Why Should Disclosure Rules Subsidize Informed Traders?*

by

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Abstract: This article justifies the existence of disclosure provisions as part of the securities laws.

Securities' prices may deviate from the securities' underlying values due to "irrationalities". Market efficiency (i.e., the accuracy of securities' prices) materializes through the trading of investors who observe and attempt to profit from these inefficiencies. The danger of false prices deters the corrective trading of these "informed traders." This article argues that disclosure rules provide them with costless information, essentially subsidizing their activity. The cost of this subsidy is borne by the corporation, i.e., all shareholders, of which informed traders are only a fraction. Long-term shareholders would not subsidize efficiency absent disclosure rules because, since they do not trade, they do not reap the benefits of accurate prices. This subsidy fosters short-term shareholdings and, thus, increases trading volume and capital market liquidity.

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I. Introduction

This article seeks to appraise at a general level the disclosure provisions of securities laws. The puzzle that these rules present is that (to a significant extent) they impose disclosure in order to achieve accurate prices for securities. Theory, however, has not been able to justify such a regulatory mission. This article suggests that disclosure rules are justified in ensuring accuracy of prices and that firms would not provide this service without regulation.

Part II offers an overview of the theories which justify disclosure rules. It is shown that while some rules are justified, the existing theories fail to explain a fraction of disclosure rules, those which promote accurate prices. Part III explains that despite the theory (the CAPM) and the evidence of efficiency (the ECMH), more recent theory and evidence suggest that false prices (irrationalities) are plausible. Part IV argues that disclosure rules subsidize rational informed traders in order to ensure that they and the markets are not overcome by irrationalities. Part V argues that this subsidy must be provided by the legal system because corporations and

1 In the United States, disclosure regulation of corporations consists primarily of the Securities Act of 1933 and the Securities Exchange Act of 1934, as implemented by the rules that the Securities and Exchange Commission (“S.E.C.”) has promulgated thereunder. The Securities Act of 1933 and the Securities Exchange Act of 1934 are codified, respectively, in 15 U.S.C. § 77a et seq. and § 78a et seq. The regulations of the Securities and Exchange Commission thereunder are codified in 17 C.F.R. § 230.100 through § 230.703(T) for the 1933 Act and 17 C.F.R. § 240.0-1 through § 240.31-1 for the 1934 Act.
shareholders themselves would under-provide disclosure. The price-accuracy which is the result of disclosure is to the advantage of short-term uninformed shareholders. Corporations would not find it advantageous to disclose for the benefit of short-term minority shareholders and would rather not bear the cost of subsidizing the liquidity of the market which their frequent trading creates. In other words, the social benefits of liquidity will not influence corporations' choice of disclosure.

The contribution of this paper consists of the justification of mandatory disclosure against the Coase-theoretical counter-argument that the unregulated marketplace will provide the optimal amount of disclosure. Corporate decisionmaking will be dominated by the long-term shareholders who have less use for the benefits of disclosure—efficiency and liquidity—and who will, therefore, underprovide it. The mandatory disclosure regime fosters short-term shareholdings, hence large trading volume, which leads to more liquid markets, a concern which individual corporations do not share with short-term shareholders.²

² This argument could be considered related to that of Shleifer and Vishny, 1990. Shleifer and Vishny formulate the danger of irrationalities and the ensuing greater inefficiency of long-term assets into a theory that managers may react too much to estimates of short-term corporate performance, which are more accurately reflected in short-term assets’ prices. Short-term securities (e.g., short-term debt), being more efficient than long-term securities (e.g., shares), are also more sensitive to the short-term prospects of the firm. Shleifer and Vishny, however, do not use their argument to justify legal measures, such as disclosure, that increase the efficiency of equity markets. The argument of this article, which shows that disclosure does not only attempt to make equity markets more efficient but also does so by shortening holding periods, is complementary with that of Shleifer and Vishny.
II. An Overview of Disclosure Theories

The question whether disclosure rules are justified has received significant attention from the legal and economic academia. The attempts to find their theoretical justification span decades and cover a great variety of approaches. A slight generalization allows the justifications of disclosure rules to be categorized under three headings. Disclosure rules have been seen (1) as averting fraud, (2) as eliminating shareholder collective action problems, and (3) as assisting in the market’s accurate pricing.

The fraud-prevention justification of disclosure rules is the oldest and most conventional, but no less problematic. Disclosure makes fraudulent activity by management more likely to be detected, strengthening the deterrent effect of the rules that penalize fraudulent activity. This reasoning, however, does not justify the mandatory nature of disclosure rules. If investors fear fraud they should be allowed to negotiate for protection. Firms which refuse to protect investors, whether by disclosing or otherwise, would face a higher cost of capital. Only if investors and firms were free to contract about fraud-prevention measures would those measures be provided to the extent demanded. Granted, there may be market failures which suggest that fraud-prevention measures are under-provided, but private contracting all too often shows sufficient ingenuity to overcome market failures, conforming to the Coase-theorem which argues

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4 Consider, for example the market-for-lemons problem. Although it puzzled theory, in practice it was easily overcome with guarantees. See Akerlof (1970) (if buyers cannot distinguish high-quality goods from “lemons,” and sellers face high costs in conveying the
that private contracting will even address externalities, given an economy without transaction costs. Thus, the Coase theorem eliminates the need for regulation.\(^5\) Even if the disclosure rules that exist would have been the outcome of free contracting between investors and firms, they should still only serve as a default rule, from which firms may opt out.\(^6\) Therefore, a stronger justification of disclosure rules must be found in order to justify their mandatory character. Transferring the argument for mandatory corporate law to disclosure argues that market failures would allow too many firms to opt out of disclosure, and that, therefore, disclosure rules should be mandatory. Even if this counter-argument is correct, however, the fraud-prevention motive justifies only a fraction of the numerous disclosure provisions.

The argument that disclosure rules resolve a collective action problem focuses on shareholder decisionmaking. When shareholders must make decisions for the corporation, they face a collective action problem.\(^7\) Shareholders must expend significant resources to gather and process the information required to reach the best decision for the corporation. Each member of the dispersed group of shareholders, however, would rather see other shareholders carrying this burden. The feared result is that no

\(^5\) One of the most readable explanations of the Coase theorem is Polinsky (1983, pp. 11-14). See also Hirsh (1979, pp. 214-16); R. Posner (1986, pp. 54-56); Coase (1960).

\(^6\) The debate whether corporate and securities law should be mandatory or enabling, and to what extent, is heated. Compare Gordon (1989); Romano (1989); Coffee (1989); Seligman (1990); Kostel (1993).

\(^7\) The voluminous literature begins with Berle and Means (1932). Some of the recent additions include Black (1990), Easterbrook and Fishel (1991) and Gordon (1989).
shareholder will undertake the expense of determining the decision which would benefit the whole. Even if some shareholders did pursue the correct decision, they would not spend as much as the group as a whole in order to ascertain it. According to this argument, disclosure rules resolve this collective action problem by forcing the corporation to spend the resources to collect, process and disseminate the information that shareholders need in order to make the corporate decision. While this may be a compelling argument, it only justifies those disclosure provisions which impose disclosure in anticipation of corporate governance decisions by shareholders. These rules too, however, are but a fraction of the disclosure system.

Even after a fraction of the disclosure rules is justified by the fraud-prevention motive, and another fraction is justified as a solution to the shareholders’ collective action problem, a significant fraction of disclosure provisions remains unjustified. Consider, for example, the firm’s obligation to describe its business, discuss its operation and project its future performance (Item 100 or Regulation S-K). Since no evidence of past wrongdoing may be uncovered by this information, its disclosure cannot be motivated by fraud prevention. Neither can its motivation be the elimination of the shareholders collective action problem, since this disclosure is not

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8 The Coase theorem points to the objection that shareholders would overcome their collective action problem without regulation. Indeed, market remedies to the collective action of gathering information exist in various markets (the most obvious example is Consumer Reports, which spends resources to test products and then sells its results; no individual consumer would undertake the expense, but the market provides a substitute). In the context of shareholder voting, there are firms which provide the service of determining how shareholders should vote. Professor Bernard Black (1990, p. 573), an active participant in the shareholder-activism movement of the eighties and nineties, offers a list of services that resolve this collective action problem.
related to any shareholder decision. This fraction appears motivated by a desire to facilitate accurate pricing.\(^9\) Law-and-economics theory, however, does not justify such a motivation. Although the initial response to the finding that information about pricing errors would be demanded very strongly (perhaps excessively\(^10\)) was that it justified disclosure rules, it was soon suggested that mandatory disclosure is still not necessary. Not only does older economic theory suggest that firms would voluntarily disclose, but more recent work suggests that forcing firms to disclose actually obstructs the firms’ ability to send implicit signals and thus communicate information to investors, information about which firms cannot make credible explicit disclosures.

The early financial models tried to determine whether firms have sufficient incentives to disclose information, and found that all firms are led to disclose. Silent firms would be penalized because investors would assume the worst and, therefore, discount the price of their shares. Soon every firm

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\(^9\) This argument has also been made less formally and without the benefit of more recent economic theories that substantiate the plausibility of irrationalities by Professor Coffee (1984).

\(^10\) The argument that information about pricing is demanded excessively (compared with information that may lead to innovation and is, therefore, socially more valuable than the correction of mispricings which simply redistributes wealth) is made by Hirshleifer (1971). The application of this argument to financial disclosure is not as clear as the legal academia presents it. My doubt stems primarily from the comparative nature of the (excess) demand for redistributing versus innovative information. It is not clear how such a comparison should be made in the financial markets. It seems that the popular interpretation of this argument is that too much effort is expended on investment selection in the markets as opposed to creative activity outside the financial markets. However, the argument is also countered by the evidence of financial market efficiency, which argues that all effort to outperform the market is probably wasted, as well as by the notion that accurate pricing of securities does lead to social gains, the efficient allocation of capital.
would be led to disclose since its news would not be worse than the market would assume.\footnote{Models using the assumption of costless information include Ross (1979); Grossman (1981); Milgrom (1981). Models using costly information include Jovanovic (1982); Verrecchia (1983); McNichols (1984).}

A more recent model shows that the "all disclose" models may have oversimplified the problem. Teoh and Hwang (1991) build their model on the assumption that there are two types of information, verifiable information that can be credibly disclosed and unverifiable information which firms cannot announce credibly. This categorization corresponds to the intuition that false representations regarding historical information lead to liability and, therefore, a strong incentive on the firm to be accurate, while statements regarding the future prospects of the firm are inherently uncertain.

Once a piece of information cannot be credibly disclosed, firms and investors are faced with a complex problem. Firms want to communicate their information to investors in order to attract capital, and investors want to allocate their capital to the better firms. Teoh and Hwang argue that firms can communicate this information credibly to investors by signaling. If investors have the appropriate expectations regarding the firms' signals, then firms are able to credibly signal the unverifiable information by timing the disclosure of verifiable information. Firms with good unverifiable information put on a show of "wasting" (verifiable) good news by delaying its release. Firms with bad unverifiable information cannot afford to mimic the good firms. They are forced to disclose good news without delay.
Although quite complex, the model of Teoh and Hwang only indicates how complex the interaction of firms and investors may be. Although this model is much more complex than previous disclosure models, it is certainly much simpler than reality. If the model captured accurately the interaction of firms and investors regarding disclosure, its implication regarding disclosure regulation would be that disclosure rules should allow firms enough leeway to time their verifiable disclosures and, thus, signal their unverifiable information. Disclosure rules, however, allow very little flexibility in the timing of announcements. A firm cannot choose to omit some information from a quarterly report in order to signal management’s confidence in its prospects. On the other hand, the firm may choose to delay disclosures until either the next quarterly report or a special report (on Form 8-K) is due (provided no previous “forward-looking” statement has been rendered misleading by the new information, per Backman\(^\text{12}\)).

Moreover, disclosure rules are oblivious to the concern of distinguishing verifiable information that can be disclosed credibly from information that cannot be disclosed credibly. Disclosure rules actually encourage the disclosure of unverifiable information.\(^\text{13}\) It is interesting to

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\(^{12}\) Backman v. Polaroid, Inc., 910 F.2d 10 (1st Cir. en banc, 1990), held that liability for nondisclosure in the case where the new information has rendered prior statements misleading, does not arise unless the statement which is rendered misleading was “forward looking”.

\(^{13}\) See, e.g., Regulation S-K, Subpart 1, Item 10(b), 17 C.F.R. 229.10(b) (“Commission Policy on Projections: The [S.E.C.] encourages the use . . . of management’s projections of future economic performance”): Rule 175, 17 C.F.R. 230.175 (a) “A [forward-looking] statement . . . made by . . . an issuer . . . shall be deemed not to be a fraudulent statement . . . unless it is shown that [it] was made . . . without reasonable basis or . . . other than in good faith”; (c) “the term ‘forward-looking statement’ shall mean . . . (1) A statement containing a projection of revenues, income . . . capital expenditures, . . . (2) A statement of management’s plans and objectives . . . (3) A statement of future economic performance”).
note that as originally designed, disclosure rules actually barred the announcement of uncertain and presumably unverifiable information, such as appraisals or earnings estimates. When in the sixties and seventies legal academia became convinced of the merit of valuation through discounting future income, commentators decided it would be a good idea to have disclosure rules facilitate the estimation of future income. The result was recommendations to restructure disclosure provisions so as to encourage the disclosure of management predictions and to reduce the risk of liability for predictions that, although made in good faith, did not materialize. The S.E.C. responded by implementing these changes. Notice that, if Teoh and Hwang are correct, this movement had no effect because the disclosure of projections is not credible and the S.E.C. safe harbor rules may have made it even less credible. According to Teoh and Hwang the only way for investors to know which firms have good prospects is to allow firms to signal by delaying disclosure of credible good news.

Even accepting Teoh and Hwang’s argument that more discretion in the timing of disclosure may be desirable, the question of why the disclosure of so much verifiable information is mandated remains. Particularly since older finance theory suggests that prices are efficient. The next section explains that more recent theory and evidence refute the claims of absolute efficiency.

14 See, e.g., ADVISORY COMMITTEE ON CORP. DISCLOSURE (1977, pp. 55-57); Herwitz (1973, p. 327); Kripke (1975, p. 298); Note (1978).

III. The Theory of Pricing Capital Assets, Efficiency, and Irrationalities

Mandating disclosure to ensure accurate prices is a paradox in several ways. The theory of pricing "capital" assets (the Capital Asset Pricing Model, "CAPM") suggests that each security can only have one price, that dictated by its risk and future returns. The body of empirical evidence which suggests that capital markets are "efficient" implies that prices are accurate. Why then impose disclosure?

Neither the theory of the CAPM nor the evidence of efficiency ensure that prices would never be wrong. The CAPM does not really talk about price but about a theoretical value: an asset with given risk (beta) should be appraised by discounting its future income stream at a specific rate (determined by the asset's beta). In fact, however, neither the risk nor the future prospects of firms are known with certainty. Information may help speculators (informed traders) reach a more accurate estimate of risk and return, but still this does not imply that disclosure should be mandated. Furthermore, the CAPM ignores the "frictions" of the market, the direct and structural transaction costs that are the object of the new field of finance market microstructure, and which do influence pricing (Amihud and Mendelson, 1986). The evidence of efficiency also does not imply accurate

16 The brevity of this article precludes detailed description of the CAPM and Efficiency, which are subjects of introductions to finance. The most popular introductory treatment appears to be Brealey and Myers (1988). A more detailed exposition can be found in the Handbook of Modern Finance (Logue, ed., 2d edition, 1990). The primary legal work that deals with the Efficient Capital Markets Hypothesis is Gilson and Kraakman (1984). For a more recent succinct primer see Sidak and Woodward (1991).

17 Neither can this article review the efficiency evidence. However, a recent review of the efficiency literature by a leading proponent, Professor Eugene Fama (1991), accepts some evidence of inefficiencies.
prices, just accurate changes of prices in response to new pieces of information (see Tobin, 1984; also accepted by the leading proponent of efficiency, Fama, 1991, pp. 1575-76).

The apparent irrelevance of disclosure suggested by a shallow reading of the CAPM and the efficiency evidence has been rigorously undermined by recent theoretical work showing that systematically erring traders ("irrational traders") may survive or even dominate the market,\(^\text{18}\) that even rational traders may intentionally trigger euphorias or panics of irrational traders,\(^\text{19}\) that risk-aversion may drive investors to take smaller positions which may not be enough to correct irrationalities,\(^\text{20}\) that structural agency costs may drive rational investment managers to do the same,\(^\text{21}\) and that errors in prices may exist without giving rise to an opportunity for arbitraging them away.\(^\text{22}\) Empirical work supports the contention that the markets have displayed inefficiencies or irrationalities.\(^\text{23}\) (The destabilizing

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\(^\text{18}\) De Long \textit{et al.} (1991) (if the error of noise traders consists of a systematic underestimation of the risk of their portfolios, then they may survive or dominate in a market that compensates risk; the same result follows the noise traders’ underestimation of their risk aversion). The economic literature names irrational traders "noise traders." This term is confusing because both irrational and uninformed liquidity traders cause the random fluctuations called "noise" in prices.

\(^\text{19}\) De Long \textit{et al.} (1990a) (the existence of noise traders that "follow the crowd," as for example, does portfolio insurance, may induce rational traders to anticipate such trends, enter in their beginning, and initiate them). \textit{See also} De Long \textit{et al.} (1990b).

\(^\text{20}\) De Long \textit{et al.} (1990c) (the existence of noise traders increases risk; rational traders take that risk into account and, therefore, take smaller positions, which may be insufficient to correct the effect on prices of noise traders.)

\(^\text{21}\) Shleifer and Vishny, 1995 (building a model where the concern for a period of poor performance—in which case the under their management may be withdrawn—may lead investment managers to refrain from large positions).

\(^\text{22}\) Froot and Obstfeld (1989) (Building a model of bubbles based on the rate of increase of dividends, which resembles the historical path of stock prices better than a model without bubbles. Contains further citations to the bubble literature.)

\(^\text{23}\) Rappaport and White (1991); De Long and Shleifer (1990) (Evidence which compares the ratio of the closed-end fund premium before the two crashes, 1929 and 1987, to its (footnote continues on next page)
results due to the coexistence of rational and irrational actors, however, may well be unique to the capital markets.\textsuperscript{24)

Previous authors have pointed at the theory and evidence of irrationalities as a potential justification of mandatory disclosure (primarily Coffee, 1984). This argument, however, is not complete. If irrationalities were undesirable, firms would disclose to eradicate them. The optimal amount of disclosure is a determination that firms should be allowed to make, and which they are precluded from making by mandatory disclosure. This essay completes this argument by showing that the decisionmaking dynamics in the corporation may lead to less disclosure than is socially optimal.

After having identified and described irrationalities as likely and undesirable, we must inquire into alleviating the problems they create. The solution is to provide information to the market: information of great historical level supports the existence of bubbles. In 1929, the fund premiums averaged 60%; from this the authors suggest a bubble larger than 30% existed before the Crash. The authors' data does not reach 1987, but in 1985, as well as in 1969-70, closed-end funds were selling at premiums.)

Even attempts to rationalize market breaks do not contradict but support the existence of irrationalities. Thus the explanation of the October 1987 market crash as a readjustment of stock prices to an increase in perceived risk (Black, 1988) is consistent with the irrationalities theory that the market underestimated risk before the crash. According to Black’s explanation, investors underestimated either volatility or risk aversion in the months preceding the crash, and woke up, to wit, with a crash.

Evidence of efficiency, moreover, does not preclude irrationalities in parts or sectors of the market which cancel out when averaged over the entire market. That conclusive evidence of irrationalities accompanies rare market breaks does not preclude much more frequent partial irrationalities.

\textsuperscript{24} For example, rationals help irrationals (and vice versa) in the context of traffic congestions, because they follow different routes (the rational divert traffic to the uncongested routes, which may risk congestion if all drivers were rational). A third alternative is markets with reputation importance, where either group will dominate. \textit{See, generally,} Haltiwanger and Waldman (1985).
precision, in great quantities, and with little cost to traders. This will strengthen rational informed traders whose trading drives the market toward efficiency.\textsuperscript{25}

IV. Disclosure Subsidizes Informed Trading

If irrational traders and false prices (irrationals) may exist, it is obvious that they are undesirable, since they at least interfere with the optimality of the market's allocation of capital among competing firms,\textsuperscript{26} and at most they expose the economy to the risk of depressions.\textsuperscript{27} Regulation which would directly hinder irrational trades, however, is impracticable. Ex ante they cannot be distinguished from rational informed trades. But a solution to this problem appears in disclosure rules, which by making detailed information about firms costlessly available (as well as by ensuring uniformity in the presentation of information which, presumably, reduces

\textsuperscript{25} Informed traders do not correct exclusively irrationalities, nor do they only trade to correct prices upon releases of new information (notice how exchange structure favors the release of information during off-trading hours, favors suspension of trading in information events, and provides information directly to the floor to reduce such trading). The principal role of informed traders is to counter the random effects on prices that the trading of the uninformed liquidity traders (see infra note 29) has. Thus, effectively, the informed traders provide an "outside spread," a high and a low price beyond which they buy or sell so that they resist price fluctuations outside it. See also infra notes 29-30.

\textsuperscript{26} For an extensive discussion of the social benefits of efficiency see Kahan, 1991.

\textsuperscript{27} The 1929 stock market crash is the typical example of a financial crisis that spread into the non-financial economy with devastating effects. The sudden drop of securities' prices that were used as collateral for heavy borrowing led to many banks' failure as well as to the ruin of many non-banking productive entities. The failure or the perceived weakness of the banks led to a "run" on the banks by depositors, leading to a general dissolution of the economy into the Great Depression, see generally GALBRAITH (1972). The 1987 crash had an even greater effect on price, but no depression ensued, arguably because of regulation shielding lenders from securities risk, such as § 16 of the Glass-Steagal Act and margin lending regulation. The crash of the real estate boom of the 1980's, however, had very similar results regarding the Savings and Loans sector of banking.
the difficulty of comprehending the disclosed information, Fishman and Hagerty, 1989) help rational informed traders.

Informed traders are subsidized by disclosure rules because they lower the cost of information, while this cost is shared by all shareholders, of which the informed are only a fraction. When the cost of the activity is reduced, more of it will be provided. But if informed trading is intensified through entry of competing informed traders (as the theory predicts, Admati and Pfleiderer, 1988, see notes 30-31 below), informed trading intensifies and the likelihood of irrationalities is reduced since the strengthened ranks of informed traders will not be swayed as easily. The reduced likelihood of irrationalities, in turn, is a further attractor of informed trading since the less the risk-averse informed traders fear irrationalities, the more intense their trading and the more likely they are to correct pricing errors.

Moreover, as disclosed information increases the accuracy of informed traders’ information, they may also reach more similar estimates of value. When two informed traders differ enough in the value they assign to a security, one will trade against the other until their positions in it

Disclosure rules also ensure that the information provided to the traders is accurate. This accuracy, however, is not a result of disclosure rules themselves, but of the rules that prohibit fraud, the mainstay of which is Rule 10b-5. To the extent that even without disclosure rules the rational informed traders would be able to "buy" statements from the corporations (which would have the same high accuracy that mandated disclosures have due to antifraud rules), disclosure rules only reduce the cost of these accurate statements.

Most probably, this "buying" of information would not be direct and explicit, but indirect and implicit: for example, corporations that would provide adequate indications that they would disclose relevant information would attract the demand of informed traders and would command higher share prices. The disclosing corporation is compensated for disclosure by having a lower cost of capital.
reach the maximum their risk-aversion will tolerate. If the two are equally skilled, this duel is pointless. Its only result is a transfer from one informed trader to the other. Since informed traders are risk-averse, they are averse to such random transfers of wealth among their ranks. Disclosure rules that reduce such incidents provide one more boon to informed traders.

Finally, aside from assisting rational informed traders, disclosure rules may also cause some "irrational" traders to revise their actions in view of the information. By "force-feeding" irrational traders with information, disclosure rules may also serve to disillusion some irrational traders. Thus, the domination of rational informed traders is ensured not only by reducing their costs, but also by reducing the number of the mischievous irrational traders.

Even if informed trading is desirable because it increases efficiency directly as well as indirectly by mitigating irrationalities, the puzzle of the mandatory nature of the disclosure provisions remains. Firms should be allowed to determine the optimal degree of efficiency for their shares. Indeed, Professor Lynn Stout (1988) has argued that securities regulation provides excessive efficiency. By contrast, the next section argues that the structure of corporate decisionmaking indicates that, without a legal mandate, insufficient disclosure would be provided.

V. The Failure of the Corporate Disclosure Decision

The beneficial nature of imposing disclosure on corporations appears to follow from the conclusions of the previous parts: given the danger of irrationalities, which are averted by rational informed trading, and given that disclosure rules consist of a subsidy to rational informed traders, the
reduction of irrationalities can be achieved by rules imposing disclosure. Before concluding, however, that disclosure rules are necessary, we must apply the Coase theorem and ask whether the parties involved would have reached the same resolution. If they would, the legal mandate is superfluous.

This article categorized shareholders into rational informed traders and irrational traders. This categorization, which served the purpose of explaining the dynamics behind the subsidy function of disclosure rules, will also be used to explain their necessity. A third but fundamental category, that of uninformed liquidity traders, must be introduced, and holding periods will be allowed to differ. Thus, shareholders will hold for the long- or short-term and either trade rationally with information, without information for liquidity reasons, or, finally, irrationally.

The exposition must start in a simplified world where all shareholders expect to only be uninformed traders. When they liquidate

29 The existence of uninformed/liquidity trading is obvious. Not only do people trade for lifecycle needs (e.g., automatic investment of paycheck fraction in pension plans; liquidation for retirement) but also the legal system itself provides for forced liquidations. Trading without any attempt to exploit information, however, is much more frequent than retirements, bankruptcy liquidations or margin calls. A portion of daily trading volume is “index arbitrage,” both “legs” of the trade of which are uninformed since the arbitrageur does not bet on a price movement. Other uninformed trades are those of “portfolio insurance” or other “dynamic hedging” or “synthetic” instrument strategies where trading is automatically triggered by market moves. For example, an option to buy stock at a certain price can be recreated, “synthesized,” by automatically buying that amount of stock as price rises and passes that price. See, generally, Hull (1989, pp. 9 et seq.). Similarly uninformed, but less prevalent, are the trades of index funds, which simply purchase stocks that are part of an index, as well as the trades of ordinary mutual funds which are made when redemptions and new subscriptions by clients do not cancel out.

30 One can argue that shareholders, even the founding entrepreneurs, may expect to also be informed traders with some probability. However, it is not clear whether informed traders prefer more or less disclosure. Although it turns out that more disclosure would lead to shorter holding periods for the uninformed and, hence, more uninformed trading and noisier
their holdings, they depend upon market efficiency and liquidity to provide a price for liquidation that reflects their shares’ value. An illiquid market would react to their selling by lowering price. An inefficient market would allow them to trade at a price that may differ from their stock’s value. Since, as we will see, disclosure causes both a shorter holding period (more frequent trading), i.e., greater liquidity, as well as fewer irrationalities, i.e., greater efficiency, it ensures that uninformed sellers sell at a price close to value. Shareholders would estimate the likelihood that they would have to liquidate, the cost of providing the disclosure that would ensure adequate informed trading, and they would, thus, choose their optimal disclosure policy. Provided that all shareholders expect to hold their shares for periods of equal length, the result of this process would be optimal.

prices and one could imply that the increased opportunities for informed trading this would give rise to would cause informed traders to favor disclosure, the reasoning of Admati and Pfleiderer (1988; empirically supported by Barclay et al., 1990) suggests the opposite. More uninformed trading would increase aggregate informed trading profits but this would attract entry into informed trading and competition. This competition would reduce their per-trader profits, so that the informed may be indifferent to the uninformed traders’ holding period. This runs counter to the application of the argument that interest groups drive disclosure regulation, an argument that has been made extensively in other fields of securities and corporate law (see, e.g., Macey, 1988; Haddock and Macey, 1985; Macey and Miller, 1987; Wolfson, 1980). Indeed, I have found no reference to disclosure rules as being the result of lobbying by the professional investment community, as opposed to other parts of securities and corporate law (Schedule 13D disclosure, however, is distinguishable as motivated by change-of-control concerns).

31 Although direct empirical evidence for the proposition that trading volume leads to liquidity is sparse (but see Eleswarapu and Krishnamurti, 1994, who associate a liquidity premium with trading volume), this relation is intuitive and generally accepted. The paucity of evidence must be attributed to the difficulty of quantifying the effects of liquidity due to the complementary nature of trading delays and price concessions (dividing a trade and spreading it in time may reduce its price impact). Indirect evidence of the connection between trading volume and liquidity exists in Barclay et al. (1990), who support empirically the theoretical model of Admati and Pfleiderer (1988). Admati and Pfleiderer show that the liquidity caused by increases in trading volume leads to increased profits for the informed and stronger competition among them, leading to greater efficiency. For a more detailed analysis of these two articles and their application to an economic justification of insider trading regulation, see generally, Georgakopoulos (1993).
Example Illustrating Shareholders' Choice of a Disclosure Policy: Consider that there are two possible disclosure strategies available to the corporation, Cryptic and Detailed. If the corporation chose Cryptic disclosure, its disclosure expenses would be 1% of its capitalization annually, while Detailed disclosure would cost the corporation 2%. Shareholders' motivation for providing more disclosure is that by preventing irrationalities it ensures less of a deviation of price from the true value of the corporation. Consider that Cryptic disclosure allows price to fluctuate up to 20% from value, while Detailed reduces the possible inaccuracy to 10%. Suppose that shareholders' risk aversion is such that they equate (uninformed) trading at prices subject to 20% error to a 4% reduction in wealth, and trading at prices subject to 10% error to a 1.5% reduction in wealth. The expected holding period at which these shareholders will be indifferent between the two disclosure regimes is 2.5 years. If they expect to hold their shares for 2 years, Detailed disclosure would cost them 5.5% (two years at 2% and 1.5% due to error aversion), while Cryptic would cost 6% (two years at 1% and 4% error aversion). If, by contrast, they expected to hold for three years, Cryptic is preferable since it costs 7% to the 7.5% cost of Detailed disclosure.

The optimality of the shareholders' disclosure arrangement erodes as soon as different holding periods are allowed. If shareholders have different holding periods they trade with different frequency. The benefits of liquidity and efficiency are enjoyed at each trade. If some shareholders trade more frequently than others, they derive more "use" from disclosure and they are likely to favor more disclosure than their long-term counterparts.

Example Showing that Short-Term Shareholders Prefer More Disclosure than their Long-Term Counterparts: Given the same choice as in the previous example between Cryptic disclosure, which costs 1% annually and allows a 20% price error, and Detailed disclosure, which costs 2% but reduces price error to 10%, compare the reaction of a long- and of a short-term shareholder to the disclosure choice of a firm that

32 “Expected holding period” is defined as the average holding period given an uninformed sale, considering only the possibility of selling without information. Thus, even if a shareholder is very unlikely to ever sell without information, the possibility of bankruptcy implies an expected holding period given an uninformed sale. Of course, the example's analysis is greatly simplified since the possibility of using the disclosed information to become an informed trader would also be considered. But the analysis holds under the assumption that informed trading earns zero profits because of perfect competition.
is expected to have a 10% annual return before disclosure expenses (i.e., a 9% return after expenses if it chooses Cryptic disclosure, or an 8% return if it chooses Detailed disclosure).

The short-term shareholder will hold for 1 year. If the firm chooses Cryptic, this shareholder expects a return between 31% and a loss of 13%.\(^{33}\) If the firm chooses Detailed the return will lie between 19% and a loss of 3%.\(^{34}\) Neither choice is dominant but even a mildly risk-averse shareholder would prefer to see the firm choose Detailed disclosure in which they give up 1% of expected return to halve the range of price error.

The long-term holder's horizon is ten years. Were the firm to choose Detailed disclosure, the expected 8% annual return with annual compounding would translate into a total return of 116%.\(^{35}\) The ±10% fluctuation would give a range of total return from 73% to 159%.\(^{36}\) If the firm were to choose Cryptic disclosure, the firm would offer an expected return of 9%, for a total return of 137%. With the ±20% fluctuation of price from value this offers a range of total return from 90% to 184%, which appears to dominate the results under the Detailed regime, unless exorbitant risk aversion is posited.\(^{37}\)

Since disclosure is costly, corporations' shareholders will tend to provide as little as possible. The shareholder holding the median holding-period share will dominate. If the short-term minority proposes more disclosure than this shareholder desires, the longer-term shareholders will propose a disclosure policy that matches this shareholder's preference and this proposal will receive the majority vote. Notice that the dynamics of this

\(^{33}\) The value of the firm will increase 9%, but price may fluctuate ±20% from this 109%, which gives a range of prices from 130.8% to 87.2%.

\(^{34}\) The value of the firm will increase 8%, but price may deviate ±10% from this 108%, which gives a range from a high of 118.8% to 97.2%.

\(^{35}\) The investment would increase by \(1.08^{10}=2.159\). A $100 investment would turn into $216.

\(^{36}\) The value of the firm, which has increased to 216% of the original investment, will fluctuate between .8*216%=172.7% and 1.2*216%=259.2%.

\(^{37}\) Assuming a uniform distribution of the price deviations and a utility-of-wealth function with constant relative risk aversion leads to the conclusion that a short-term shareholder would be indifferent between the two disclosure regimes if he had a risk-aversion coefficient of 1.8 (a coefficient of 0 means risk-neutrality), while a long-term holder would need a risk-aversion coefficient of 33.5. (Realistic estimates of risk-aversion coefficients range from 1 to 2, see Mehra and Prescott, 1985, p. 154). This analysis in a Mathematica notebook is available from the author. Please request (notebook MATE4) by e-mail, if possible, from georgako@uconnvm.uconn.edu.
interaction provide a disincentive for short-term investment in the stock and an incentive for all holders to lengthen their holding periods, leading to even longer holding periods and even less disclosure.

In sum, the dynamics of shareholders with different holding periods (1) lead to a corporate policy of the least disclosure that will sustain the group of long-term holders, (2) lead to the neglect of the disclosure needs of short term shareholders which allows the deviation of prices from value, (3) lead to the impracticability of uninformed trading, since all shareholders must ascertain the object of each transaction leading to a staggering rise in transaction costs which must now include the cost of acquiring information. Furthermore, (4) this setting consists of a disincentive to invest in shares for all but the long-term shareholders. If all short-term holders exit, the disclosure policy will readjust to the benefit of an even longer-term holding majority. This process would repeat itself until the only shareholder constituency is perpetual holders, permanent institutions such as universities and pension funds. All four results of the dynamics of unregulated disclosure reduce the trading in the stock market. The market even closes at the theoretical limit of exclusively perpetual shareholdings.

VI. Conclusion: Securities Regulation as the Congruent Law of Liquidity

This article has argued that informed trading may be deterred by the existence of irrationalities. Forcing the corporations to provide information to the public may overcome this deterrence which justifies disclosure rules. Disclosure supports informed trading that ensures market efficiency.

If shareholders, however, comprehend this function of disclosure, they will decide to have their corporations provide it. This article explained
that the disclosure each shareholder is willing to provide is inversely analogous to the shareholder’s expected holding period. Short-term investors derive more use from the accuracy of prices that disclosure induces and, therefore, prefer more disclosure than long-term shareholders. In equilibrium, the smallest group of the shareholders with the longest holding periods that can enforce its own preferred disclosure policy will do so, because, thus, the least disclosure expense will be suffered. Disclosure rules force corporations to disclose more than this "free-market" solution. This arrangement favors short-term uninformed shareholders, whose frequent trading drives market liquidity.

In a different article I have shown that the insider trading prohibition reduces a structural transaction cost (Georgakopoulos, 1993). By excluding the most advantaged traders (the insiders), insider trading rules increase competition among (outsider) informed traders with the result of reducing the total profits of informed traders. Those profits are the losses of all the traders who are not informed, losses that can be avoided by not trading—hence their nature of a transaction cost. A reduction of transaction costs attracts trading, thereby increasing liquidity.

It should be no surprise that both disclosure rules and insider trading rules come to the same result, the promotion of liquidity. Liquidity itself, however, does not end the quest for justifying securities regulation. Is it as desirable as securities regulation implies? A closer look shows liquidity to be the reverse of a transaction cost. An increase in liquidity means easier trading: larger trades may be accomplished with less of a price-concession and in less time than in less liquid markets.
Reductions in transaction costs are, generally, hailed as gains. Lower transaction costs lead to higher security prices and a lower cost of capital.\textsuperscript{38} Thus, effective securities regulation lowers the cost of capital.\textsuperscript{39} More importantly, however, more liquid markets lead to more efficient pricing and allow easier, cheaper, and faster movements of assets among uses. If the only benefit of liquidity were a lower cost of capital, firms would internalize its benefits and liquidity-inducing regulation would be unnecessary. Since those benefits of liquidity, however, cannot be quantified yet, the optimal level of liquidity-inducing regulation cannot be ascertained.

In realizing the function of securities regulation, it is worth revisiting \textit{Santa Fe Industries, Inc. v. Green}\textsuperscript{40} a case where the Supreme Court refused

\begin{quote}
\textsuperscript{38} \textit{See} Amihud and Mendelson (1986). (A theoretical explanation of the effect of transaction costs on holding periods and pricing, validated by empirical data. Smaller transaction costs result in shorter holding periods and lesser rates of return. Short-term investors cannot enjoy the higher returns of the high-transaction cost assets because they are eroded by their transaction costs. A clientele effect arises, where funds get the highest return in assets with transaction costs that dictate a holding period that corresponds to the investment horizon of the funds.)

\textsuperscript{39} One can make a back-of-the-envelope estimate the value of the liquidity of the U.S. securities markets, although it is far from clear how great a fraction of it should be attributed to better securities regulation. The total capitalization of U.S. securities markets at the end of 1987 stood at 2.216 trillion dollars. Historically, U.S. stocks return 11.3\% as opposed to the 14.82\% return of foreign stocks. If the 2.216 trillion of U.S. equities were priced according to a 14.82\% discount rate instead of 11.13\%, the value of the total U.S. market capitalization would fall to 1.664 trillion dollars. If the difference in returns is attributable to liquidity—an alternative source for this difference can be downplayed: the risk difference is marginal, 17\% standard deviation for the U.S. versus 19\% abroad—the increased liquidity gains the U.S. 552 billion dollars of capital. The data is from \textit{Handbook of Modern Finance} at 18-21 (world returns) and at 10-7 (U.S. capitalization) (2d Ed. 1990).

The opposite position has also been taken. Professor Amar Bhide (1993) has argued that the promotion of liquidity by regulation erodes the incentives of shareholders to monitor and to provide incentives for managers.

\textsuperscript{40} 430 U.S. 462 (1977). \textit{See also} \textit{CTS Corp. v. Dynamics Corp. of America}, 481 U.S. 69, 82 (1987) ("no principle of corporation law is more firmly established than a State's authority to regulate domestic corporations, including the authority to define the voting rights of shareholders"); \textit{Schreiber v. Burlington Northern, Inc.}, 472 U.S. 1 (1985) (tender offer antifraud provision § 14(e) is only violated by misstatement, not misconduct).
to extend the protection of federal securities laws to plaintiffs who could have been protected under state corporate law. At issue is the boundary that distinguishes federal securities regulation from state corporate law, a boundary the substance of which is elusive. According to this article securities regulation has a specific ultimate goal, the liquidity of securities markets. It is not hard to see that the fabric of state corporate law is permeated by a different objective, the protection of minority shareholders. To the extent that the analysis of this article is accepted, the distinction of corporate and securities law is not arbitrary but clear. This article will leave as questions for further research, however, the issue of whether the promotion of liquidity by securities regulation functions best at the federal level and whether the minority-share-value-increasing function of corporate law is served better at the state level.

**Bibliography**


ADVISORY COMMITTEE ON CORP. DISCLOSURE, *REPORT TO THE SECURITIES AND EXCHANGE COMMISSION* (Comm. Print 1977)


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41 The problematic distinction of state corporate law from federal securities law was brought forth mostly with the state anti-takeover statutes of the eighties. States sought to restrain tender offers for their corporations. One of the issues on which the cases were decided was whether tender offers were corporate control events or transactions in securities. See generally, Boyer (1986). See *Edgar v. MITE Corp.*, 457 U.S. 624 (1982) (invalidating an Illinois anti-takeover statute); *CTS Corp. v. Dynamics Corp. of America* 481 U.S. 69, 82 (1987) (Reversing the lower courts and upholding an Indiana anti-takeover statute).

42 Corporate law focuses on the conflicts between corporate control and ownership, pitting management and controlling shareholders against minority shareholders. Appraisal rights, fiduciary duties, derivative and class actions are typical examples of the vehicles that try to protect the minority owners from the controllers while preserving the functionality of the corporation.


*BRANDeIS, LOUIS, OTHER PEOPLE'S MONEY* (1914)


Herwitz, *Projections and Forecasts*, 4 ANN. INST. SEC. REC. 323 (1973)


**HULL, OPTIONS, FUTURES AND OTHER DERIVATIVE SECURITIES** (1989)


__________, *The Historical Need for a Mandatory Corporate Disclosure System*, 9 J. Corp. L. 1 (1983)


__________ and __________, *The Limits of Arbitrage*, Draft, February 1995


Verrecchia, Robert, *Discretionary Disclosure*, 5 J. Acc’g Econ. 179 (1983)