).

325. See *infra* notes 327-43 and accompanying text.

326. See *infra* notes 344-59 and accompanying text.

327. See Fischel, *supra* note 160, at 1, 5 (management's abilities reflected in stock price); Gordon & Kornhauser, *supra* note 1, at 824 (stock price signals management quality).

328. See Carlton & Fischel, *supra* note 5, at 867 (efficient pricing enables shareholders to evaluate which corporate managers are successful, so that markets for managerial services function more effectively); Gordon & Kornhauser, *supra* note 1, at 824 (market price for stock "signal[s] the relative quality of management" in market for executive services); see also Fox, *supra* note 5, at 1014, 1021-22 (because executive compensation is often affected by stock price, market prices have effect on real economic events).

329. Shareholders influence the selection of management because their votes determine the composition of the board of directors, which selects management. R. CLARK, CORPORATE LAW 94, 105-06 (1986). There are substantial impediments to effective shareholder monitoring of management. See Coffee, *supra* note 153, at 1190 (in the face of little influence and high monitoring costs, individual shareholders demonstrate rational apathy toward management selection); Easterbrook & Fischel, *supra* note 107, at 1170-72 (describing freeriding and coordination problems and other impediments to monitoring). If shareholders respond to declining stock prices by simply selling their stock, ineffectual management will remain in place. Recognizing the limits of shareholder influence in the market for executive services, some argue that declining stock prices result in a change in management if the corporation becomes a target of a takeover attempt. See *infra* text accompanying notes 361-90 (market for corporate control).

330. See Carlton & Fischel, *supra* note 5, at 869-70 (giving management a stake in firm is common scheme to align interests); Coffee, *supra* note 153, at 1249 n.316 (economists suggest stock options align management's and shareholders' interests).

trates the weaknesses of any signaling theory.³³¹ Economic actors use events as signals when they believe those events contain useful information about the underlying condition with which the actor is truly concerned. By definition the signal is not as accurate as a direct investigation into the matter at issue. The usefulness of signals springs from their accessibility; it may be cheaper and easier to observe the signal than the underlying condition itself. Certainly it takes less effort to follow stock price in the pages of the *Wall Street Journal* than to undertake more direct investigation of management's abilities.

However, any assertion that we "need" accurate stock signals runs the risk of confusing ends and means. The desired end is the optimal allocation of real economic resources. Signals are only the means to that end. Any event may be used as a signal, from sunspots to Labor Department unemployment statistics.³³² If economic actors who select more accurate signals prosper at the expense of those who follow less accurate ones, then as a general rule we can leave it to investors to select their own preferred signal, choosing among the many available. Self-interest will drive investors to use more reliable signals and avoid being misled by those that are less trustworthy. There seems little sense in devoting resources to the artificial creation of an "official" signal of management's competence which is then *made* accurate.

The marginal benefits of improving the accuracy of stock prices as signals seem likely to outweigh the costs in only very limited circumstances. Those circumstances would be (i) if efficient stock prices were very reliable signals of management's abilities; (ii) if other sources of information concerning management were either unavailable or prohibitively expensive; and (iii) if using stock prices as signals imposed no excessive costs. Only in such a case does it seem likely that the end of identifying skilled management will effectively be served by devoting resources to ensuring more informationally efficient stock market signals.

However, stock price alone is a very unreliable indicator of management performance. Stock prices fluctuate in response to a number of variables besides the quality of management. Prevailing interest rates, inflation expectations, trade balances, economic legislation, new technology, changes in consumer demand and markets, and pending litigation — each and every one of these factors changes stock prices

331. The argument that trading prices aid underwriters pricing new issues is a form of signaling argument. See *supra* text accompanying notes 215-23.

332. See P. SAMUELSON, *supra* note 153, at 256 n.4 ("sunspot theory" for predicting economic cycles); see also Garcia, *Will It Be Friday the 13th, Part 6? Study Ties Three in Year to Recession*, *Wall St. J.*, Nov. 13, 1987, at 17, col. 4 (citing studies using Friday the 13th to predict stock market decline and economic recession).

in a fashion that has nothing to do with management's skill or honesty.³³³ Moreover, whatever relationship stock price may bear to management's overall quality, it says little indeed about individual managers. Judge Easterbrook and Professor Fischel have criticized the use of stock options to bond management's interests to shareholders on this basis, arguing that any one manager's efforts are likely to have only a trivial effect on stock prices.³³⁴

The result is that the shareholder who wishes to select and reward executives solely on the basis of price performance may as well read tea leaves. Stock price alone carries little information: it is the events underlying the change in price which count.³³⁵ To the shareholder trying to decide whether to vote for incumbent management in the annual election, a fall in the corporation's stock communicates nothing. News that interest rates have risen — or that the CEO has been indicted for fraud — tells much more.

Not only are stock prices unreliable signals, but more reliable sources of information concerning management are available. Federal law imposes on publicly held corporations an extensive disclosure regime requiring continuous and exhaustive disclosure of information relevant to management's performance. Corporations must periodically disclose management's salaries, perquisites, and prior business experience; the corporation's past and present dividends and earnings; assets and liabilities; the nature of, and any changes in, the corporation's business; and the presence and progress of significant legal proceedings.³³⁶ SEC-mandated disclosure is supplemented by the work of private analysts and the financial press,³³⁷ not to mention the corporation's, or management's, own voluntary disclosures.³³⁸ The result is that shareholders have access to a number of sources of information they can use to judge management's performance, and to which they can tie management compensation.³³⁹

333. See Coffee, *supra* note 5, at 723-24 (stock's price performance "substantially dependent" on such "exogenous factors").

334. See Easterbrook & Fischel, *supra* note 107, at 1172 n.31 (arguing that stock options cannot effectively reduce agency costs).

335. See also Cox, *supra* note 67, at 646-47 (arguing that change in stock price alone is too "noisy" a signal to "substitute for a clarion corporate announcement" in enhancing efficiency).

336. See *supra* note 94.

337. See Seligman, *supra* note 12, at 1123 (in 1977, there were over 14,000 professional securities analysts).

338. See, e.g., L. IACOCCA, IACOCCA (1986); T. PICKENS, BOONE (1987).

339. To the extent that inefficient stock prices reduce whatever "bonding" value stock options may have, other arrangements can be made to tie salary to earnings, dividends, or other financial ratios. See R. CLARK, *supra* note 329, at 201 (Executive incentive plans include cash bonuses, profit-sharing plans, and deferred compensation arrangements.).

Finally, efficient stock prices cannot be viewed as a cheap substitute for other forms of information-gathering. The excessive costs associated with achieving efficient markets will be discussed in some detail later.³⁴⁰ There is a particular moral hazard associated with using stock prices to evaluate and compensate management. Judging management's performance by a stock price signal shifts management's self-interest from running the corporation well, to running the *signal* well. Management whose tenure and salary depends on stock price performance will be tempted to focus attention on maintaining or increasing stock prices, even when these efforts are not in the interest of the corporation or its shareholders. Management will have incentive to delay the announcement of bad news,³⁴¹ to disseminate false good news; to avoid investments that are in the business' long run interest but depress prices in the short run;³⁴² or to waste corporate assets by initiating a stock buy-back plan designed with no other purpose than to drive marginal prices higher.³⁴³ Paying too much attention to stock prices as a means of evaluating and compensating management thus frustrates the very end — effective corporate management — which we originally intended to serve.

These observations do not imply that shareholders never, or should never, consider stock price performance in evaluating and compensating management. But stock price alone carries so little useful information that rational actors discount its significance and are unlikely to be misled by mispricing. Other, and better, information is available at less cost and less risk. Under these circumstances there seems little point to devoting resources to improving the accuracy of stock price as an "official" signal of management quality.

2. *Stock Prices as Signals of Investor Wealth in Deciding Between Consumption and Savings*

A second signaling argument offered in support of efficient markets deals with the consumer's choice between using present income for

340. See *infra* notes 433-57 and accompanying text.

341. See Langevoort, *supra* note 31, at 785 (suggesting that management with short-run interest in high stock prices will have incentive not to disclose adverse information).

342. See Schneider, Manko & Kant, *supra* note 201, at 4-5 (management considering public stock price may decide not to invest in research and development that is in corporation's long-run interest).

343. Following the October 1987 market decline, a large number of publicly held companies announced stock buy-back plans. See Jacobs, *Firms' Stock Buy-Back Plans Abound, But Seriousness of Intentions Is Unclear*, Wall St. J., Nov. 12, 1987, at 4, col. 2 (600 firms announced buy-backs). While companies for the most part justified the buy-back on the ground the firm's own stock was a bargain, the buy-backs were perceived by some as a "waste" of corporate assets intended primarily to reassure shareholders. *Id.*

consumption or for savings. Above minimal income levels, individuals do not devote their entire incomes to immediate consumption. Rather, they set a certain portion aside in the form of savings to pay for consumption in the future.³⁴⁴ Rational consumers try to save enough to produce the optimum balance between present and future consumption. To do so they must estimate their future incomes, their future consumption needs, their net savings and the return (if any) on those savings in the interim. Some observers assert that efficient stock prices, by signaling stocks' true values, help investors make optimal savings decisions.³⁴⁵

The market crash of October 1987 has heightened awareness of the "wealth effect" of stock prices on consumers.³⁴⁶ The October decline wiped out over a trillion dollars in investors' assets.³⁴⁷ More than a year later, we still await some sign that the resulting "wealth" reduction will lead to similar reductions in the economy in general and consumer spending in particular.³⁴⁸ That the October crash has produced distant thunder but no lightning suggests that, at least in the short run, stock prices may not perform a significant signaling function for consumption and savings decisions.

To understand the limited importance of efficient markets to investors evaluating their wealth, it is helpful to analyze the significance of market price to three different types of shareholders. The first is the short-term shareholder who plans to liquidate her holdings immediately. It is this investor who is most likely to regard her wealth as diminished during a bear market, because for such an investor market prices are not signals for value — they *are* value.

344. This behavior is referred to as the life-cycle hypothesis. See generally R. LIPSEY & P. STEINER, *supra* note 153, at 570-71, 579.

345. See Gordon & Kornhauser, *supra* note 1, at 767-68 (if stock prices are accurate, investors can correctly choose between present consumption and savings); Levmore, *supra* note 12, at 145-46 (citing example of how accurate stock prices benefit shareholder evaluating his future income).

346. See, e.g., BRADY REPORT, *supra* note 15, at VII-1 (expectation that market crash will affect consumer's perceptions of wealth and reduce consumer spending); Pennar, Berger & Farrel, *That Rumble You Hear is called "Recession"*, BUS. WK., Nov. 2, 1987, at 44-45 (market crash risks turning "wealth effect" into "poverty effect"; quoting Professor Franco Modigliani that "[t]he stock market controls the wealth of people"); Pennar, *supra* note 17, at 58 (discussing the stock crash's impact on the "much-heralded" wealth effect).

347. See BRADY REPORT, *supra* note 15, at v (Dow Jones Industrial Average declined one third from October 13 to October 19, representing one trillion dollar decline in stock values).

348. See Pennar, *supra* note 17, at 58 (crash's impact on consumption has been small, and wealth effect "didn't have nearly as powerful an impact as expected"). Prior to October 19, economists believed that because of the wealth effect every dollar of decline in stock values would produce three to six cents reduction in consumer spending. Some have now revised that estimate downward and suggest that a dollar of stock decline reduces consumer spending by only a penny. *Id.*

Let us take the case of a law student who inherits 100 shares of a copper company. She plans to sell the shares immediately to pay her tuition bill. The stock is currently trading at \$50 a share but, unbeknownst to the student, the copper company has discovered that many of its copper mines are unsafe and may have to be closed. The company does not want to disclose this difficulty until its engineers have investigated. If no insider trading occurs, the company's shares will remain inefficiently overpriced at \$50 until the news is disclosed.

To the shareholder about to become an ex-shareholder, the concept of intrinsic value is irrelevant. Only realizable value matters. If the student plans to sell her shares that day, even an inefficient market price of \$50 is an excellent signal for realizable value. In fact, it determines the value. That the prevailing \$50 price may depart from the "intrinsic" value of the shares does nothing to decrease its accuracy to the short-term shareholder valuing her holdings.³⁴⁹

The second type of shareholder is the medium-term shareholder who plans to hold her stock for some time before selling. Suppose the student shareholder wants to determine whether, upon graduation three years hence, she will have saved enough to buy a car. Again, she will be indifferent to her copper stock's unrealized intrinsic value. It is worth whatever she can sell it for in three years, no more and no less. In valuing her holdings, her greatest uncertainty springs from future changes in stock price: if news of the unsafe mines is announced and the price of her stock drops, it is no consolation that the change was an efficient one. The medium-term shareholder seeking to use today's price as a signal of wealth is more concerned about changes in price — volatility — than "inaccuracy" due to informational efficiency.³⁵⁰

The third type of shareholder is the long-term investor. Let us assume the student intends to hold her stock indefinitely and live off the dividends upon retiring forty years hence.³⁵¹ If efficient market prices reflect our best estimates of the corporation's future dividends and other payouts, efficient prices may aid long-term investors in accurately choosing between savings and consumption.³⁵² But even in a

349. *Cf.* *Basic Inc. v. Levinson*, 108 S. Ct. 978, 996 (1988) (White, J., dissenting in part and concurring in part) (questioning whether stocks can have any value apart from market value); Seligman, *supra* note 27, at 837 (to shareholders who must liquidate holdings through appraisal remedy, stock has no intrinsic value beyond market price).

350. Some believe informationally efficient markets are more likely to be more volatile than inefficient markets. *See supra* note 307 and accompanying text.

351. It is this type of shareholder who measures her wealth in the terms most closely resembling the "intrinsic" value of the shares under the Capital Asset Pricing Model. *See supra* text accompanying notes 280-92.

352. Corporate profits may not be distributed as dividends but instead retained and invested internally. In that case the long-term shareholder profits not from dividends but from apprecia-

perfectly efficient market, the relationship between present price and future payouts is a weak one, and the further into the future we try to predict the weaker the relationship becomes.³⁵³ Whatever uncertainty an inefficient trading market creates for the long-term investor, it is minor compared to the uncertainty arising from her inability to predict the future of the economy in general or her corporation in particular. Future developments — like the discovery of additional copper reserves or technical advances that render copper obsolete — cast a far darker cloud over valuation attempts than does the possibility that news of such developments, when they occur, may be inefficiently incorporated into price. As a result, long-term investors may pay relatively little attention to short-term gyrations or inefficiencies in price.³⁵⁴ That possibility does much to explain why consumer spending has proved so impervious to the crash of October 19, 1987.

The conclusion to be drawn from these observations is that greater market efficiency may not add much to the value of stock prices as wealth signals. In addition, the hypothesis that efficient pricing promotes optimal savings is subject to other caveats as well. First, unless inefficient markets cause stocks to be mispriced in the same fashion at the same time, inaccuracies in stock prices may be diversified away.³⁵⁵ The investor who holds a portfolio of stocks can assume that, to some extent, inaccuracies due to informational inefficiency will cancel each other out.³⁵⁶

Nor is it certain that changes in stock prices will significantly change investor decisions to save or to consume. Suppose the law student undervalues her savings because her copper stock is underpriced by an inefficient market. Will she then save less, because the (apparently) reduced returns make saving less attractive relative to current consumption? Or will she save more, in order to make up the anticipated shortfall?

Finally, it is plausible that some individuals who put money into

tion in price (realized, of course, only upon resale or other disposal). This possibility does not significantly change the analysis.

353. Historical evidence that stock returns follow a random walk and demonstrate great variance suggests that present stock prices are weak indicators of future performance. *See supra* notes 231, 288. Moreover, the shareholder using stock price to gauge future earnings can avoid being misled by inefficient pricing to the extent he or she makes use of other, possibly more accurate signals. *See supra* note 324, text accompanying note 332.

354. *See BRADY REPORT, supra* note 15, at VII-1 to VII-2 (suggesting that connection between short-run stock prices and investor's consumption decisions may be remote).

355. *See supra* note 301 (inefficiency can be eliminated through diversification); Gordon & Kornhauser, *supra* note 1, at 768 n.12 (mispricing of securities only distorts savings decisions of portfolio-holding investor if "all other securities" are similarly misvalued).

356. Financial theory predicts that rational investors will so diversify. *See supra* notes 280-92 and accompanying text.

the stock market are not deciding to save at all. Some investors may play the stock market as a form of recreational risk taking, akin to gambling at Atlantic City.³⁵⁷ Only 20% of American households directly own stock, and only 10% hold portfolios with a value over \$5,000.³⁵⁸ Perhaps more risk-averse investors prefer accumulating assets of known and reasonably reliable value, such as defined-benefit pension plans, insurance policies, interest-bearing accounts or bonds, and residential real estate, rather than relying on the vagaries of the market to defer income to their later years.³⁵⁹

Increasing the market's speed in adjusting to information seems unlikely to produce optimal savings decisions by individuals.³⁶⁰ In the absence of such benefits, we must search again for a reason to adopt efficient markets as a policy goal.

D. *The Role of Stock Market Prices in the Hostile Tender Offer Market for Corporate Control*

Some authorities defend efficient trading markets on the theory that trading market prices determine who owns (and therefore controls) the corporation. The theory of the "market for corporate control" asserts that in an efficient market, hostile tender offers can direct control of the corporation from unprofitable management to more effective owners.³⁶¹

357. Investors' subjective motivations in purchasing stock are difficult to test empirically. However, some portion of investors may "play the market" as a form of recreational risk taking. See Farney, *Different Worlds: Main Street's View of the Crash Is Far from Wall Street's*, Wall. St. J., Dec. 30, 1987, at 1, col. 6 (quoting pollster Harrison Hickman that "[t]he small investor looks at his stock investments as gambling. . . . He's rolling the dice with part of his money. But his 'real' savings are somewhere else.").

358. Pennar, *supra* note 17, at 58. Far more investors own stock "indirectly" through insurance policies or pension plans than own stock directly. But the value of their "investment" does not depend upon the stock market's performance but upon the defined benefits they are entitled to under the insurance or pension policy's contractual terms. Only a market decline substantial enough to prevent the pension or insurance company from meeting its obligations could render such investors' calculations of wealth incorrect.

359. The vast majority of household "savings" is concentrated not in the stock market but in human capital (education and training) and investments in housing, durable goods, and cash. Becker, *Why A Depression Isn't in the Cards*, BUS. WK. Nov. 9, 1987, at 22 (75% of total wealth in United States is "human wealth" embodied in education, skills and training; the remaining 25% "non-human" wealth consists of approximately \$13 trillion in corporate capital, housing, durable goods and cash, so that \$1 trillion stock market losses only reduced total wealth by 2%).

360. In addition to affecting savings decisions, market prices for stock may be relevant to the evaluation of investor wealth for purposes of securing loans or collecting taxes. See Poser, *supra* note 175, at 886 (trading market prices help to value securities for collateral and tax purposes). The same arguments apply in these circumstances as well: in the short run, price (inefficient or not) is value and volatile markets are of more concern than inefficient markets. In the long run variation due to inefficient prices is likely to be both diversifiable and modest relative to variation attributable to future changes in information. See *supra* text accompanying notes 348-56.

361. Shareholders who each own only a small share of the corporate enterprise may have little incentive or opportunity to police management's performance. See Easterbrook & Fischel,

Like the management quality-signaling argument discussed earlier, the market-for-control theory focuses on the impact of management's competence on stock prices. In an efficient market, the expected earnings of the corporation are reflected in the trading price of its shares.³⁶² When a bidder offers to buy the corporation at a price *higher* than market price, the bidder must believe that under his control the corporation will have higher earnings than at present.³⁶³

The shareholders offered such a premium are better off if they accept it, as the bid exceeds the value of their stock under current management.³⁶⁴ Society benefits from the increased productivity that results when corporations are controlled by those who can make them most profitable.³⁶⁵ Only corrupt and incompetent management loses. Therefore, according to the market-for-control theory, we should favor changes in control when the bidder is willing to offer more for the shares of a corporation than its prevailing market price.³⁶⁶

A necessary (if often unstated) corollary of this view is that an

supra note 107, at 1170-71; Fischel, *supra* note 160, at 9. According to the market-for-control theory, hostile tender offers can provide a supplementary disciplining force for corrupt or ineffective management. See *Edgar v. MITE Corp.*, 457 U.S. 624, 643 (1982) (tender offer mechanism provides incentive for good management performance that keeps stock price high); Fischel, *supra* note 160, at 45 (cash tender offer is principal mechanism to transfer control of corporation to those who will manage it most profitably); Manne, *Mergers and the Market for Corporate Control*, 73 J. POL. ECON. 110, 112-13 (1965) (poor management causes stock price to drop so corporation is vulnerable to takeover). But see *Coffee*, *supra* note 153, at 1149, 1153, 1200, 1234-35 (While some believe that a hostile takeover is the primary disciplinary mechanism for poor management, a takeover serves only as a remedy of last resort for massive managerial failures. The principal disciplinary mechanism may be the employment market for managers.).

Of course, not all corporate mergers or reorganizations are hostile. But when two businesses combine in a friendly merger to take advantage of decreased costs from joint operation or some other synergy, that decision produces allocational benefits regardless of the *price* terms of the merger, which affect only the allocation of wealth between the shareholders of the two corporations. See *id.*, at 1149 n.6, 1168, 1224 (mispriced mergers may not produce inefficiencies but only result in wealth transfers with no necessary effect on aggregate wealth); Easterbrook & Fischel, *supra* note 107, at 1169 (friendly mergers have no disciplinary effect on inefficient management). Only in the context of a hostile offer can stock price "discipline" management.

362. See *supra* note 327 and accompanying text.

363. Assuming the bidder is rational, in an informationally efficient market he will only pay a premium for a corporation if he thinks he can improve its performance and extract more earnings per share. See Easterbrook & Fischel, *supra* note 107, at 1168. But see *Coffee*, *supra* note 153, at 1170-71 (some believe takeovers occur because markets inefficiently undervalue firms; such control transactions pose no allocational benefits); Kraakman, *Taking Discounts Seriously: The Implications of "Discounted" Share Prices as an Acquisition Motive*, 88 COLUM. L. REV. 891, 936-37 (1988) (same).

364. Easterbrook & Fischel, *supra* note 107, at 1168, 1173 (In an efficient market, "[t]ender offers at a premium . . . must benefit the target's shareholders.").

365. See *Edgar v. MITE Corp.*, 457 U.S. 624, 643 (1982) (tender offers benefit the efficient allocation of corporate resources to highest-valued use).

366. Easterbrook and Fischel have used this argument as the basis for recommending that the management of target corporations be relegated to a passive role in responding to tender offers and be prohibited from defensive tactics which might hinder such offers. See Easterbrook & Fischel, *supra* note 107, at 1164.

efficient market is a desirable goal of securities policy.³⁶⁷ Inefficiently priced stocks will distort the functioning of the market for control. A rational bidder might offer to pay a premium for an inefficiently undervalued firm, even if he does not believe that he can run the business better himself; the undervaluation alone is sufficient to make the target a bargain purchase. Similarly, efficient trading markets are important to ensure that the price of the poorly run firm declines until it attracts the attention of a bidder who will manage the company more effectively. Otherwise the overvalued firm can escape the disciplinary force of the market for corporate control.

This version of the market-for-control argument fails to incorporate modern economic theories which suggest that the marginal price of shares in the trading markets does not determine whether a takeover will occur.³⁶⁸ The successful tender offeror must pay a substantial premium over the prevailing price for shares in the trading market.³⁶⁹ These premiums reflect the different forces that set prices in two different markets: the public markets for trading marginal shares, and the tender offer market for corporate control.³⁷⁰ The result, in the words of Professor Coffee, is that "stock market efficiency is neither a necessary nor a sufficient condition in order for the hostile takeover to function as an effective instrument of corporate accountability."³⁷¹

In the public trading markets, price is set at that level at which a limited number of shares have changed hands between a willing buyer

367. See Easterbrook & Fischel, *supra* note 107, at 1168 n.20 ("If markets for particular stocks are not efficient, it is not possible to say that every tender bid at a premium is beneficial to shareholders."); Fischel, *supra* note 160, at 7 (efficient market a "key assumption" to market-for-corporate-control theory); Fox, *supra* note 5, at 1020 (the effectiveness of the market for corporate control depends on the accuracy of stock prices).

368. See *infra* notes 372 and accompanying text. This model departs from earlier theories which regarded the demand for stocks as perfectly elastic. See *supra* note 212.

369. R. BREALEY & S. MYERS, *supra* note 22 at 723 (Selling stockholders almost always receive a premium over the premerger value of their shares; the average premium is about 20% in the case of mergers and 30% in the case of tender offers.); Kraakman, *supra* note 363, at 892 (takeover premiums average over 50%); *Tender Offer Update: 1988*, 22 *MERGERS & ACQUISITIONS* May-June 1988 at 23, 25 (most tender offers in 1986 and 1987 were accompanied by a 25% to 50% premium).

370. See Coffee, *supra* note 153, at 1154 n.19, 1171 (can postulate two distinct markets for stock, one for marginal shares for investment purposes and the other for corporate control); Fischel, *supra* note 160, at 5 (An efficient capital market does not necessarily imply an efficient market for corporate control.); Levmore, *supra* note 32, at 652 (market prices useful for measuring "currency," not control, value of shares); cf. Gordon & Kornhauser, *supra* note 1, at 825 (Given that investors value stocks according to their return discounted only for nondiversifiable risk, whereas acquirers cannot diversify and must discount for diversifiable risk as well, "there is no basis for the assertion that prices prevailing in the stock market measure the value of a firm to a potential acquirer.").

371. Coffee, *supra* note 153, at 1171.

and willing seller in that day's trades. But the bidder who wants to buy the entire corporation must deal not only with the shareholders willing to sell at that day's market price, but with those unwilling to do so — the shareholders who, by declining to sell, have revealed their opinion that the value of their shares exceeds the valuation of the market. Investors' opinions of stock value may differ wildly.³⁷² To buy the stock of more optimistic shareholders, the tender offeror must be willing to pay a price *higher* than the prevailing market price at which they have already declined to sell.³⁷³ That price is set by the tender offer market for corporate control.

An example may help illustrate this point more fully. Suppose that the stock of a target corporation is currently trading at \$40 a share. A bidder offering \$40 a share certainly may purchase a number of shares at that price. But at some point the supply of shareholders valuing their stock at \$40 will dry up. If the number of shareholders

372. The simplest efficient market model assumes that when new information indicates stocks are mispriced, investors recognize this fact and adjust price to reflect the new information. See *supra* note 27 (mechanism of market efficiency). This simple model assumes homogenous beliefs: that investors value stocks by their expected risk-discounted return *and* agree on what that return is likely to be, so that when price departs from agreed-upon value this discrepancy is quickly recognized and arbitrage trading brings price into line with value again. See Mayshar, *On Divergence of Opinion and Imperfections in Capital Markets*, 73 AM. ECON. REV. 114 (1983) (early work on efficient market theory assumes homogeneous beliefs). The assumption of homogenous beliefs is at odds with a reality in which investors and analysts disagree strongly about the likely fate of a particular corporation or industry. See Shleifer, *supra* note 212, at 589 (citing "strong direct evidence" that investors disagree about stock values). At any particular price, some investors will be more interested in — and have greater demand for — a particular stock than will others. The consequences of heterogenous beliefs for corporate finance and performance are considered at length by Professor Fox in his recent book, *Finance and Industrial Performance in a Dynamic Economy*. See M. FOX, *supra* note 27.

373. The possibility that investors differ in their valuations of stock raises the question why the optimistic investor who values a stock at more than the market price does not purchase more stock until he owns the entire corporation, so that the optimist's estimated value and market price coincide. The answer is that individual investors' resources are limited and investors themselves risk-averse. Each additional share purchased commits more of the investor's portfolio to a single investment, reducing diversification and increasing risk. At some point the profit opportunity he perceives in buying the stock will no longer be enough to compensate him for the increased risk of concentrating his portfolio, and he will stop buying the stock even though he still perceives it to be underpriced. Recent economic models suggest that individual demand curves for particular stocks are thus downward-sloping: quantity demanded increases as price falls, and falls as price rises. This pattern exists not because investors change their minds about a stock's true value depending on the quantity they buy, but because increasing holdings in a single stock increases risk. See generally Jarrow, *Heterogeneous Expectations, Restrictions on Short Sales, and Equilibrium Asset Prices*, 35 J. FIN. 1105 (1980); Mayshar, *supra* note 372; Miller, *Risk, Uncertainty, and Divergence of Opinion*, 32 J. FIN. 1151 (1977); Shleifer, *supra* note 212. Total market demand is the sum of these individual demand curves.

A corollary of this view is that if you want to buy an optimistic investor's stock, each share he sells increases his diversification and reduces his risk. Optimistic shareholders become more and more reluctant to part with their "undervalued" shares and the bidder must continually raise the bid price. See Coffee, *supra* note 153, at 1185 (postulating upward-sloping supply curve for target's stock); Fischel, *supra* note 160, at 19 (in free market sellers will value securities differently and every increment in price will attract more sellers).

willing to part with their shares at the market price is insufficient to give the bidder control, the bidder will be forced to offer \$41, \$42, or more before enough shareholders agree to sell.³⁷⁴ It makes no difference that those few remaining shareholders who value their stock more highly than the market have hopelessly inflated opinions of their stock's value. While they could reap no profit from those opinions if they tried to sell their shares in the market, in a tender offer context the bidder must take his sellers as he finds them.³⁷⁵

As a result, the total price a bidder must pay to buy 100% of a corporation's voting stock is not the product of the number of shares outstanding, multiplied by the prevailing marginal market price;³⁷⁶ rather it is the product of the number of shares outstanding, multiplied by the weighted *average* price necessary to induce all the shareholders to part with their shares. This average price is the true "value" of a share in the corporation in a control change context.³⁷⁷

If we want to encourage wealth-producing takeovers and discourage nonproductive takeovers, we should seek informational efficiency not in *trading market* prices, but in *tender offer* prices. While efficient markets may accurately measure the marginal value of a single share, they tell us little of what the price of a successful tender offer would be — except that it will likely be greater.³⁷⁸ How much greater is un-

374. As a practical matter, this sort of stepladder purchase is prohibited by Williams Act's best price rule. See *infra* notes 386-89 and accompanying text.

375. These observations imply that even efficient market prices may be inaccurate measures of value if the market for the stock is sufficiently small that price is set by only a few optimistic shareholders. See Miller, *supra* note 373, at 1153 n.3 ("As the number of investors in each stock is very small in relation to the universe of investors there is little reason to doubt that the stock is held by people who have above average estimates of returns and avoided by investors with average or lower estimates."). Without short selling, the optimist determines price, and "security markets may not produce pareto optimal results." See Jarrow, *supra* note 373, at 1105 (describing limitations on short sales that restrict the influence of pessimistic opinions on market price).

376. The same analysis applies, of course, to the bidder seeking to buy not all outstanding stock but a block large enough to carry with it *de facto* control. As a practical matter, hostile tender offerors seem to prefer 100% acquisitions. For example, in 1986, 85% of tender offers made were "any-or-all" offers seeking to purchase all outstanding shares. In 1985 and 1984, any-and-all offers comprised 73% and 74% of all tender offers respectively. U.S. SEC. & EXCH. COMM., SEC MONTHLY STATISTICAL REVIEW 8 (Feb. 1987) (Table 3).

377. See Levmore, *supra* note 32, at 651-52 (to acquiror, value of corporation best estimated not through value of marginal share, but average subjective value of all shareholders).

378. At most, trading market prices perform a signaling function by suggesting a "floor" for the tender offer price. Trading market prices should be viewed as signals (rather than determinants) because the bidder and target management remain free to influence shareholders' subjective valuations by disclosing still other information. A bidder who thinks the firm is inefficiently undervalued and therefore hopes to profit by buying the firm at a discount even though she does not expect to run the corporation any more profitably than current management may take market price as a signal that the corporation's shareholders are overly pessimistic. A tender offer would be correspondingly inexpensive. Incumbent management remains free, however, to attempt to correct any mispricing in the *tender offer* market by disclosing to shareholders information indicating that the intrinsic value of the shares under current management exceeds the price

clear.³⁷⁹ Annual median premiums paid to target shareholders have ranged from 15% to 50% over market price.³⁸⁰ There is great variation in premium size, and premiums of 100% or more are not uncommon.³⁸¹ If these premiums reflect the difference between the marginal valuation of shares in the market and the weighted average valuation by the target's shareholders, market price seems a weak indicator indeed for the tender offeror deciding whether, and at what price, to make a hostile tender offer.³⁸²

A second flaw in the market-for-control theory is that there are

offered by the bidder. See Easterbrook & Fischel, *supra* note 107, at 1168 (if market inefficiently undervalues target's stock because information has not been disclosed, target's management can respond to hostile offer by disclosing). Such disclosures are encouraged by federal law requiring corporate management to respond to a tender offer with a statement of management's position on the offer. See 17 C.F.R. § 240.14e-2 (1987). Of course, such disclosures are likely to correct inefficiency in the trading market as well. This correction is the by-product, but not the goal, of the disclosure. Cf. Bebchuk, *The Case for Facilitating Competing Tender Offers*, 95 HARV. L. REV. 1028, 1033 (1982) (speculative tender offer for firm whose stock is underpriced by the market may produce a "social benefit" by correcting the market price).

379. See Levmore, *supra* note 32, at 652-53 (relationship between average and marginal price unclear; "one can be sure only that an [informationally] efficient market implies reliable *marginal* valuations and *not* reliable valuations of entire holdings" (emphasis in original)).

380. See *supra* note 369. Cf. W.T. GRIMM & CO., MERGERSTAT REVIEW 1986, at 88 (1987) [hereinafter GRIMM REPORT] (average annual premiums paid on all acquisitions of publicly traded corporations have varied from 25.1% to 49.9% between 1968 and 1986).

381. See *Tender Offer Update: 1988*, *supra* note 369, at 25 (table 4, showing range of tender offer bid premiums for 1986 and 1987, from a small number of negative premiums below market price to some premiums of 100% or more); see also GRIMM REPORT, *supra* note 380, at 89 (table indicating distribution of premiums from 1975-1986; during this period anywhere from 2% (1984) to approximately 12% (1981) of acquisitions of publicly traded corporations involved premiums over 100%).

382. The idea that takeover premiums reflect the necessity of the bidder's "paying off" more optimistic shareholders is contrary to the views of some economists that stocks are perfect substitutes and that demand for stock is perfectly elastic. See *supra* note 212 and accompanying text; Coffee, *supra* note 153, at 1176-83 (downward-sloping demand for stocks is inconsistent with view that demand for stocks is perfectly elastic). Those who adopt this assumption argue that takeover premiums are "control" premiums reflecting the increased value of the firm in the control of better management. See SENATE COMM. ON BANKING, HOUSING & URBAN AFFAIRS, TENDER OFFER DISCLOSURE AND FAIRNESS ACT OF 1987, S. REP. NO. 265, 100th Cong., 1st Sess. 16 (1987) (quoting SEC Chairman David Ruder that takeover premiums represent a "control premium" which a buyer must pay to purchase the right to deal with the corporation as he pleases).

The problem with this view is that it does not explain why the premium — which, according to this theory, reflects the increased value of the firm in the hands of the new owner — is always paid to the original shareholders. While target shareholders almost always enjoy a premium, bidders seem to gain little or nothing from the takeover. R. BREALEY & S. MYERS, *supra* note 22, at 725 (stockholders of acquiring firms "on the average seem to break even"); Easterbrook & Fischel, *supra* note 107, at 1188 (most of gain from tender offer premium goes to target shareholders); see also Dent, *supra* note 259, at 777, 778-79 (1986) (most studies show acquiring firm's stock values decline after acquisition). If the firm is valued at a premium only because of the expected benefits of new ownership, why should the bidder share those benefits with current stockholders? A rational bidder would offer the lowest price he can get away with — say, a dollar over market — and enjoy any profit to be made from the takeover himself. That bidders not only do not retain the entire benefit for themselves, but seem to give almost all gain to target shareholders, seems more consistent with the target's ability to extract average rather than marginal value. See also Coffee, *supra* note 153, at 1185-88 (infinite elasticity hypothesis inconsistent

reasons to suspect that prices in the tender offer market are distorted for reasons that have nothing to do with the efficiency of trading market prices. Poison pills, crown jewel lock-up options, and shark repellents are but a few of the colorfully denominated tactics developed by corporate management to fend off hostile overtures.³⁸³ A number of state legislatures (including Delaware's) also have thrown their weight on the side of incumbent management by passing anti-takeover legislation.³⁸⁴ Such defenses raise the price of a hostile takeovers above the price that would be set in a truly free market for corporate control.³⁸⁵

Perhaps the greatest distortion in the tender offer market may be traced to the Williams Act itself. The "best price" rule, promulgated by the SEC under that Act, requires a tender offeror to pay to all shareholders the highest price paid to any one of them.³⁸⁶ This re-

with reality of large tender offer premiums); Levmore, *supra* note 32, at 653-54 (really no evidence that stock demand is not inelastic).

Another theory offered to explain takeover premiums, the "bidder overpayment" theory, suggests the takeovers occur because empire-building management of corporations with large retained earnings are loath to return those earnings to stockholders in the form of dividends and instead prefer to use the money for wasteful corporate acquisitions. See *supra* note 274 and accompanying text; L. LOWENSTEIN, *supra* note 129, at 149-51; Black, *Bidder Overpayment in Takeovers* (preliminary draft, May 1988) (forthcoming in the STANFORD LAW REVIEW). If acquiring management views money as no object to the empire-expanding acquisition, it is natural that takeover gains (currently averaging 50% or more) accrue to targets rather than acquirors. However, if the bidder overpayment hypothesis is accurate, inefficient trading markets are the least of obstacles we face in achieving a truly efficient market for corporate control.

383. See Easterbrook & Fischel, *supra* note 107, at 1175, 1176 n.38 (referring to defensive tactics that raise costs of hostile tender offers; these costs of resistance are "substantial"); Fischel, *supra* note 160, at 30-36 (criticizing defensive tactics that raise costs of tender offers). See generally R. CLARK, *supra* note 329, at 571-77 (describing defensive strategies).

384. Such legislation became more attractive following the Supreme Court's decision in *CTS Corp. v. Dynamics Corp.*, 107 S. Ct. 1637 (1987). That case held constitutional an Indiana takeover statute that stripped voting rights from any shareholder acquiring more than a certain percentage of shares, unless those rights were restored by a vote of other disinterested shareholders. In the wake of *CTS*, numerous states have passed similar anti-takeover statutes. See, e.g., Del. Antitakeover Law of Feb. 2, 1988, ch. 204, § 203 (CCH) (prohibiting for three years certain business combinations with shareholder acquiring 15% or more of corporation, unless board of directors or other shareholders approve); MASS. ANN. LAWS ch. 110D, §§ 1-8, ch. 110E, §§ 1-7 (Law. Co-op. Supp. 1988) (investor acquiring certain portion of firm's shares loses voting rights unless other shareholders reinstate); MINN. STAT. ANN. §§ 302A.671-673 (West Supp. 1988) (acquirors of certain percentage of shares lose voting rights unless other shareholders reinstate); WASH. REV. CODE ANN. §§ 23A.50.010-50.901 (West Supp. 1988) (prohibiting for five years certain business combinations with 10% acquiror).

385. See *Edgar v. MITE Corp.*, 457 U.S. 624, 643 (1982) (state anti-takeover statutes harm efficient allocation of resources by hindering tender offers); Fischel, *supra* note 160, at 45 (criticizing state takeover offer statutes that raise costs of tender offers). On the bidder's side, of course, two-tier offering tactics and the hope of greenmail may lower the cost of a hostile control bid, perhaps to the point where nonproductive takeovers — or takeover attempts — are attractive. Although over-pricing seems more likely than underpricing, there is no way for us to determine *a priori* whether hostile takeovers under these market conditions are on aggregate under- or over-priced. We can only observe that the likelihood that their prices will coincide with the "correct" price — the price that would be set in a market free of such imperfections — is small.

386. Securities Exchange Act of 1934, § 14(d)(7), 15 U.S.C. § 78n(d)(7) (1982); 17 C.F.R. § 240.14d-10 (1988).

quirement precludes the kind of stepladder purchase described earlier. Suppose a bidder identifies the price she must offer to induce the last shareholder to tender his shares. The offeror must pay that price not only to that last holdout, but to each and every shareholder who tenders. The demands of the rule must be met even if some shareholders would have willingly sold for market price or a few cents higher.³⁸⁷ The price of a tender offer for 100% of a corporation's stock is thus increased from the product of the weighted *average* valuation of the shareholders, multiplied by the number of shares outstanding, to the product of the *highest* valuation held by any one shareholder, multiplied by the number of shares outstanding.³⁸⁸ This requirement may grossly distort pricing in the tender offer market.³⁸⁹

The significance of these observations is accented by the fact that, in contrast to trading market prices, tender offer prices have a very important allocative role. It is difficult to imagine a more significant allocative decision than who owns and controls the corporation. But, as in the case of IPO mispricing, current securities policy pursues efficient pricing where it is relatively unimportant — the trading markets — and appears to ignore mispricing in a market with substantial allocative effects — the tender offer market. If we are truly concerned about improving allocative efficiency, reforming a tender offer market for corporate control now characterized by poison pills, anti-takeover statutes, and the best price rule, should be a more pressing priority than improving trading market efficiency.³⁹⁰

E. Conclusion: The Economic Functions of Stock Prices

We are now in a position to draw some conclusions about the im-

387. The Williams Act does allow a bidder to make a series of tender offers, with each tender offer set at a slightly higher price. R. CLARK, *supra* note 329, at 554.

388. For ease of presentation it is assumed that the tender offer is for 100% of the voting stock of the corporation, as indeed most tender offers are. See *supra* note 376. The assumption that the tender offeror must purchase 100% is extreme in the sense that, while most tender offers are "any-and-all" offers, the success of the bid does not hinge on a 100% response. Any proportion sufficient to carry effective control will do. However, the analysis and general result are the same even if the tender offeror wants to acquire only a portion of the firm's outstanding stock.

389. See Fischel, *supra* note 160, at 19 (criticizing best price rule as greatly increasing prices of tender offers).

390. The argument that efficient trading market prices are necessary for efficient tender offer prices appears to share the defects of the argument, discussed earlier, that efficient trading market prices are necessary for correct pricing of new issues. Just as trading market prices may have little value to the underwriter estimating IPO price, there is reason to suspect that efficient trading market prices carry little information to the tender offeror, who is more interested in likely tender offer price. Moreover, as in the case of the IPO underwriting market, the tender offer market for corporate control may be so imperfect that inefficient trading prices are the least of the problems we face in achieving allocatively "correct" tender offer pricing. Again, efficient markets seem neither necessary nor sufficient for allocative efficiency.

portance of efficient stock markets to the optimal allocation of resources in the economy.

The economic role which commentators most frequently ascribe to efficient markets is that of determining which firms can raise capital.³⁹¹ Inefficiently low stock prices are thought to lead to inflated costs of equity capital, while inefficiently high prices allow firms to raise capital too cheaply. "What casts doubt on this apparently straightforward view of corporate financing . . . is the fact that most U.S. . . . corporations do not rely on new stock issues to any significant degree."³⁹² The first flaw in the capital-allocation theory is that equity issues play a negligible role in corporate finance.

Let us return to the familiar example of insiders trading in Texas Gulf Sulphur stock on the basis of undisclosed information concerning the Ontario mineral strike. Unless Texas Gulf Sulphur is in the middle of an equity issuance — an extremely rare event in a corporation's life — insider trading that moves stock prices to the "correct" price more quickly will not benefit the firm's ability to raise money by selling stock. In addition, a change in stock price alone, unaccompanied by news of the strike, is unlikely to enable Texas Gulf Sulphur to borrow at a lower interest rate.³⁹³ It certainly would not affect the principal source of funds for most firms: retained earnings.³⁹⁴

It is not surprising that some authorities have found themselves defending the capital-allocation theory by asserting that "[a]lthough corporate finance scholars disagree to some extent on how to measure a firm's cost of capital, most believe that a firm's share price is relevant to the calculation."³⁹⁵ A claim that share price is not "irrelevant" is hardly the sort of rousing endorsement that induces sacrifices to achieve greater informational efficiency.³⁹⁶

391. See *supra* notes 159-70 and accompanying text.

392. BRADY REPORT, *supra* note 15, at VII-2.

393. See *supra* notes 196-204 and accompanying text.

394. See *supra* notes 193-95 and accompanying text.

395. Fox, *supra* note 5, at 1016. Professor Banoff's assertion after investigating the matter is similarly modest. See Banoff, *supra* note 38, at 170 n.172 (despite the fact that new issues are only a small percentage of stock transactions, "many commentators believe the markets remain the primary mechanism" for allocating capital). Baumol observes:

One might almost venture to conclude . . . that the market in fact does not allocate much of the economy's capital, and, moreover, what capital it does handle is not utilized with any peculiar efficiency. . . .

All in all, one cannot escape the impression that, at best, the [market's] allocative function is performed rather imperfectly

W. BAUMOL, *supra* note 25, at 79, 83.

396. Fox, *supra* note 5, at 1017 (that corporations raise funds by other means "does not make share price irrelevant to a firm's cost of capital"). Fox's recent work has focused on the possibility that many corporations may avoid equity financing and that managers may consequently view

A second flaw in the capital-allocation theory is its failure to recognize that the trading markets are discrete from the corporate issues market. Enhanced efficiency is normally sought in the exchange and OTC markets for outstanding shares. But when corporations do raise capital by selling equity, they sell it in the underwriting market.³⁹⁷ If insider trading moves Texas Gulf Sulphur stock to a more "correct" price, it may help underwriters more accurately to price a seasoned distribution by the company. But the significance of Texas Gulf Sulphur's trading market prices on underwriters pricing *other* firms' issues (whether by providing pricing signals, enhancing investor confidence, or by influencing their value as substitute goods) seems very limited. Moreover, even a perfectly efficient trading market may not prevent persistent mispricing and underpricing of initial public offerings. IPO mispricing resulting from imperfections in the underwriting market seems more likely to cause significant capital misallocations than outstanding stock mispricing caused by inefficient trading markets.

Once we recognize that the trading and corporate issues markets are two different markets, it is apparent that the case of seasoned issues (which account for only 30% of public stock issues) provides the strongest argument for adopting trading market efficiency as a policy goal.³⁹⁸ But if efficient trading markets only improve capital allocation in the seasoned issue context, we may restrict our pursuit of efficiency to those few corporations that do issue seasoned stock, during those time periods when the issue is being priced and distributed.³⁹⁹ We need not worry about pricing efficiency for all stocks, at all times.

Finally, the ease with which capital can be reallocated suggests that if inefficient trading market prices do occasionally distort seasoned issues prices, the economic losses that result are likely to be marginal.⁴⁰⁰ If Texas Gulf Sulphur receives too little in proceeds from a seasoned issue, it can seek additional financing elsewhere; if it receives too much, it will return the excess funds as dividends or profita-

the costs of raising capital through internal finance, equity, and debt as disconnected from each other. See M. FOX, *supra* note 27, at 118, 270-82 (firms strongly prefer internal to external finance, and debt to equity: consequently there is no single cost of capital).

397. See *supra* notes 206-11 and accompanying text.

398. See *supra* note 183.

399. Trading market inefficiency will not distort seasoned issues prices unless the inefficiency persists for a sufficiently long period of time to affect underwriter-issuer negotiations. In other words, the market must incorporate information so slowly and imperfectly that mispricing persists for weeks or even months. See *supra* note 272. Many policies designed to enhance efficiency only speed the incorporation of information by hours or days, and so would not be likely to improve seasoned issue pricing. See *supra* notes 91-92 and accompanying text.

400. See *supra* notes 268-73 and accompanying text.

bly reinvest them in some other project. Because capital is a liquid commodity, losses from initial misallocations may be confined to unnecessary transaction costs or slightly reduced rates of return.

These observations undermine the prevailing view that capital allocation is the stock market's most important function and that efficient stock pricing is crucial to its fulfillment. Closer examination suggests that the trading market's role in allocating capital is limited and somewhat superficial. If efficient stock markets are not essential to the proper allocation of capital, the single greatest economic benefit attributed to efficient stock markets is illusory.

In addition, there are reasons to doubt that stock market prices significantly influence the allocation of resources in other, more indirect ways. The management quality-signaling argument demonstrates the weakness of any argument promoting efficient stock prices as signals: rational investors evaluating the abilities of corporate management are free to investigate a variety of sources of information concerning management's competence, and will not hire and fire on stock price alone.⁴⁰¹ In the case of wealth signaling, investors who intend to sell immediately find that, inefficient or not, today's market price is an excellent signal for realizable value. In the short-term and medium-term, investor estimates of wealth are damaged more by volatile prices than inefficient ones. For the long-term investor, inefficiency in current prices may well add some uncertainty to savings estimates, but such estimates are uncertain even in perfectly efficient markets.⁴⁰²

Finally, efficient market prices are neither necessary nor sufficient for an efficient tender offer market. Like the corporate issues market, the tender offer market is a separate market with its own (in many ways, flawed) pricing mechanism.⁴⁰³

The securities culture views market efficiency as an important regulatory goal because stock prices are believed to allocate resources, and the stock market itself thought to function as "a Nerve Center for the Real Economy."⁴⁰⁴ But the conclusion of economic analysis is that the primary function of the trading markets is the simple redistribution of wealth among investors.⁴⁰⁵ Closer examination of the interaction between stock prices and allocative decisions suggests that more efficient trading markets may bring little economic benefit.

401. See *supra* notes 327-43 and accompanying text.

402. See *supra* notes 344-60 and accompanying text.

403. See *supra* notes 361-90 and accompanying text.

404. Fox, *supra* note 12, at 1015. See *supra* notes 152, 156 and accompanying text.

405. See *supra* notes 172-74 and accompanying text.

III. SHOULD EFFICIENT MARKETS BE A GOAL OF SECURITIES REGULATION?

There seems good reason to suspect that government policies designed to produce more efficient stock prices will not significantly improve real investment decisions. But the question of whether enhancing market efficiency is a sensible goal of securities policy is only partly answered by suggesting that the stock market allocates resources, at best, in a weak and imperfect fashion. If markets that rapidly incorporate information carry any benefits, allocative or otherwise, improving market efficiency is a worthwhile goal so long as the marginal costs of promoting efficiency do not exceed those benefits.

Particular efficiency-enhancing policies (such as allowing index futures trading or requiring disclosure of merger negotiations) carry unique costs and benefits that must receive close scrutiny elsewhere.⁴⁰⁶ However, the larger question of whether pricing efficiency should be an objective of securities policy raises several common cost-benefit issues apart from the question of the market's allocative function. Those common issues are examined here, albeit briefly. For only if the benefits of improving market efficiency outweigh the costs, can we then conclude that the pursuit of more efficient trading markets is worth the candle.

A. *Incorrect Prices in an Efficient Market*

As noted earlier, the allocative benefits associated with efficient pricing depend on two key assumptions: that efficient markets accurately price stocks and that stock prices influence resource allocation. Thus far, we have focused on the second premise while giving informational efficiency the benefit of the doubt and assuming that efficient markets do accurately price stocks according to their "fundamental values."⁴⁰⁷ In other words, we have assumed that stock prices reflect our best estimates of expected earnings, discounted for nondiversifiable risk.⁴⁰⁸ That assumption is an essential one, for "the utility of

406. For example, program trading is believed to add undesirable market volatility, *see supra* note 79 and accompanying text, while requiring disclosure of merger negotiations may dissuade potential bidders from coming forward, *see supra* note 107 and accompanying text.

407. Professor Wang has adopted the phrase "fundamental-valuation efficiency" to describe a stock market in which prices reflect all available information concerning rational estimations of the present value of expected future dividends and other payouts from a stock. He uses the term "information-arbitrage efficiency" to describe a market in which prices reflect all public information, rational or irrational. *See* Wang, *supra* note 13, at 344 (citing Tobin, *On the Efficiency of the Financial System*, 153 LLOYD'S BANK REV. 1 (July 1984)).

408. The Capital Asset Pricing Model predicts that rational investors will value stock according to these two factors. *See supra* notes 280-92 and accompanying text.

market efficiency centers on the notion that, in an efficient market, the market price for shares will reflect their actual value" as determined by expected future earnings.⁴⁰⁹

But what if efficient markets don't price securities this rationally? A number of commentators have addressed the problem of how the market sets stock prices and have concluded that it is possible to have a market that is informationally efficient, and yet have stock prices unrelated to their values as financial instruments.⁴¹⁰ That possibility erodes still further the purported allocative benefits of efficient pricing. A market that is efficient but still inaccurate has little to recommend it, even if — especially if — stock market prices influence allocational decisions.

The idea that investors value securities other than by discounted future earnings is difficult to swallow. It implies that investors are irrational or at least perceive their fellow investors as irrational. Surely it is irrational for someone to pay \$40 for a "hot" stock whose likely earnings, coldly calculated, are exactly the same as those of a \$20 stock. Nevertheless, the possibility that investors may not rationally value stock is one that has the support of an impressive list of authorities.⁴¹¹ They argue that the price investors are willing to pay for individual stocks is determined not by financial fundamentals but by their perceptions of how *other* investors value the stock — that is, expected price changes in the near future.⁴¹² They find evidence for the claim that stock markets are irrational in speculative "bubbles,"

409. Levmore, *supra* note 32, at 651; see W. BAUMOL, *supra* note 5, at 6-7 (to allocate capital effectively, efficient markets should value stocks based on capitalized value of expected future earnings); see Gordon & Kornhauser, *supra* note 1, at 825-27 (comparing "allocative" and "speculative" efficient markets).

410. See, e.g., M. FOX, *supra* note 27; at 57-59; Wang, *supra* note 13, at 344-349; Wu, *supra* note 12, at 266-67. See also authorities cited *infra* note 411 (market sets irrational prices).

411. M. FOX, *supra* note 27, at 58 (belief that market may price securities irrationally "is perfectly respectable within the economics profession"). See, e.g., *Gulf & W. Indus. v. Great Atl. & Pac. Tea Co.*, 356 F. Supp. 1066, 1071 (S.D.N.Y.), *aff'd*, 476 F.2d 687 (2d Cir. 1973) (stock prices affected by the "whims and caprice of the crowd"); W. BAUMOL, *supra* note 25, at 51 (stock prices may be based on "traders' fortuitous hunches and perhaps little else"); J. KEYNES, *THE GENERAL THEORY OF EMPLOYMENT, INTEREST AND MONEY* 153-57 (1936) (stock prices "the outcome of the mass psychology"); H. KRIPKE, *supra* note 14, at 80-82 (irrationality of the market); B. MALKIEL, *A RANDOM WALK DOWN WALL STREET* 22-25 (4th ed. 1985) ("castle-in-the-air" theory that stock prices have nothing to do with intrinsic values).

412. The point was perhaps best illustrated by Keynes in his famous "beauty contest" analogy:

Professional investment may be likened to those newspaper competitions in which the competitors have to pick out the six prettiest faces from a hundred photographs, the prize being awarded to the competitor whose choice most nearly corresponds to the average preferences of the competitors as a whole; so that each competitor has to pick, not those faces which he himself finds prettiest, but those which he thinks likeliest to catch the fancy of the other competitors, all of whom are looking at the problem from the same point of view.

J. KEYNES, *supra* note 411, at 156.

perhaps the best-known of which are the 1929, and now 1987, market crashes.⁴¹³ In such a bubble, prices rise to levels unsupported by potential earnings and then drop in a short time to a fraction of their former value.⁴¹⁴ Some also see evidence of irrationality in market "overvolatility" (dramatic price changes unexplained by significant new information concerning stock values),⁴¹⁵ or in instances where financial instruments trade at identical prices although one is clearly superior to the other.⁴¹⁶

We cannot prove that investors rationally value securities by their expected future earnings.⁴¹⁷ A change in stock price clearly indicates that the past price was "incorrect." But we cannot determine whether this change occurred because the prior price was irrational or because, while the past price was correct at the time, subsequent new information has changed rational estimates of future earnings.⁴¹⁸ Only if efficient markets quickly incorporate the right sorts of information can efficient pricing bring economic benefits. Prices that are a timely index of psychological phenomena contribute nothing to the quest for the more efficient allocation of resources.⁴¹⁹

B. *Efficient Markets and Investor Protection*

The consensus that securities policy should work to make the stock market more efficient is based primarily on the perception that economic benefits follow when proper stock pricing improves the alloca-

413. See J. GALBRAITH, *THE GREAT CRASH 95* (1955) (economic factors do not fully explain 1929 collapse); Gordon & Kornhauser, *supra* note 1, at 828 (assumption that efficient markets price securities according to rational estimates of financial returns "surprising" in light of stock price bubbles); cf. BRADY REPORT, *supra* note 15, at II-1 (fundamental factors do not explain precipitous October 19 drop).

414. See generally B. MALKIEL, *supra* note 411, at 28-45 (describing speculative bubbles from Tulip Bulb craze of 1630s to 1929 stock crash).

415. See Shiller, *Do Stock Prices Move Too Much to Be Justified by Subsequent Changes in Dividends?*, 71 AM. ECON. REV. 421, 433-34 (1981) (stock price volatility appears to be 5 to 13 times too high to be attributed to the market's receiving new information about expected future dividends, if future dividends can be expected to be no more volatile than corporate dividends have been in the past).

416. See Wang, *supra* note 13, at 402 (evidence that convertible preferred stock trades at same price as common).

417. See Gordon & Kornhauser, *supra* note 1, at 782, 827 (impossible to test rationality of stock pricing); Roll, *A Critique of the Asset Pricing Theory's Tests*, 4 J. FIN. ECON. 129 (1977) (CAPM is extremely difficult, if not impossible, to test). Evidence that price changes are random and that stock markets quickly incorporate information tells us nothing about the quality of the information being incorporated.

418. See Gordon & Kornhauser, *supra* note 1, at 771-72.

419. See Gordon & Kornhauser, *supra* note 1, at 764 (legal rush to embrace efficient markets unwise if efficient markets don't value stocks rationally); Levmore, *supra* note 32, at 647, 648 n.13 (market may incorporate all information, but if information is limited or incorrect "an efficient, well-formed market . . . is not necessarily 'correct' or useful to players and policymakers"); Wu, *supra* note 12, at 267 (prices that are index of psychology have no allocational use).

tion of real resources.⁴²⁰ However, some observers favor informational efficiency as serving the more traditional goal of "investor protection" as well.⁴²¹ They argue that if prices in an efficient market are equivalent to the stock's true value, no investor can be the victim of an "unfair" trade.⁴²² (Of course, no investor can buy a bargain, either. But if you can't beat the market, at least the market can't beat you.)

The first problem with the view that efficient markets should be promoted because they guarantee that stock prices reflect true value is that such a guarantee is inconsistent with Congress' intent in passing the 1933 and 1934 Acts.⁴²³ In enacting those statutes, Congress rejected any regulation of the merits or worth of securities in favor of a disclosure system allowing investors to make their own decisions.⁴²⁴ As Justice White has noted, "[t]his system is not furthered by [protecting] those who refuse to look out for themselves."⁴²⁵ Any policy that seems to achieve "correct" pricing of securities through market efficiency protects the uninformed by eliminating the informed investor's opportunity for profit.⁴²⁶ Under such policies, investors are not only given a "level playing field":⁴²⁷ the outcome of the game is prede-

420. See *supra* notes 152-57 and accompanying text.

421. See Securities Act of 1933, §§ 3(c), 10(c), 15 U.S.C. §§ 77c(c), 77j(c) (1982) (SEC may exempt securities from registration and regulate contents of prospectuses as necessary for the protection of investors); Securities Exchange Act of 1934, § 14(a), 15 U.S.C. § 78n(a) (1982) (SEC may regulate proxies as necessary for the protection of investors).

422. See Benston, *supra* note 133, at 151-52 ("[T]he stock market could be considered 'fair' if the prices of securities at any point in time are unbiased estimators of their intrinsic values . . ."); Carney, *supra* note 27, at 895 (insider trading enhances investor confidence by reassuring investors that market is efficient); Note, *supra* note 101, at 1069 ("[i]n an efficient market, where prices are by definition 'fair,' it is impossible for investors to be cheated").

423. See *Basic Inc. v. Levinson*, 108 S. Ct. 978, 996-98 (1988) (White, J., dissenting in part and concurring in part) (criticizing fraud-on-the-market theory as inconsistent with congressional policy to encourage investors to look out for themselves).

424. Easterbrook & Fischel, *supra* note 91, at 669 (securities laws focus on disclosure, not substantive regulation of investments); Jarrell, *The Economic Effects of Federal Regulation of the Market for New Security Issues*, 24 J. L. & ECON. 613, 621-22 (1981) (SEC's legislated purpose to protect investors from insufficient and misleading information, not from risky securities). See generally Schoenbaum, *supra* note 36, at 575 (describing congressional debate between merits review and disclosure in 1933 Act).

425. *Basic Inc. v. Levinson*, 108 S. Ct. at 997 (White, J., dissenting in part and concurring in part) (quoting dissent of Randall, J., in *Shores v. Sklar*, 647 F.2d 462, 483 (5th Cir. 1981) (en banc), cert. denied, 459 U.S. 1102 (1983)).

426. See *Basic Inc. v. Levinson*, 108 S. Ct. at 996-98 (White, J., dissenting in part and concurring in part) (fraud-on-the-market theory, by allowing investors to sue when market price differs from "value," undesirably protects investors who chose to remain uninformed); Verrecchia, *Consensus Beliefs, Information Acquisition, and Market Information Efficiency*, 70 AM. ECON. REV. 874 (1980) (correct prices protect less-informed investors from better-informed investors).

427. "Fairness" in securities policy is often described as ensuring "a level playing field" on which no particular group such as corporate insiders enjoys a systematic advantage unavailable to the public investor. See, e.g., *Dynamics Corp. v. CTS Corp.*, 637 F. Supp. 406, 419 (N.D. Ill.)

terminated a tie.⁴²⁸

The second problem with the idea that efficient markets allow widows and orphans to buy and sell stock without care is that its Edenic appeal does not hold up to scrutiny. The investor who sells for \$4 the Home Shopping Network stock he bought at \$40 finds scant consolation in knowing that the declining market price has continuously represented the "true" value of the shares. Investors do not care about intrinsic value vis-à-vis price. They care about price bought, and price sold.⁴²⁹

For the same reasons that inefficient markets do not erode investor confidence, efficient markets pose no particular benefit to investors. Rational investors care only about realizable return and nondiversifiable risk in their investments.⁴³⁰ So long as inefficiency does not increase market volatility and does not reduce average returns because the investor "will just as often find himself buying or selling a security that is 'overvalued' as 'undervalued,'" inefficient markets will not harm investors because they neither degrade return nor increase risk.⁴³¹

Once again, it is important to distinguish policies that permit inefficiency from policies that permit fraud. Fraud in its various forms reduces investors' average returns. For every winner in the market there must be a loser, and if the perpetrators of fraud consistently win,

(Williams Act designed to establish "level playing field" in which neither target management nor bidder enjoys advantage), *aff'd*, 794 F.2d 250 (7th Cir. 1986), *rev'd*, 107 S. Ct. 1637 (1987); *SEC v. Texas Gulf Sulphur Co.*, 401 F.2d 833, 852 (2d Cir. 1968) (congressional intent that members of the investing public should be subject to same risks, including "the risk that one's evaluative capacity . . . may exceed another's"; insider trading violates that intent because insiders "are not trading on an equal footing with the outside investors"), *cert. denied*, 394 U.S. 967 (1969); Levmore, *supra* note 12, at 122 (fairness "when insiders and outsiders are in equal positions"). However, even on a level playing field, one side must win and one side lose. The point is that the rules are the same for all, and the investor willing to put in the analysis needed to identify undervalued stocks has as good a shot as any other investor at profiting from his analysis.

428. There are also practical problems with any such warranty. The market will remain efficient only if we preserve enough inefficiency to maintain profit incentives for analysts and professional traders to invest time and other valuable resources in the collection, analysis, and creation of information concerning stock values. *See supra* note 29 (need an equilibrium of disequilibrium). Another problem arises if informationally efficient prices do not rationally reflect stock values. Prices may not reflect average expectations of future earnings because of investor irrationality, *see supra* note 419 and accompanying text, or because of restrictions on short sales, *see supra* note 375. In such a case, the attempt to further informational efficiency on behalf of uninformed investors is tantamount to an entitlement to prices that may be grossly over-inflated by the optimism of a minority of investors or by mass psychological phenomena. Finally, some sources of inefficiency may serve other desirable goals, such as the inefficiency that results when Texas Gulf Sulphur withholds information concerning a new mineral strike. Such silence ensures that private corporate information inures to the benefit of the corporation. For all of these reasons, any attempt to guarantee that the "price is right" seems questionable.

429. *See supra* notes 302-08 and accompanying text.

430. *See supra* notes 280-92 and accompanying text.

431. Benston, *supra* note 133, at 152; *see supra* notes 293-321 and accompanying text.

then public investors must consistently lose. But the issues of fraud and efficiency are not the same. While some frauds (such as false disclosure) may lead to inefficient mispricing, other forms of fraud (such as insider trading) may actually *enhance* efficiency.⁴³² While fraud harms average returns, pricing inefficiency *per se* does not, so long as the investor has an equal chance of gaining or losing.

The flip side of these observations is that efficient markets cannot protect investors. "Accurate" prices do not allow widows and orphans to buy stock without care. Only stable — or increasing — prices do. Controlling fraud which erodes investor returns, and controlling volatility, which adds risk, are the keys to "investor protection."

C. *The Costs of Informational Efficiency*

Efficient stock markets require two ingredients: effective distribution of massive amounts of information, and a trading system which can incorporate that information into stock price.⁴³³ Neither comes cheaply.

Fully informed stock prices require that market participants not only take account of general economic conditions, but also seek out all available information relevant to the fortunes of the thousands of corporations whose stocks are publicly held and traded.⁴³⁴ Creating, obtaining, and analyzing such information requires extensive private investment. For example, the corporate costs of SEC-mandated disclosure are estimated to be one billion dollars annually,⁴³⁵ and the costs of additional voluntary corporate disclosure are estimated at more than twice that amount.⁴³⁶ Those figures, large as they are, do not include the additional costs of private information-seeking initiatives by investors, financial analysts, and the press.

432. See *supra* notes 39-48, 203 and accompanying text.

433. Because an efficient market by definition reflects all available information, see *supra* notes 27-28, at least some traders (and possibly a great many) must be aware of the information or it will not be incorporated into price. See generally Gilson & Kraakman, *supra* note 1, at 557-59, 565-67 (distribution necessary for market to incorporate information). Of course, if little or no information is "available," it is possible to imagine a market that is completely efficient yet imposes almost no information search costs on traders because there is almost no information to search. See Levmore, *supra* note 32, at 647-49 (efficient market as "black box"). But the reality is that we enjoy an information-rich (some might say, information-laden) society. It seems safe to assume that whatever one's definition of "available" information, see *supra* note 28, stock traders must take account of a very large amount of information in setting efficient stock prices.

434. See Seligman, *supra* note 186, at 708 (6,355 common stocks traded on NYSE, AMEX, and NASDAQ).

435. S. PHILLIPS & J. ZECHER, *supra* note 253, at 51.

436. S. PHILLIPS & J. ZECHER, *supra* note 253, at 49, 50 (Table 3.3) (1975 costs of voluntary disclosure estimated at \$2.3 billion).

The continuous incorporation of information into stock price also requires liquid markets that produce continuous prices.⁴³⁷ Maintaining markets for new and outstanding stock (not to mention markets for derivative instruments like stock options and futures) involves the work of investment bankers, brokers, dealers, exchange specialists, market makers, and investment managers who must be paid and provided with offices and support. In 1986, there were over 400,000 individuals employed in the securities industry.⁴³⁸ In that same year, the 417 NYSE-member firms qualified to do public business, alone, made fifty billion dollars in gross income.⁴³⁹ Individual investors also contribute time and effort to securities trading, although perhaps with less compensation.

The private costs of maintaining an efficient stock market clearly are substantial. Government disclosure and market regulation add public administrative costs as well.⁴⁴⁰ Whether the public expenditures associated with the present disclosure and market regulation scheme on the whole produce commensurate benefits is a question beyond the scope of this article.⁴⁴¹ But government initiatives designed solely to enhance pricing efficiency, especially when these efforts involve encouraging the development of larger and more varied markets, pose a special danger. Such intervention not only adds public administrative expense, but may encourage private expenditures that far outweigh any resulting allocative benefit.⁴⁴²

Private expenditures by market participants trying to identify and trade in mispriced stocks may be a social waste akin to that incurred when the public spends money handicapping and betting on horse races.⁴⁴³ If real resource allocation is unaffected by either contest, be-

437. Stock prices cannot accurately reflect all available information unless stock transactions are happening with sufficient frequency that price estimates can be based on current rather than stale transactions.

438. NEW YORK STOCK EXCH., NEW YORK STOCK EXCHANGE FACT BOOK 63 (1987) [hereinafter 1987 NYSE FACTBOOK] (citing 1986 Labor Department statistics).

439. 1987 NYSE FACTBOOK, *supra* note 438, at 4, 61.

440. The SEC's appropriated budget for 1987 was \$115 million; the Commodity Futures Trading Commission's was \$30 million. U.S. OFFICE OF MANAGEMENT & BUDGET, BUDGET OF THE UNITED STATES GOVERNMENT: FISCAL YEAR 1989 I-Z88, I-Z10 (appendix) (1988).

441. See *supra* note 151 on benefits of federal disclosure and antifraud policies.

442. Information, like other goods, should be produced only to that point where the effort and resources spent to get it produce equivalent benefits. Coffee, *supra* note 5, at 724 (ideally social resources would be devoted to stock information only so long as social costs do not exceed social benefits). See generally Stigler, *The Economics of Information*, 69 J. POL. ECON. 213 (1961).

443. See Coffee, *supra* note 5, at 733 (If a trading market does not allocate capital, one can view pursuit of information as social waste.). The classic presentation of the theory that there will be a wasteful private overinvestment in information in a world of pure exchange is found in Professor Hirshleifer's work on the value of predictive information. See Hirshleifer, *The Private*

ing able to predict the outcomes of races or stock trading provides no conceivable social benefit. Nevertheless, because accurate prediction of either a horse race or the day's trading on the NYSE can be a source of great wealth to the individual investor or bettor (offset, of course, by some other investor's or bettor's loss), personal incentives to ferret out information persist. The tension between "the private profitability and the social uselessness" of predictive information results in an "overinvestment" in information and trading.⁴⁴⁴

The point may be demonstrated by example. Suppose that it costs \$75 to run a horse race which produces a social benefit — identifying the fastest horse — with a value of \$25.⁴⁴⁵ Suppose also that there are three gamblers, each of whom believes a different horse is fastest. Each has \$100 to spend. In the absence of betting, no gambler would be willing to pay for the race. But if betting is permitted, the three gamblers will each contribute \$25 to the running of the race. That is because each believes he can bet his remaining \$75 in the parimutuel pool and win back \$225 — for a profit of \$125.

The first lesson of the example is that maximizing society's wealth by properly allocating capital or other resources is of little interest to the bettor or the investor. In the case described above, it makes no difference to the gamblers that they are spending \$75 to achieve a social benefit valued at \$25. Their motive is not social gain but the hope of personal profit from selecting the horse most likely to win. Similarly, investors in the stock market are not concerned with rewarding well-run corporations by allocating capital to them, but with trying to outguess the market. As a result, we lack any assurance that the amount of resources investors will spend on gathering information will bear any resemblance to the amount that would be optimal from a social point of view.

The second lesson of the example is that excessive private investment in stock market information is exacerbated if investors, like bettors, have differing beliefs about which stock or horse is the best bet.⁴⁴⁶ Each gambler contributed \$25 to running the race and bet his remaining \$75 in the parimutuel pool because he hoped to win back \$225. Of course, two of the three must be wrong in their belief that their chosen horse will win. The result is that the gamblers have spent a total of

and *Social Value of Information and the Reward to Inventive Activity*, 61 AM. ECON. REV. 561 (1971).

444. See Hirshleifer, *supra* note 443, at 565-67.

445. While the specifics of this example are my own, I am indebted to Professor Hirshleifer for the notion of a horseracing analogy. See *id.* at 569.

446. See *supra* note 372 (on heterogenous beliefs).

\$300 on an activity (the race) that not only fails to produce sufficient social benefit, but produces total individual benefits (\$225 to the winning gambler) less than its cost. But so long as bettors differ in their opinions of horses, and so long as everyone on Wall Street believes that he or she is brighter or luckier than the rest, all will spend time and energy creating, collecting, and analyzing information that not only is socially useless, but costs more to collect than any possible sum of resulting private benefits.⁴⁴⁷

Private expenditures on stock information and trading may already outweigh any resulting private or public benefit. Trading in outstanding shares is a zero-sum game: any investor's gain must be balanced by another's loss.⁴⁴⁸ The costs of gathering information and the transaction costs of trading are deadweight losses that ensure that individual investors will lose, on average, in the stock market just as gamblers lose, on average, in a casino.

These individual losses may be worthwhile if the stock market contributes a social benefit from the improved allocation of capital and other resources. But the fact that information-gathering and trading expenditures associated with trading in outstanding stock (which does not directly allocate capital to corporations) grossly outweigh expenditures on corporate issues (which do) suggests otherwise.⁴⁴⁹ While corporations issued over seventeen billion dollars in common stock in 1985, over one *trillion* dollars in outstanding shares were traded.⁴⁵⁰ That trading activity cost more than eight billion dollars in broker's commissions paid to NYSE-member firms alone. Professor Lowenstein has estimated that the costs of trading in outstanding shares about equal the total amount of capital raised by new stock issues in the first place.⁴⁵¹

447. See Hirshleifer, *supra* note 443, at 569 (in a world of differing opinions "conflict of beliefs may enormously compound the speculative factor that, even from the point of view of a single individual, tends to promote excessive investment in information-generating activity").

448. See *supra* note 173. This balance is maintained even if stock prices appreciate steadily over time, because one investor can only enjoy that appreciation by retaining ownership in the stock and so denying any other potential investor the opportunity to benefit from that appreciation.

449. Continuous disclosure by publicly held corporations comprises the bulk of federally mandated disclosure. Schulte, *supra* note 151, at 547. Of the \$38.7 billion in gross income enjoyed by NYSE-member firms, only \$4.2 billion was from underwriting new issues, with the remainder attributable to broker's commissions, investment advice fees, and trading profits in securities and commodities. 1986 NYSE FACTBOOK, *supra* note 176, at 60.

450. The dollar value of trading in outstanding shares outweighs corporate issues by a factor of 30 to 1, see *supra* note 177 and accompanying text. Outstanding stocks show tremendous "turnover," changing hands on average every other year. See BRADY REPORT, *supra* note 15, at II-12 (annual stock turnover has increased in last decade from 21% to 64%); L. LOWENSTEIN, *supra* note 129, at 63-68 (describing and criticizing stock market turnover).

451. L. LOWENSTEIN, *supra* note 129, at 80 (approximately \$25 to \$30 billion in new com-

The problem of overinvestment in stock information and trading recommends that lawmakers hesitate before adopting policies designed solely to enhance pricing efficiency. Some policies that benefit pricing efficiency may help reduce private costs. The present mandatory disclosure scheme makes certain corporate information available readily and cheaply, and may prevent investors and analysts from devoting excessive time, effort, and money to information-hunting.⁴⁵² In other words, mandatory disclosure can be defended not because it is important for investors to have such information, but because it is important to stop their wasting resources trying to get it.

But some policies enhance efficiency by creating new opportunities for trading. An example is trading in stock index futures and other derivative instruments. If investors who trade outstanding issues are merely gambling on the fates of corporations, then stock futures speculators are gambling on the gamblers.⁴⁵³ Nevertheless, the speculative profits to be made from futures trading, combined with differing opinions of the likely future direction of the market, create incentives for private market participants to spend large amounts of money analyzing and trading in index futures. Since their introduction in 1982, trading in stock index futures has grown "spectacularly."⁴⁵⁴ Financial futures have come to account for more than half of all commodity futures contracts traded on U.S. exchanges,⁴⁵⁵ and the value of the stocks underlying the futures contracts traded daily on the Chicago Mercantile Exchange is now twice that of stocks traded on the NYSE.⁴⁵⁶

Index futures trading illustrates how government policies that enhance efficiency by encouraging new markets, extending the trading hours of existing ones, or allowing trading in new types of financial instruments, may induce private waste just as building a new racetrack does.⁴⁵⁷ If informational efficiency were costless, even a minute increase in allocational efficiency would make markets that more rapidly

mon stocks issued annually; trading costs of secondary market also approximate \$25 to \$30 billion annually).

452. See Coffee, *supra* note 5, at 734 (defending mandatory disclosure system as discouraging excessive private information-seeking).

453. See *supra* note 173.

454. SEC REPORT, *supra* note 69, at 3-1.

455. See U.S. DEPT. OF COMMERCE, STATISTICAL ABSTRACT OF THE UNITED STATES 1988 at 487 (1988) (Table 812).

456. See BRADY REPORT, *supra* note 15, at 5.

457. Cf. Proxmire Introduces Bill to Create Interagency Group for Market Crises, 20 Sec. Reg. & L. Rep. (BNA) at 484, 485 (Apr. 1, 1988) (reporting that NYSE, Philadelphia and Midwest Stock Exchanges are considering seeking SEC approval to create specialists' posts to trade baskets of stock).

reflect information a worthwhile policy goal. But there is no such thing as a free lunch. In the case of informational efficiency, the meal may be seriously overpriced.

D. Conclusion

To the traditional securities regulation goal of "fair and honest markets" we have added another: efficient markets. But before we adopt legal rules designed to promote the rapid incorporation of information into stock prices, we should question whether the costs of improved efficiency are balanced by proportionate benefits. The growing consensus that more efficient markets are an important regulatory goal is premised on the belief that pricing efficiency leads to allocative efficiency. That consensus has shallow roots indeed, for trading market prices are only remotely connected to the socially optimal allocation of real resources.

The weak link between efficient public stock markets and allocational efficiency has many implications. The insider trading debate provides a convenient example. Many believe that allowing corporate insiders to trade with their own shareholders on the basis on confidential nonpublic information garnered from the corporation allows insiders an unfair advantage.⁴⁵⁸ Yet scholars continue to urge that insider trading be legalized to reap the perceived economic benefits of more "correct" stock pricing.⁴⁵⁹ If the pricing efficiency improvements associated with insider trading are unaccompanied by any improvement in allocational efficiency, perhaps the perennial debate over legalizing insider trading can be laid to rest.

458. See Levmore, *supra* note 12, at 118 (traditional disclose or abstain rule "rests primarily on fairness grounds"); Phillips & Zutz, *The Insider Trading Doctrine: A Need for Legislative Repair*, 13 HOFSTRA L. REV. 65 (1984) (insider trading doctrine premised on fairness and equal opportunity); see, e.g., REPORT ON ITSA, *supra* note 3, at 2 (insider trading undermines fair and honest stock market); ABA Report, *supra* note 6, at 227 (insider trading violates notions of fair play).

459. See *supra* notes 42, 48 and accompanying text; Levmore, *supra* note 12, at 118 (free market view favoring insider trading "rests on efficiency considerations and the role of the stock market as an allocator of capital"). Professor Manne has described the efficiency benefits of allowing insider trading as "one of the strongest" arguments favoring legalization. Manne, *Law Professors*, *supra* note 39, at 565. The second benefit that has been claimed for insider trading is that it provides a reward for corporate insiders who create valuable information that may affect stock price. See *id.* at 578-81 (insider trading as entrepreneurial reward); Manne, *In Defense of Insider Trading*, 44 HARV. BUS. REV. 113, (Nov./Dec. 1966) (Insider trading is the "only effective compensation scheme for entrepreneurial services in large corporations."). This view has been persuasively undermined by those who point out that insider trading creates incentives to create bad news as well as good, allows insiders to trade on the information created by other individuals within the corporation, is not necessary as other bonding mechanisms (such a stock options) can tie insider incentives to stock prices, creates incentives to delay the disclosure of information, and in general is an "untidy and senseless" reward system. Levmore, *supra* note 12, at 149-50; see Schotland, *supra* note 131, at 1430-38, 1452-56.

Similar arguments apply in the case of index futures trading. Index futures move information into the equity markets only minutes or hours before it would otherwise arrive, an efficiency improvement of doubtful proportions.⁴⁶⁰ The capital allocation benefits of index futures trading are further diminished because the indexes involve blue chip stocks of corporations that have not issued common stock for decades and are unlikely to do so in the future.⁴⁶¹ In contrast to the uncertain allocative benefits of index futures trading, there are substantial costs. Many authorities believe that trading in stock index futures exaggerates market volatility and increases the risk of market "meltdown." The opportunity for such trading may also encourage wasteful private expenditures by traders seeking speculative profits. Finally, the failure of portfolio insurance techniques on October 19, 1987, has shadowed the value of index futures as a hedging device. If enhanced pricing efficiency remains as the primary "benefit" attributed to futures trading, perhaps index futures should simply be prohibited.⁴⁶²

The cases of insider trading and index futures trading illustrate how, in many circumstances, the current preoccupation with nurturing efficient stock market pricing seems unwarranted. It is at least misdirected. A second conclusion suggested by economic analysis is that if we are truly concerned with enhancing allocative efficiency through securities policy, we may well be looking in the wrong place. Prices reflecting all relevant information produce the greatest benefit not in the public trading markets, but in two discrete, nonpublic securities markets examined here: the market for underwriting new issues of stock, and the tender offer market for corporate control.⁴⁶³

460. See *supra* note 92 and accompanying text; JOINT STUDY OF TRADING IN FUTURES, *supra* note 6, at I-11, II-24 to II-26 ("[P]rice discovery" and "price basing" benefits of derivative trading in stocks "probably has not led to a significant improvement" in pricing because "highly developed, competitive and sophisticated" markets for the underlying securities already exist.).

461. See M. FOX, *supra* note 27, at 143 (corporations that dominate industrial sector issued stock 50 to 100 years ago and avoid equity issues); BRADY REPORT, *supra* note 15, at 5, VI-18 (describing most-commonly-traded S & P 500 future based on index of 500 stocks, 475 of which are NYSE-listed industrials).

462. See *Markey Announces Bipartisan Probe into Causes of Collapse of Stock Market*, 19 Sec. Reg. & L. Rep. (BNA) No. 42, at 1604 (Oct. 23, 1987) (following crash, Chairman of House Energy and Commerce Telecommunications and Finance Subcommittee announced bipartisan investigation into causes of decline, focusing closely on program trading and whether financial markets "would simply be better off without stock index futures"). The possible lack of any efficiency or hedging benefits from stock index futures trading, see *supra* note 93 (reasons to question hedging benefit), calls into question the value of derivative financial instruments generally. In this light, see Sporkin, *A Call for a New Special Study of the Securities and Financial Markets*, 46 MD. L. REV. 915, 920 (1987) ("[w]hether [derivative products] serve investor interests in any meaningful way has not been determined").

463. The initial public offering market is largely restricted to a small number of investment banking firms that have the capital and expertise to purchase an entire issue and then retail it

In contrast to trading market prices, corporate issues prices in the underwriting market directly affect the allocation of capital among corporations.⁴⁶⁴ Tender offer prices also have allocational consequences to the extent they help determine who owns or controls the corporation. The irony of the contemporary regulatory framework, however, is that federal and state law (along with market imperfections) distort the new issue and tender offer markets in ways that make correct prices in those markets unlikely. In the case of the underwriting market, the requirement that new issues be sold at a fixed price combines with the nature of the relationship between underwriters and issuers to produce a pattern of mispricing and underpricing. In the tender offer market, a plethora of anti-takeover defenses and state statutes raise the costs of tender offers so that distorted pricing seems inevitable. The Williams Act's best price rule also raises tender offer prices by ensuring that the price of corporate control is determined not by market forces of supply or demand, but by the premium demanded by the last shareholder whose stock must be purchased to gain effective control, no matter how wildly inflated that might be.

The current regulatory scheme, in sum, seeks to encourage informational efficiency in the exchange and OTC markets where outstanding securities are traded while ignoring (and in some cases worsening) mispricing in the markets for underwriting new issues and for tender offers. If the ultimate goal is the efficient allocation of resources in the real economy, this strategy is precisely backwards.

These observations are not intended to belittle the role of economic analysis in questions of legal policy generally or securities policy in particular. Indeed, there are few areas in which economic analysis is more appropriate. But any issue as complex as the relationship between public securities markets and the allocation of resources in the real economy deserves thorough and critical analysis. Before investing scarce resources and sacrificing other goals like investor protection or fair and honest markets to market efficiency, we should require stronger evidence that improving efficiency brings commensurate benefits. More shortsighted or superficial treatment can lead to conclusions that are costly from any perspective, including an economic one.

successfully to the public. Moreover, corporations generally do not select underwriters by openly inviting bids but instead rely on private negotiations with a few firms. Smith, *Investment Banking and the Capital Acquisition Process*, 15 J. FIN. ECON. 3 (1986) (95% of underwriting contracts negotiated). The tender offer market may be regarded as nonpublic because the parties to the deal include only the bidding entity and the existing shareholders of the target.

464. At least to the extent that new issues prices determine the firm's access to capital, a matter as to which there is some doubt. See *supra* text accompanying notes 178-204.

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