
Royce de R. Barondes
University of Missouri School of Law, articles@legal-environment.com

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DYNAMIC ECONOMIC ANALYSES OF SELECTED PROVISIONS OF CORPORATE LAW: THE ABSOLUTE DELEGATION RULE, DISCLOSURE OF INTERMEDIATE ESTIMATES AND IPO PRICING

Royce de R. Barondes*

I. INTRODUCTION

The understanding of legal rules relating to transactions in commercial settings has increasingly reflected the application of economic principles. In its most basic form, one approach to analyzing the law of contracts is that the set of default terms implied in contracts should be those terms that would be reached in the absence of transaction costs. However, economic analyses have become increasingly quantitative, they traditionally have been static; they have not purported to


I was introduced to the concept of applying dynamic principles to legal relationships by Peter Huber, who was then a Professor at M.I.T. At his direction, in 1981 I investigated the feasibility of regulating workplace safety through the imposition of a tax on workplace injuries by considering dynamic concepts. Without that introduction, this Article would not have been possible. I also would like to acknowledge the encouragement offered by Professors Ed Kitch and Saul Levmore. However, the foregoing is not intended to impute to other persons concurrence with any portion of this Article that may prove to be controversial.


2. E.g., Easterbrook & Fischel, supra note 1, at 627 (quantifying the impact of material misstatements); Henry T.C. Hu, Risk, Time, and Fiduciary Principles in Corporate Investment, 38 UCLA L. REV. 277, 291-95 (1990) (analyzing the importance of distinguishing between systematic and unsystematic risk in management's strategic decision-making).
model varying short-term responses.

Understanding time-dependent responses can be important in analyzing economic systems. For an extreme example, consider a stock market in which (i) individuals may purchase stock on margin by paying only ten percent of the purchase price in cash and (ii) there are two companies, one whose stock is predominantly owned by individuals who purchase on margin and the other with no such stockholders. An equal decrease in the equilibrium value of the two companies will have different effects on the stock prices of the two firms. The decrease in value of the stock purchased on margin will cause some stockholders to sell in order to meet margin calls. Those sales will decrease the price at which the stock trades, and the stock price will cascade downward, even if the stock prices of the two firms ultimately reach identical equilibria. Any accurate analysis of the legal structure that permitted such margin purchases would have to consider these dynamic effects.

Recently, application of game theory has provided some time-dependent analyses. Articles applying game theory may create decision matrices, analyzing outcomes for various parties assuming implementation of various strategies, or decision trees, permitting analyses of problems modeled as multiple, discrete decisions. However, models constructed from analyzing discrete decisions may be impractical for investigating problems involving numerous decision-makers who continually interact.

One set of economic relationships involving numerous actors who exhibit curious actions are manifested in the prices at which securities trade. Securities prices exhibit oscillatory movements, which have been characterized as resulting from fads or herd instincts. Some legal commentators have raised the possibility that chaos theory might provide insights concerning trading markets, but many of those commentators have failed to apply the theory to relevant legal rules to arrive at useful conclusions. Alternative intellectual frameworks may

3. See infra note 62 for a similar example.
5. See infra notes 88-106 and accompanying text.
6. See, e.g., Thomas L. Hazen, The Short-Term/Long-Term Dichotomy and Investment Theory:
explain effects observed in this and other contexts and assist in the specification of rational regulations.

For example, the market for a particular security might be viewed as a dynamic system. The price of the security varies over time in response to numerous factors, such as announcements by the security's issuer of new business developments. In addition, the historical trading prices of the security may affect future trading prices. For example, if the price falls dramatically in response to a particular development, that decline may engender panic and create a further fall in price in response, or an "overreaction," to further sales. When the panic dissipates, the market price may partially rebound. This example highlights the distinction between a static economic analysis, which would predict the ultimate price, and a dynamic model that would permit analysis of the possibility of an overreaction. In some contexts, these overreactions may be significant. Where overreactions are significant, an analysis of the governing regulatory framework may benefit from consideration of these dynamic concepts, as the regulatory framework may exacerbate the overreactions.7 An analysis of such a relationship that included separating the market reaction into discrete steps might not be feasible.

This Article examines three separate aspects of the relationships between corporations and their securityholders from a dynamic economic perspective: (i) the feasibility of permitting shareholders to participate in the management of their corporations through the exercise of voting rights, (ii) Rule 3b-6, the safe harbor for projections (the Safe Harbor)8 under the Securities Exchange Act of 1934 (the 1934 Act),9 and (iii) the extraordinary returns available from investing in initial public offerings (IPO's). Three particular dynamic aspects are implicated in these situations. The first aspect is that reasonable, predictable behavior of a group of actors requires that the group responds

7. The application of dynamic concepts to analyses of economic relationships is not unique to this Article. See, e.g., KATSUHIKO OGATA, MODERN CONTROL ENGINEERING 3 (2d ed. 1990).


and reaches a new equilibrium in a period of time significantly shorter than the time over which changes in the environment occur. The second aspect is that feedback, which is defined as a mechanism in which the response of a group of actors to any particular change has the effect of producing a secondary input to which the group of actors responds,10 may cause a system to be better behaved. These insights are applied to consider the extent to which voting by shareholders could feasibly govern a corporation. Typically, corporations do not permit shareholders generally to vote on matters concerning the corporations' management; the power to decide most matters is retained exclusively by their boards of directors and officers. One commentator applying game theory has concluded that this absolute delegation is an attempt to avoid cyclical voting patterns in which alternative, inconsistent plans would be adopted by shareholders.11 Part II of this Article analyzes whether the mechanisms by which shareholders propose and vote on resolutions have created a dynamic relationship that would produce this result.

The third dynamic aspect applied in this Article is that smoother, less abrupt changes with which a group is presented may produce less erratic responses by the group. This insight is applied to consider the effects of the Safe Harbor. The Safe Harbor encourages only disclosure by reporting companies12 of projections of financial statement items, to the exclusion of "intermediate" estimates and opinions, i.e., estimates and opinions that relate only to small portions of a company's business or to particular products.13 Part III of this Article analyzes whether that limitation in the Safe Harbor may make trading prices of securities more volatile. Part IV of this Article identifies certain aspects of the regulation of IPO's that may exacerbate the

10. See J. LOWEN SHEARER ET AL., INTRODUCTION TO SYSTEM DYNAMICS 333 (1967).
11. See infra notes 27-36 and accompanying text.
12. The phrase "reporting company" refers to a company required to file with the SEC periodic reports pursuant Section 13 of the 1934 Act, 15 U.S.C.S. § 78m (Law. Co-op. 1983 & Supp. 1993), by virtue of having a class of securities registered under Section 12(b) or 12(g) of the 1934 Act, 15 U.S.C.S. §§ 78l(b) and 78l(g) (Law. Co-op. 1983), or by virtue of Section 15(d) of the 1934 Act, 15 U.S.C.A. § 780(d) (Law. Co-op. 1983), as a result of having sold securities in a registered offering. Section 12(b) provides for registration under the 1934 Act of a class of securities registered on a national securities exchange, whereas Section 12(g) relates to equity securities held of record by 500 or more persons issued by companies with more than $1 million in total assets. The SEC has exempted from the registration requirements of Section 12(g) companies with total assets not exceeding $5 million (as long as, in the case of a non-U.S. private issuer, the securities also are not quoted on an inter-dealer quotation system). 17 C.F.R. § 240.12g-1 (1994).
13. See infra notes 65-78 and accompanying text.
volatility of stock prices immediately following an IPO.

This Article attempts to apply a primarily qualitative analysis of these issues (although that effort may not have been entirely successful). Discussion of these concepts limited to considering the orders of magnitude of the quantities involved is adequate for the purposes of reaching practical conclusions concerning the applicable legal rules. Although a quantitative analysis could provide more precision, a qualitative understanding of system dynamics in each of the cases provides adequate insight to analyze the legal rules considered.14

This introduction should not be interpreted as implying that economists' analyses based on game theory have been limited to the creation of discrete decision trees. Game theory also may analyze games with an infinite number of subgames, i.e., separate decisions,15 may permit continuous strategies,16 may incorporate discount rates in considering sequential decisions,17 as is used in Part II, and may be significantly more rigorous, quantitative and sophisticated than the analysis contained in this Article.18 Perhaps as a reflection of a desire to minimize mathematical complexity, many of these theoretical extensions have not been fully reflected in legal journals. Economists concentrating in game theory might formulate an analysis similar to that set forth in Part II, although they might use different terminology to explain the concepts. However, the analysis in Part III, which con-

14. Certain economic studies of the issues discussed below are structured in the form of determining whether certain trading strategies would be profitable. See generally James M. Patell & Mark A. Wolfson, The Intraday Speed of Adjustment of Stock Prices to Earnings and Dividend Announcements, 13 J. FIN. ECON. 223, 231-36 (1984) (finding that implementation of a trading rule that bought and held for 30 minutes stock of issuers that announced earnings exceeding the most recent forecast contained in Value Line, and selling stock if the issuer reported earnings less than those contained in that forecast, produced statistically significant returns even when commenced through the first 30 minutes of trading in the day following the date of the announcement); Robert Jennings & Laura Starks, Information Content and the Speed of Stock Price Adjustment, 23 J. AcCr. RES. 336, 346-48 (1985) (noting that the level of extreme hourly price changes (i.e., price changes within the extreme 5% tails of non-announcement period hourly price change frequency distribution) was elevated at statistically significant levels for up to approximately eight hours following an earnings announcement). A more quantitative analysis may be applied more profitably by market participants.


16. E.g., RASMUSEN, supra note 15, at 69-78.
18. E.g., FRIEDMAN, supra note 15; RASMUSEN, supra note 15.
siders feedback, is less traditional.

II. CYCLICAL VOTING PATTERNS

Corporate law generally provides that the ordinary business of a corporation is to be managed by its board of directors and the officers appointed by the board, to the exclusion of action by the shareholders. These requirements are set forth in state corporation law statutes and are a long-standing part of corporate law. Certain jurisdictions permit this provision to be changed with charter or other provisions. Such provisions generally have not been adopted by

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Forty-two states have recently adopted statutes permitting the formation of limited liability companies. ROBERT R. KEATING ET AL., Limited Liability Companies: Into the Mainstream, ALI-ABA VIDEO LAW REVIEW STUDY, March 17, 1994, available in WESTLAW, Q229 ALI-ABA 1, identifies thirty-six states that have adopted those statutes. Limited liability company statutes have subsequently been adopted in Alaska, ALASKA STAT. § 10.50 (Supp. 1994), California, CAL. CORP. CODE § 17000 (West Supp. 1995), Kentucky, KY. REV. STAT. ANN. § 275 (Michie/Bobbs-Merrill Supp. 1994), Maine, ME. REV. STAT. ANN. tit. 31, § 601 (West Supp. 1994), New York, N.Y. LIMITED LIABILITY COMPANY LAW § 101 (McKinney Supp. 1995), and Tennessee, TENN. CODE ANN. § 48-201 (Supp. 1994). The members of these companies may retain the power to vote on the companies' management, although the companies may provide for management by managers. See, e.g., DEL. CODE ANN. tit. 6, § 18-402 (1993); TEX. REV. CIV. STAT. ANN. art. 1528n, art. 2.12 (West Supp. 1994). The creation of limited liability companies in which members participate in the companies' management may offer the opportunity to test Professor Gordon's analysis.

This part of this Article refers only to shareholders, as typically only common shareholders have the right generally to vote on matters raised at meetings. However, this analysis is also applicable to meetings at which holders of preferred stock can vote, as well as to meetings of corporations that have outstanding "voting debt," which corporation law may permit. E.g., CAL. CORP. CODE § 204(a)(7) (West 1990); DEL. CODE ANN. tit. 8, § 221 (1991). However, the senior status of those securities might diminish the magnitude of the effects summarized below.

20. E.g., CAL. CORP. CODE § 300(a) (West 1990) ("Subject to the provisions of this division and any limitations in the articles relating to action required to be approved by shareholders (Section 153) or by the outstanding shares (Section 152), or by a less than majority vote of a class or series of preferred shares (Section 402.5), the business and affairs of the corporation shall be managed and all corporate powers shall be exercised by or under the direction of the board. The board may delegate the management ... provided that the business and affairs of the corporation shall be managed and all corporate powers shall be exercised under the ultimate direction of the board.").


22. E.g., DEL. CODE ANN. tit. 8, § 141(a) (1991) ("The business and affairs of every corporation organized under this chapter shall be managed by or under the direction of a board of directors, except as may be otherwise provided in this chapter or in its certificate of incorporation."); MASS. GEN. LAWS ANN. ch. 156B, §§ 47, 54 (West 1992) ("Except as reserved to the stockholders pursuant to section fifty-four, [providing that powers may be conferred upon or reserved to the stockholders in the articles or the by-laws,] the business of every corporation shall be managed by a board of direc-
large public corporations. 23 However, the corporation law of some jurisdictions provides that shareholders of close corporations may vote on all such matters. 24

These provisions have not given rise to a sufficient number of suits to clarify their scope for purposes of state corporation law. 25 However, each year, the staff of the Securities and Exchange Commission (the SEC) grants numerous no-action letters to reporting companies that wish to exclude shareholder proposals from their proxy statements on the basis that the proposals concern matters that, under state law, have been delegated exclusively to the boards of directors. 26

23. Gordon, supra note 4, at 349.

24. E.g., CAL. CORP. CODE § 300(b) (West 1990); N.Y. BUS. CORP. LAW §§ 620(c), 701 (McKinney 1986) ("Subject to any provision in the certificate of incorporation authorized by paragraph (b) of Section 620 (Agreements as to voting; provision in certificate of incorporation as to control of directors) [of a corporation that has no shares listed on a national securities exchange or regularly quoted in an over-the-counter market] or by paragraph (b) of Section 715 (Officers), the business of a corporation shall be managed under the direction of its board of directors . . . . "). See HAROLD J. MARSH, 1 MARSH'S CALIFORNIA CORPORATION LAW 404 (2d ed. 1984); Gordon, supra note 4, at 349 n.8.


26. Rule 14a-8(c)(1), 17 C.F.R. § 240.14a-8(c)(1) (1994). Procedurally, these issues arise when a shareholder wishes to change a corporation's policy and requests that the corporation include in its annual proxy statement, and have the shareholders at the annual meeting vote on, a proposal that the board adopt a specified policy. If the corporation intends to omit the proposal, it must deliver the proposal to the SEC. 17 C.F.R. § 240.14a-8(d). In response to the filing, the staff of the SEC states objections or that it will not recommend enforcement proceedings against the corporation if the proposal is omitted from the proxy statement. Statement of Informal Procedures for the Rendering of Staff Advice with Respect to Shareholder Proposals, Exchange Act Release No. 12,599, [1976-1977 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 80,635, at 86,604 (July 7, 1976). See also Alan R. Palmer, The Shareholder Proposal Rule: A Failed Experiment in Merit Regulation, 45 ALA. L. REV. 879, 881 n.7 (1994) (discussing the mechanics by which a corporation may omit shareholder proposals).

The bases on which a proposal may be omitted are set forth in Rule 14a-8(c), and include, among others, that the proposal concerns a matter on which the shareholders may not vote under state law, that the proposal addresses a matter relating to the conduct of the ordinary business operations of the reporting company and that the proposal is misleading. 17 C.F.R. § 240.14a-8(c)(1), (3) and (7). A note to sub-paragraph (c)(1) of this rule states:

Whether a proposal is a proper subject for action by security holders will depend on the applicable state law. Under certain states' laws, a proposal that mandates certain action by the registrant's board of directors may not be a proper subject matter for shareholder action, while a proposal recommending or requesting such action of the board may be proper under such state laws.

Although such a precatory resolution would not be binding on the corporation if it were adopted, Gordon, supra note 4, at 349 n.7, its approval might nevertheless induce the board to comply with its spirit. See Trans World Corp. v. Odyssey Partners, 561 F. Supp. 1311, 1318, 1322 (S.D.N.Y. 1983) (stating, with respect to a precatory proposal that a reporting company spin off or sell its subsidiaries,
A. Theoretical Basis for the Prediction of Cycling

Two justifications typically have been attributed to this “absolute delegation” rule: (i) that the delegation is efficient and therefore increases shareholder wealth or (ii) that it represents a “power grab” by management, which can impose this rule because it can choose the corporation’s jurisdiction of incorporation. In an interesting article, Professor Jeffrey Gordon has proposed an alternative basis for the rule—that the chances of “cycling,” in which each approved option is in turn defeated by another option preferred by a different coalition of shareholders, are very great in a corporation, and the absolute delegation rule prevents cycling. Alternative terminology sometimes used in the legal literature is that the preferences of shareholders may not be “transitive.” Professor Gordon’s analysis is related to the observation that if one has the ability to select the agenda of a meeting of a group with diverse interests (i.e., the power to determine those choices presented to the group), by structuring the available choices, the individual setting the agenda may be able to determine the outcome.

The theoretical basis for this conclusion may be briefly summarized. A corporation’s management may consider numerous, con-
flicting strategies that may be adopted to maximize the return to its shareholders. If the various possibilities were evaluated by fully informed shareholders, the shareholders would rank the possibilities differently, based on their own assessments of the returns from the strategies and their own preferences with respect to risk as well as their investment horizons. If shareholders were presented the opportunity to determine the strategy to be followed by voting on the strategies on a pairwise basis, the votes would not necessarily be rational (i.e., transitive).

For example, if three strategies are considered, to which we assign names A, B and C, strategy A might be preferred in a vote in which strategies A and B were presented, and strategy B might be preferred in a vote in which strategies B and C were considered, but strategy C might prevail in a shareholder vote considering strategies A and C. An example of a corporation that would result in this voting pattern is represented by Table 1, which assumes that there are three types of shareholders. The types of shareholders are distinguished by their ranking of the three strategies. Within each shareholder type, each group of shareholders is assumed to have a demand curve for the corporation’s stock similar to that for the stock as a whole. Thus, the numbers set forth in Table 1 represent the valuations of the marginal shareholders of each type of shareholder. Each type of shareholder also is assumed to be equally represented among the shareholders.

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32. See Gordon, supra note 4, at 368-70.
33. Table 1 is suggested by a table in Gordon, supra note 4, at 362, which presents these choices without quantifying the value to each shareholder.
### TABLE 1

**SHAREHOLDER VALUATION OF CORPORATION’S EQUITY**

<table>
<thead>
<tr>
<th>Shareholder Type</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>$9.00</td>
<td>$10.75</td>
<td>$10.00</td>
</tr>
<tr>
<td>B</td>
<td>$11.00</td>
<td>$10.00</td>
<td>$9.75</td>
</tr>
<tr>
<td>C</td>
<td>$10.00</td>
<td>$9.25</td>
<td>$10.25</td>
</tr>
</tbody>
</table>

This Table should not be construed as implying that cycling always will occur. Some decisions may be irreversible if they are promptly implemented, such as a decision to sell all assets to various third parties. Also, there may be one choice that is preferred by a majority in a pairwise comparison with each other alternative. Such a choice is referred to as a “Condorcet” choice. In addition, a group will not engage in cycling if the members have “single peaked preferences.”

A group’s members’ preferences are “single peaked” with respect to a decision among various options if it is possible to order the options in a manner that meets the following criterion: for each member, proceeding from that member’s most preferred option toward both ends of the ordered list, that member prefers each option to the next succeeding option. The discussion in this Article therefore should not

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34. BLACK, supra note 29, at 57; Levmore, supra note 31, at 994. Professor Levmore discusses a voting mechanism in which a Condorcet choice may be defeated in id. at 1018 n.133. See generally BLACK, supra note 29, at 57-59.

35. BLACK, supra note 29, at 19; FARBER & FRICKLEY, supra note 31, at 48; Levmore, supra note 31, at 987.

36. See BLACK, supra note 29, at 7; Levmore, supra note 31, at 987 n.47. This condition is more restrictive than is required. Cycling will not occur if every set of three choices can be arranged in a single-peaked manner. SEN, supra note 29, at 167-68.

If the assumption that the members' preferences are single peaked is relaxed to permit the members to be indifferent among their preferred choices, which is referred to as having preferences that are single peaked with a plateau, the members' preferences will remain transitive. BLACK, supra note 29, at 31. The scope of this Article is limited to identifying dynamic aspects that may provide useful insights into some issues. An excellent, interesting discussion of certain literature concerning social choice with greater detail is contained in Levmore, supra note 31, at 984-90.

There has been some effort to quantify the likelihood that out of a set of choices, no choice would have a majority over every other choice. Assuming that all orderings are equally likely for each individual and that there is a very large number of individuals, the probability that there would be no majority winner is .09 for three choices and .49 for 10 choices. SEN, supra note 29, at 163-64.
be regarded as addressing the sole circumstance under which cycling would not occur.

B. Effect of Changing Shareholdings on Stability

One of the assumptions underlying the conclusion that cycling will occur in corporations that are not governed by the absolute delegation rule is that the composition of the shareholders will remain constant between votes. By considering the effect that any particular vote on a shareholder proposal would have on the outcome of subsequent shareholder proposals, one can reassess the likelihood that cycling would occur.

In the example set forth above, if each shareholder estimates that the corporation is equally likely to adopt any one of the three strategies, the expected value that each marginal shareholder ascribes to the corporation's equity is $10. Assume that the alternative strategies had been presented to the shareholders at an annual meeting. Notwithstanding the voting paradox, one of the strategies would have been approved at the annual meeting. Whether the rules of the meeting permitted only one strategy to be considered at that meeting or the meeting sequentially considered multiple strategies, the results of some vote would have been controlling. That event would have had an impact on each shareholder's valuation of the corporation's stock.

To approximate the impact of the approval of any strategy, assume that (i) each strategy, if implemented, would generate earnings in each year equal to the market discount rate times the value of the corporation's equity, (ii) there are no costs incurred in changing strategies, (iii) the shareholders could not revisit their decision until the next annual meeting, and (iv) the resolution at the first meeting did not change the shareholders' estimate of the probability that any strategy would be adopted at the next meeting. Immediately following the annual meeting, the shareholders' valuation of the equity would vary by an amount equal to the difference between their valuation of the strategy selected and the original value, multiplied by the quotient obtained by dividing the annual market rate of return by one plus the annual market rate of return.37 The shareholders who assigned the

The assumption may be significantly conservative. It is curious that these quantitative estimates of the likelihood that there would be no majority winner have not received more mention in legal literature.

37. If a corporation's postponement by $T$ years of its adoption of a particular business plan with a
highest value to the adopted strategy would have had their valuation of the corporation's equity increased, and those who assigned the lowest value to the adopted strategy would have had their valuation of the corporation's equity decreased.

The dollar amounts of these changes in valuation may seem insufficient to affect materially the shareholders' composition. In part, the assumptions probably substantially understate the quantitative effect of the approval of a particular strategy. In particular, the assumption of constant shareholders' assessments of the likely outcome has eliminated a substantial part of the effect. This assumption is used to create a conservative model, as quantifying those estimates would be complex. This analysis also has neglected any costs to reverse one strategy and implement an alternative and assumed that new strategies could be implemented without delay.\textsuperscript{38}

\begin{equation}
\text{present value of } V \text{ merely postpones the corporation's receipt of each anticipated future benefit, and does not change their amount, the decreased present value of adoption of the plan will equal } V(1+r)^t, \text{ where } r \text{ is the discount rate. This familiar result can be derived arithmetically.}
\end{equation}

If
\begin{equation}
V = \sum_{i=1}^{n} \frac{P_i}{(1+r)^i}
\end{equation}

where \(P_i\) is the benefit received in the \(i^{th}\) period and \(t_i\) is the number of years from the present until the \(i^{th}\) period, then the decreased value of the business plan arising from the postponement, \(V_p\), is derived as follows:
\begin{align*}
V_p &= \sum_{i=1}^{n} \frac{P_i}{(1+r)^{t_i}} \\
V_p &= \sum_{i=1}^{n} \frac{1}{(1+r)^{t_i}} P_i \\
V_p &= \frac{1}{(1+r)^t} \sum_{i=1}^{n} P_i \\
V_p &= \frac{1}{(1+r)^t} V
\end{align*}

Thus, the change in the value that a shareholder would ascribe to a corporation after a vote at an annual meeting, given the specified assumptions, would be:
\begin{equation}
(V_o + \Delta V) - \frac{V_0}{1+r} + \frac{V_0}{1+r} - V_0
\end{equation}

where \(\Delta V\) is the value that the shareholder ascribes to the approved option minus \(V_o\), the original value. After simplification, the change is given by \([r/(1+r)]\Delta V\).

38. In concluding that shareholders will not follow management's recommendations concerning shareholder proposals if shareholders could participate in corporate management, Professor Gordon states that shareholders "would also know that if they succeeded with a shareholder initiative, it would increase the likelihood that their preferred alternative prevailed. This is because the next possible shareholder proponent may calculate that she loses more from a possible cycle than her own initiative." Gordon, supra note 4, at 364. This language does not articulate the basis on which the second proposal will be withdrawn, but may refer to costs associated with reversing a decision. Whether this reference is to costs to reverse a decision or to other factors, any such factor increases
The nature of the securities markets suggests that even small disparities in stock valuations may have a significant effect on the profile of a corporation’s shareholders. A seminal article written in 1972 analyzed the prices of securities sold in secondary offerings and considered two competing theories: the price-pressure hypothesis, in which secondary sales are expected to require a discount to entice purchases by marginal purchasers, and the substitution hypothesis, in which the existence of close substitutes is expected to result in an essentially horizontal demand curve. Based on empirical evidence, the author estimated the marginal elasticity of demand to be on the order of -3000, and concluded, “Since securities provide similar potential consumption streams, they are close substitutes.” There is some disagreement among economists whether the demand curves for stock are essentially horizontal. However, the inherent stability of this voting mechanism requires only that there are close substitutes for stocks—a less demanding assumption. If the elasticity of demand for a stock were -1000, or even -100, relatively small changes arising from the adoption of any strategy would have a substantial effect on the composition of the shareholders.

The process described above would not prevent cycling where there are small differences in the values that shareholders attribute to the various alternatives. However, that result is not unique to group deci-
sion-making. Any decision-maker may vacillate when presented with competing strategies that have essentially equal values, although the valuations that are essentially equal for this purpose may be different for a decision-maker consisting of a group of shareholders.\textsuperscript{43}

This process manifests a response that is an important part of ensuring stability; once an equilibrium is reached, the participants adjust in a fashion that makes subsequent deviations from the equilibrium less likely.\textsuperscript{44} A second aspect of the system that must be considered is whether the participants adjust quickly relative to the time between changes in the external forces. If the participants are subjected to changing circumstances that vary rapidly relative to the time that the participants require to respond, the actions of the participants will be unpredictable. Because unambiguous information is incorporated into the trading market for securities very quickly, \textit{i.e.}, within a few days,\textsuperscript{45} this requirement is satisfied.

\textbf{C. Limits on the Stability}

Certain circumstances in which the above discussion may not be accurate merit identification. This analysis has assumed that the market price of a stock and individuals' desire to purchase or sell stock is based exclusively on the return of the stock, \textit{i.e.}, the value of its dividends, any amounts received on liquidation and any amounts received on resale.\textsuperscript{46} However, to the extent that shareholders are asked to

\begin{itemize}
\item \textsuperscript{43} The effect of the alteration of members' preference schedules on the choice of a group is discussed in \textit{BLACK}, supra note 29, at 109-19. The author notes that when the preference curves are not single-peaked, the theory “becomes involved \ldots and would be too difficult to pursue further \ldots.” \textit{Id.} at 118.
\item \textsuperscript{44} A related factor also will militate against cycling. Table 1 differs from the matrix included in Gordon, \textit{supra} note 4, as dollar values are assigned to the various strategies. This difference highlights an important point in considering the chances that cycling will occur. Investors seeking financial returns invariably attribute a dollar value to securities, \textit{i.e.}, they are indifferent to either possessing the security or the specified dollar amount. Any voting outcome that does not result in the highest aggregate valuation by all shareholders (in Table 1, any outcome other than adoption of strategy B) is inherently unstable. \textit{See generally SEN}, \textit{supra} note 29, at 89-130 (analyzing the importance of members assigning comparable numerical values to various choices).
\item \textsuperscript{45} \textit{See infra} note 99 and accompanying text.
\item \textsuperscript{46} For this purpose, it is not relevant whether a security's price accurately reflects in some objective way the value of the payment stream to be received from owning and disposing of the security, referred to by some commentators as "fundamental efficiency." \textit{See infra} note 86 and accompanying text. For example, this analysis would be applicable if securities traded at a multiple of the expected value of those payment streams or at that amount plus some constant. Rather, it is only required that there be a significant negative relationship between the price at which persons will purchase a security and the amount of time that a company postpones implementing a new business
\end{itemize}
vote on proposals that would not materially affect the payment stream to be received from holding and disposing of stock (because the shareholder proposals are immaterial\(^47\) or reflect non-financial, \textit{e.g.}, moral, judgments), the analysis set forth above will not apply, and cyclic voting patterns would not be prevented. Shareholders often present proposals concerning this type of matter to corporations for inclusion in their annual proxy statements.\(^48\) Even if the reason underlying

\(^{47}\) The federal securities laws have a materiality limit on the extent to which corporations are required to include shareholder proposals. Rule 14a-8(c)(5) provides that corporations need not include in proxy statements proposals that relate to operations accounting for less than 5\% of the registrant's total assets, gross sales and net earnings. 17 C.F.R. § 240.14a-8(c)(5) (1994). This restriction probably is too limited to prevent cycling.

\(^{48}\) \textit{See, e.g.,} Amalgamated Clothing & Textile Workers Union v. SEC, 15 F.3d 254, 257 (2d Cir. 1994) (holding that the court did not have jurisdiction to review the SEC's affirmation of the Division of Corporation of Finance's statement that the Division would not recommend an enforcement action if a reporting company excluded from its proxy statement a shareholder proposal requesting the establishment of a committee to study the impact on the company of various health care reform proposals); Amalgamated Clothing & Textile Workers Union v. Wal-Mart Stores, Inc., 821 F. Supp. 877, 890-92 (S.D.N.Y. 1993) (holding (i) that a proposal requiring disclosure of Wal-Mart's equal employment and affirmative action policies could not be omitted and (ii) that the SEC's issuance of a no-action letter inconsistent with a prior interpretative release and prior no-action letters was not entitled to deference); United Paperworkers Int'l Union v. International Paper Co., 801 F. Supp. 1134 (S.D.N.Y. 1992) (considering a shareholder proposal to implement the Valdez principles on environmental responsibility); GenCorp Inc., SEC No-Action Letter, [1993 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 76,622 (Dec. 15, 1992) (considering a proposal that the board provide a comprehensive report on the company's involvement in the Strategic Defense Initiative); Cracker Barrel Old Country Store, Inc., SEC No-Action Letter, [1992-1993 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 76,418, at 77,287 (Oct. 13, 1992) (considering a shareholder proposal requesting that a nondiscriminatory employment policy related to sexual orientation be adopted, in which the Staff stated, "[T]he Division has determined that the fact that a shareholder proposal concerning a company's employment policies and practices for the general workforce is tied to a social issue will no longer be viewed as removing the proposal from the realm of ordinary business operations of the registrant."), \textit{overruled by} New York Employees' Retirement Sys. v. SEC, 843 F. Supp. 858 (S.D.N.Y. 1994); Philip Morris Co., SEC No-Action Letter, [1990 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 79,474 (Feb. 22, 1990) (considering a proposal that the board take steps necessary to cause the company not to conduct any business in tobacco or tobacco products); Standard Oil Co. of Cal., SEC No-Action Letter, [1980 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 76,354 (Feb. 12, 1980) (considering a proposal requesting that the board establish a policy of not selling products or providing services to the South African police or military); Jos. Schlitz Brewing Co., SEC No-Action Letter, [1977-1978 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 81,148 (Mar. 21, 1977) (considering a proposal that the board adopt a corporate policy of not allowing its advertisements to appear in television programs containing excessive violence). \textit{See generally} Dallas, \textit{supra} note 21, at 14 n.55; Palmiter, \textit{supra} note 26, at 900-03, 905-10 (discussing the history of these proposals and recounting that the SEC has been inconsistent in deciding whether shareholder proposals properly may be excluded); Donald E. Schwartz & Elliott J. Weiss, \textit{An Assessment of the SEC Shareholder Proposal Rule}, 65 Geo. L. J. 635, 642-48 (1977).

Certain jurisdictions permit directors to consider non-shareholder interests in considering the best interests of a corporation. Those statutes are analyzed in exhaustive detail in Eric W. Orts, \textit{Be-
shareholders’ desire for a corporation to adopt a particular policy is not based on increasing the payment stream to be derived from owning stock, if implementation of the policy would incur material costs and a revocation of that policy would require additional costs, cyclic voting patterns would not develop as long as the value of the payment stream derived from owning stock was one of the material factors considered by shareholders in placing a value on stock. However, the risk that cycling would occur with respect to proposals raising social issues supports excluding shareholder proposals that raise those social issues.

The above discussion also has assumed that shareholder proposals would be considered at successive annual meetings, and the forces that make cycling unlikely are dependent on a material amount of time passing between votes. Many jurisdictions grant shareholders owning a specified percentage of outstanding voting securities the power to require that a special meeting be held. Other jurisdictions permit governing corporate documents to grant shareholders this power. This power, where granted, presents less of an opportunity for shareholders to call special meetings in quick succession than may be apparent.

Shareholders desiring to include a shareholder proposal in a reporting company’s proxy statement are required to deliver the proposal to the company not less than 120 days before the day the annual meeting was held in the preceding year. A board of directors should be able to exercise its discretion not to schedule during that period a special meeting requested by the shareholders. Thus, even where extremely

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49. E.g., CAL. CORP. CODE § 600(d) (West 1991). The percentages of votes required to call a special meeting in various jurisdictions are collected in 2 MODEL BUSINESS CORP. ACT ANN. § 7.02 statutory comparison 2 (3d ed. Supp. 1986).

50. E.g., DEL. CODE ANN. tit. 8, § 211(d) (1991).


52. See 2 MODEL BUSINESS CORP. ACT ANN. § 7.02 cmt. 2 (3d ed. Supp. 1986) (“The responsible corporate officers have some discretion as to the call and purposes of a meeting, and where demands are repetitious or overlapping, they may refuse to call a meeting for a purpose identical or similar to a purpose for which a previous special meeting was held in the recent past. Similarly, they may decline to call a special meeting when an annual meeting will be held in the near future.”). Cf. Stahl v. Apple Bancorp, Inc., 579 A.2d 1115, 1123 (Del. Ch. 1990) (holding that, under the business judgment rule, management may postpone an annual meeting when a tender offer was made, since
motivated shareholders desire to revisit any shareholder vote by calling a special meeting, there would be substantial periods of time in which meetings would not be held.

Some jurisdictions permit shareholders owning shares representing a majority of the voting power of all outstanding shares to take action by written consent in lieu of a meeting, unless the corporation’s certificate of incorporation provides otherwise. This power presents opportunities for cycling, not only because there are fewer inherent limits on the timing of such actions but also because there is no structure to the agenda where action is being taken by shareholder consent. If shareholders could participate in a corporation’s management through written consents, numerous inconsistent shareholder consents could be simultaneously circulated.

This provision of corporate law does not explain the absolute delegation rule. Public corporations already restrict or eliminate action by majority shareholder consent as a typical part of plans to prevent a hostile acquisition, and those corporations could permit shareholders to vote on ordinary business matters at annual meetings without creating the chaos that would result from continual circulation of numerous, conflicting consents. Because other states require that action by written consent of shareholders be unanimous, the absolute delegation rule cannot be explained by the state law provisions granting the power to act by written consent.

Corporations that have few shareholders and that are not widely followed by analysts might not benefit from this stability, because there would be a diminished turnover of shareholders. Those corporations, whose operations are between the traditional frameworks of close corporations and publicly held corporations, cannot be easily analyzed, and may not act predictably, because traditional assumptions about corporate governance will not be applicable.

The essence of this discussion is that time lags between sequential shareholder votes on incompatible strategies substantially decreases

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53. *E.g.*, DEL. CODE ANN. tit. 8, § 228(a) (1991); CAL. CORP. CODE § 603(a) (West 1990).


55. *E.g.*, MASS. GEN. LAWS ANN. ch 156B, § 43 (West 1992).
the likelihood that cycling would occur in this context. These dynamic considerations would not always prevent cycling. Changes in external circumstances, e.g., changes in relevant economies or changes in the mix of shareholders arising from other causes, in addition to the circumstances described above, might result in successive votes producing conflicting results. The relevant point is that consideration of dynamic effects can add an important perspective to typical static economic analyses.

D. Alternative Rationales for the Rule

Other considerations may identify the benefits of the absolute delegation rule. As noted above, a rationale commonly attributed to the rule is that it is not efficient for a corporation with many shareholders to engage in shareholder decision-making, and this rule reflects that understanding. Moreover, proper presentation of these decisions to shareholders in many cases would require disclosure to the public of confidential information (to the corporation’s disadvantage).

Professor Gordon has argued that this rationale only supports making the absolute delegation rule a default provision of corporate law and does not support its status as a mandatory provision. This argument is not entirely persuasive. If the rule were a default that could be changed by shareholder action, shareholders desiring to vote on a particular matter would merely be required first to have the shareholders approve permitting shareholders to vote on such matters. Modification of the rule with the consent of both the board and the shareholders is the law in some jurisdictions today.

In addition to this practical consideration, permitting shareholders to vote on various business decisions is likely to decrease the value of a corporation’s shares. Part of the value of a board of directors derives

56. E.g., Wielgos v. Commonwealth Edison Co., 892 F.2d 509, 514-15 (7th Cir. 1989) (stating that reporting companies may fail to disclose assumptions underlying disclosed projections for competitive reasons).

57. Gordon, supra note 4, at 354.

58. It is quite possible that a proposal to opt out of such a default would be likely to receive shareholder approval, even if no particular proposal would receive the support of a majority of shareholders, because the proposal to opt out of the default might receive support from a number of shareholder groups that wished to have the corporation adopt proposals relating to various issues. It is also possible that a vote on permitting action by shareholder vote would receive less support than a particular proposal, as some shareholders preferring adoption of a particular proposal might vote against permitting action by shareholder vote in order to prevent adoption of another shareholder proposal.

59. See supra note 22 and accompanying text.
from the coherence of its approach to corporate decision-making. Even though shareholders may not have complete information concerning all decisions that a board may make, present reporting requirements and voluntary disclosure give shareholders some sense of the type of projects that a corporation will undertake and the basis on which these decisions will be made. One of the factors to be considered in purchasing a security is whether the issuer will make decisions in the future that the prospective investor believes will increase the value of the security and the return on the security. However, permitting shareholders of publicly held corporations to vote on a wide array of business decisions does not permit a prospective purchaser of shares to analyze this factor, as shareholders’ views, and their competence to make such decisions, are not subject to ongoing disclosure and will change continually as securities are traded in the market. That increased risk would decrease the value of a corporation’s stock, even if one assumes that only systematic risk affects stock prices. This risk could not be eliminated through diversification for a number of reasons. First, there might be some bias in the selection of corporations in which activist shareholders would invest. Second, diversification will not eliminate the effect of voting by shareholders if, on average, management would make choices superior to those made by shareholders. Since management is in the business of making such choices, has greater familiarity with the relevant information and benefits from having confidential, non-public information, one would expect them to be superior at that task (absent any moral hazard). Third, the notion that shareholders may propose actions reflecting a social agenda presumes that economic gains would be sacrificed in the pursuit of other goals.

As noted above, some jurisdictions permit close corporations to grant their shareholders the ability to vote on ordinary business matters. The low turnover in the shareholders of such corporations, together with the small number of shareholders in those corporations,
increases the likelihood that shareholders would know the views of their fellow shareholders. Thus, consideration of the absolute delegation rule as reflecting the value of knowing the views of decision-makers is consistent with a divergence in the powers of shareholders arising from a corporation being a close corporation.

III. DISCLOSURE OF INTERMEDIATE ESTIMATES AND OPINIONS

Part II of this Article considered two dynamic economic insights: that negative feedback will stabilize a system\(^6\) and that, for results that are not complex, the time between changes in the environment must be large relative to the time in which the participants will respond. Game theory applied in literature analyzing legal rules may present decision matrices or trees representing various alternatives. Such an approach may be considered "digital": it divides a scenario into discrete, successive steps. The analysis in Part II is similar to analyses based on matrices, as only two steps require analysis, the two votes, and our concern is only at those two discrete points in time, because the interval is adequate to permit the system to reach a new equilibrium. Part III considers a context in which the application of a discrete analysis is not helpful, because there are no separate steps and the period of interest is the time during which successive equilibria are reached: transient effects in the trading market for securities shortly after unanticipated opinions or estimates are released by reporting companies.

\(^6\) Others have noted that one aspect of the present regulations of securities and futures markets creates positive feedback in certain contexts. E.g., Ayres, supra note 1, at 981; see also Marcel Kahan, Securities Laws and the Social Costs of "Inaccurate" Stock Prices, 41 DUKE L.J. 977, 985, 992-94 (1992) (stating that the crash of 1987 may have resulted from a liquidity crunch and noting the possible exacerbation arising from purchases on margin). Market circuit breakers were implemented to decrease volatility in the New York Stock Exchange, the Chicago Mercantile Exchange and the Chicago Board of Trade, which restricted trading if prices fell by specified amounts. Ayres, supra note 1, at 981; Hazen, supra note 6, at 170. Professor Ayres noted that as the market drops to a level close to such a limit, individuals considering selling a security or future have an increased incentive to execute the sale immediately (because they may be unable to execute the sale in the near future), making a drop in the market price more likely, with such a drop creating an even greater incentive to sell immediately.

Securities trading on a stock exchange also may be halted when the issuer is about to announce a significant development. Those trading halts do not create a similar situation, as they are not announced in advance. See generally Charles M.C. Lee et al., Volume, Volatility, and New York Stock Exchange Trading Halts, 49 J. FNM. 183 (1994) (discussing the mechanics of trading halts and their effect on the trading of the affected stock).
A. The Scope of the Safe Harbor for Projections

A reporting company will be liable under Rule 10b-5 to individuals who trade in reliance on a materially misleading estimate or opinion disseminated by the reporting company with reckless disregard of, or with knowledge of, its falsity. Courts have held that a reporting company is understood to be representing, by the release of an opinion or estimate, that it has a reasonable basis for arriving at that opinion or estimate. That representation will subject a reporting company to an action under Rule 10b-5 if there is no such basis. To encourage reporting companies to disseminate projections, the SEC adopted the Safe Harbor. The Safe Harbor provides that a company will not incur liability under the 1934 Act for issuing certain estimates, if the estimates have been prepared in good faith and with a reasonable basis.

The Safe Harbor does not apply to all estimates that would have an impact on the expected earnings of the company; it is limited to “financial items,” statements of plans and objectives for future operations, statements of “future economic performance contained in management’s discussion and analysis of financial condition and results of operations included pursuant to Item 303 of Regulation S-K” and the underlying assumptions. Although the meaning of these

64. This holding has been applied to actions under Sections 11 and 12(2) of the Securities Act of 1933, 15 U.S.C.S. §§ 77k, 77l(2) (Law. Co-op. 1991), and Rule 10b-5. E.g., Rubenstein v. Collins, [1993-1994 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 98,195, at 99,338 (5th Cir. May 5, 1994) (“[P]redictive statements are deemed to contain false statements of ‘fact’ under Rule 10b-5 when the predictions embodied in those statements do not have a reasonable basis.”); Kowal v. MCI Communications Corp., 16 F.3d 1271, 1277 (D.C. Cir. 1994); In re Apple Computer Sec. Litig., 886 F.2d 1109, 1113 (9th Cir. 1989) (“[P]rojections and general expressions of optimism may be actionable under the federal securities laws.”), cert. denied, 496 U.S. 943 (1990); Isquith v. Middle S. UTILS., Inc., 847 F.2d 186, 203 (5th Cir.) (“Courts in the past have consistently recognized that a defendant does not place itself beyond the reach of the securities laws merely by disclosing information that is predictive in nature.”), cert. denied, 488 U.S. 926 (1988); Marx v. Computer Sciences Corp., 507 F.2d 485, 489 (9th Cir. 1974) (“That a forecast, essentially a prediction, may be regarded as a ‘fact’ within the meaning of [Rule 10b-5] is settled.” (citation omitted)). But see Raab v. General Physics Corp., 4 F.3d 286, 290 (4th Cir. 1993) (“[P]rojections of future performance not worded as guarantees are generally not actionable under the federal securities laws . . . .” (quoting Krim v. BancTexas Group, Inc., 989 F.2d 1435, 1446 (5th Cir. 1993))); Greenberg v. Howtek, Inc., 790 F. Supp. 1181, 1185 (D.N.H. 1992) (“Statements about future events that are plainly expressions of opinion and not guarantees are not actionable under the federal securities laws.” (quoting Haft v. Eastland Fin. Corp., 772 F. Supp. 1315, 1320 (D.R.I. 1991))).
65. In general, the Safe Harbor applies to (i) forward looking statements made in, or promptly reaffirmed in, documents filed with the SEC and (ii) information in documents filed with the SEC that relates to (x) the effects of changing prices on the business enterprise or (y) the value of proved
terms is not free from doubt, and litigated cases have not clarified their meaning, with a few suggesting that the Safe Harbor relates to all opinions and estimates, a review of the administrative history of the rule indicates that the Safe Harbor is limited.

In 1978, the SEC proposed for comment a version of the Safe Harbor that would have applied to statements "containing a projection of revenues, income (loss), earnings (loss) per share or other financial items" and contrasted that proposal to one previously proposed by the SEC's Advisory Committee on Corporate Disclosure, which would have applied to statements of "a management projection of future company economic performance or a statement of management plans and objectives for future company operations." The SEC compared

66. See generally Arazie v. Mullane, 2 F.3d 1456, 1463, 1465-68 (7th Cir. 1993) (applying the Safe Harbor to statements of belief that cash flow from operations, capital transactions and borrowings would be adequate to meet cash requirements); Krim v. BancTexas Group, Inc., 989 F.2d 1435, 1446 (5th Cir. 1993) (ambiguously addressing whether the Safe Harbor applies to an opinion that a restructuring would return the issuer to a stable financial position); Roots Partnership v. Lands' End, Inc., 965 F.2d 1411, 1416-18 (7th Cir. 1992) (applying the Safe Harbor to a disclosed "goal" for pre-tax income as a percentage of net sales); Wielgos v. Commonwealth Edison Co., 892 F.2d 509, 512-13 (7th Cir. 1989) (characterizing estimated costs to complete nuclear power plants as estimates of capital expenditures within the Safe Harbor); In re Abbott Laboratories Sec. Litig., 813 F. Supp. 1315, 1319 (N.D. Ill. 1992) ("The most forward-looking statements made were 1) that [certain drugs] significantly strengthen [Abbott's] position in the worldwide anti-infective market," and 2) that "[w]ith [certain drugs], we are well-positioned to compete successfully in this marketplace during the 1990's."

the scope of these two versions as follows:

The Advisory Committee recommended that the Commission encourage disclosure of management's plans and objectives for future company operations, planned capital expenditures and financing, and statements of dividend and capital structure policies in addition to future economic performance. Guidelines for disclosure of these and other categories of soft information are being considered generally, as well as in connection with possible amendments to [certain reporting guides] to implement the Advisory Committee’s other recommendations regarding soft information. Accordingly, the proposed rule only relates to statements which include projections of: (1) revenues; (2) income (loss); (3) earnings (loss) per share; or (4) other financial items.

The Advisory Committee proposal ... also relates to statements of management’s plans and objectives for future company operations. When further proposals relating to other categories of forward looking information are published for comment, corresponding safe harbor rules will be considered.

In adopting the Safe Harbor, the SEC stated:

The commentators also were unsure of whether the phrase “other financial items” as used in the Commission’s proposed rule was intended to cover the items referred to by the Advisory Committee.

... Although specific guidelines relating to additional types of forward looking information are still under consideration, the Commission has determined that the scope of the safe harbor rule can be expanded at this time to cover those types of information that the commentators and the Advisory Committee urged should be within the protection of the rule. Accordingly, the rule adopted today expands the items in the proposed rule to cover projections of other financial items such as capital expenditures and financing, dividends, and capital structure, statements of management plans and objectives for future company operations, and future economic performance included in management’s discussion and analysis of the summary of earnings or quarterly income statements. The rule has been revised to refer specifically to these other items of forward looking information in light of the commentators’ suggestions that the broader coverage of the Advisory Committee rule be made explicit.

Thus, the SEC expressed its understanding that the Safe Harbor adopted the scope proposed by the Advisory Committee. The term “future economic performance” was defined by the Advisory Committee as follows: “Management projections of future economic performance (‘projections’) include forecasts of earnings, sales, net income, and other financial statement items. For purposes of the present discussion, it excludes statements of management plans and objectives, budgets and other future oriented data.” Therefore, although the

68. Id. at 53,252.
70. ADVISORY COMM. ON CORPORATE DISCLOSURE, 95TH CONG., 1ST SESS., HOUSE COMM. ON
scope of the Safe Harbor is not clearly delineated, the administrative history of the rule indicates that the terms “financial items” and “future economic performance,” as used in the Safe Harbor, mean financial statement items. This analysis is consistent with a recent concept release issued by the SEC, which reaffirms that the Safe Harbor does not cover all “soft” information.\(^7\) Examples of estimates or opinions that may not be “financial items” or statements of “future economic performance” include estimates or opinions concerning the performance of a new product,\(^7\) asset valuations,\(^7\) the outcome of litigation or certain qualitative informational items, such as workforce training and development, product and process quality and customer satisfaction.\(^7\) Those estimates and opinions also are not similar to planned capital expenditures or dividend policies and therefore would not fall within one of the other categories of forward looking information.

For any statement by a reporting company to be material, a requirement for the statement to be actionable,\(^7\) the statement must in some way relate to the results of operations or financial position of the company.\(^7\) Most notions of how securities are to be valued are based


71. Concept Release, supra note 8, at 52,727.

72. Such an opinion was in issue in Ballan v. Upjohn Co., 814 F. Supp. 1375 (W.D. Mich. 1992). The court did not discuss whether the Safe Harbor applied to the issuer’s favorable characterization of a drug; the case was decided on the basis of whether “information concerning the true risks of [the drug] was improperly and wrongfully withheld.” Id. at 1383. Cf. Westwood v. Cohen, 838 F. Supp. 126, 134 (S.D.N.Y. 1993) (holding that an issuer’s statements inaccurately minimizing the potential impact of an investigation by the FDA may be actionable under Rule 10b-5).

73. Bruce A. 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, 1133 (1987). But see Rouse Co., SEC No-Action Letter, [1983-1984 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 77,508, at 78,632-33 (Apr. 13, 1983) (stating that presentation of balance sheets and statements of shareholders’ equity on the basis of estimates of assets’ current values is within the scope of the Safe Harbor as information relating to the effects of changing prices on the company). Rouse Co. does not support the proposition that the Safe Harbor applies to all estimates, as the Staff of the SEC declined to base its view on the alternative basis, suggested by Rouse Company, that the estimates of asset values were projections of financial items. Id.

74. See Concept Release, supra note 8, at 52,726-27 (discussing this type of disclosure and stating, “To the extent that this type of ‘soft’ information does not fall within the current safe harbor definition of ‘forward-looking statements,’ however, it would not receive the protection of Rule 175 or 3b-6.”).


76. This reference to financial position and results of operations is not used here to mean the financial position of a company as measured by generally accepted accounting principles (“GAAP”)
on an analysis of the issuer's financial results. If the truth or falsity of any such statement would not affect these items, a securityholder generally cannot argue that the statement is material.\textsuperscript{77} It is therefore curious that the Safe Harbor does not relate to some estimates and opinions.\textsuperscript{78}

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as applied by a particular company. GAAP merely indicates how these items are required to be presented by a particular company. As used here, these terms refer to how a company generally is faring financially. Determining the materiality of financial information is not merely a question of deciding whether financial statements have been prepared in accordance with GAAP. \textit{Compare} Monroe v. Hughes, [Current] Fed. Sec. L. Rep. (CCH) ¶ 98,331, at 90,228 (9th Cir. July 24, 1994) ("[C]ompliance with GAAP and GAAS do not immunize an accountant who consciously chooses not to disclose on a registration statement a known material fact.") \textit{and} Adams v. Standard Knitting Mills, Inc., 623 F.2d 422, 432 (6th Cir.) (stating with respect to the liability of accountants for financial statements that were not tested in compliance with generally accepted auditing standards, "The question of materiality in this context is whether, given all the financial information, there was a substantial risk that the actual value of assets or profits were significantly less than [the accountants] stated them to be.")\textsuperscript{77}, \textit{cert. denied sub nom.} Adams v. Peat, Marwick, Mitchell & Co., 449 U.S. 1067 (1980) \textit{and} Vosgerichian v. Commodore Int'l, 832 F. Supp. 909, 913 (E.D. Pa. 1993) (holding that an improper characterization of a litigation settlement as extraordinary would not be material) \textit{with} Greenstone v. Cambex Corp., 975 F.2d 22, 28 (1st Cir. 1992) (leaving unresolved whether the failure to disclose a contingent loss not required by GAAP to be disclosed in the notes to the financial statements could be actionable under Rule 10b-5). \textit{See generally} Lance Levine, \textit{Note, Compliance with GAAP and GAAS: Its Proper Use as an Accountant's Defense in a Rule 10b-5 Suit}, 1993 \textit{COLUM. BUS. L. REV.} 109.

That management's concentration on the impact of any investment on earnings determined in accordance with GAAP may skew investment decisions is discussed in Hu, \textit{supra} note 2, at 302-06.\textsuperscript{77} Part III.B. of this Article argues that prices of securities reflect not only financial results of companies but also fads (or a herd mentality). This argument is consistent with considering materiality of an issuer's disclosure as being limited to information concerning the returns from owning a security. These fads develop because investors believe that market price trends reflect an analysis of, or predict, the return from owning a security.

It is conceivable that an issuer could make an actionable statement relating to the trading market for its securities, not directly concerning the company's earnings. For example, prospectuses are required to include a discussion of the plan of distribution. \textit{See} Item 508, \textit{Regulation S-K}, 17 \textit{C.F.R.} § 229.508 (1993). That section of a prospectus may include a statement to the effect that the issuer has been advised by an underwriter that the underwriter intends to make a market in the security (but is not obligated to do so). An issuer might incur liability for making such a statement if no market developed for the security and the issuer knew (or had reason to know) that the underwriter had not intended to make a market in the security.

78. Determining whether an estimate or opinion is such a statement may be more difficult in practice than may be apparent. Although estimates of a particular line item with respect to a particular segment is presumably within the Safe Harbor, since the materiality of any statement derives from its impact on a company's financial position or results of operations, a reporting company may attempt to characterize any estimate or opinion as relating to a financial statement item. In a recent concept release, in which the SEC solicited comments on eight alternatives to the present Safe Harbor, the SEC indicated that one of the revisions that the SEC is considering is revising the scope of the covered estimates and opinions. Concept Release, \textit{supra} note 8, at 52,729-31.
B. Economic Models of the Securities Markets

Recent analyses of the nature of the market for securities indicate that the price at which a security trades may reflect not only an assessment of the expected financial results of the issuer but also certain dynamic trading factors, referred to as "fads" or "noise trading." To the extent these analyses are correct, application of system dynamics suggests that the limitation of the Safe Harbor to certain estimates and opinions may exacerbate the noise trading effect.

A brief review of the way the securities markets have been modeled by economists is required to present the context of more recent economic models. In a widely cited article published in 1970, Eugene Fama summarized the then-current model of the capital markets called the Efficient Capital Markets Hypothesis. The hypothesis consists of three forms, which are concerned with "whether prices 'fully reflect' particular subsets of available information." In the strong form, the price of a security is assumed to reflect all information, in that no one has higher expected trading profits from unique access to some information. In the semi-strong form, the price of a security is

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79. Donald C. Langevoort, *Theories, Assumptions, and Securities Regulation: Market Efficiency Revisited*, 140 U. PA. L. REV. 851 (1992), contains a thoughtful and more detailed discussion of the competing economic theories that are summarized in this Article, with extensive citations including many of the economic articles cited in this Article.

After this Article was submitted for consideration for publication, a very interesting, detailed and thoughtful law review article was published applying chaos theory in an analysis of the securities markets, the Efficient Capital Markets Hypothesis and other aspects of corporate and securities law. Lawrence A. Cunningham, *From Random Walks to Chaotic Crashes: The Linear Genealogy of the Efficient Capital Market Hypothesis*, 62 GEO. WASH. L. REV. 546, 571-607 (1994). Building on the recent work of economists, that article applies a concept—that a system’s changes in response to differing inputs may not be proportional to the changes in the inputs—to discuss circuit breakers, the mandatory nature of disclosure obligations under the federal securities laws and the scope of directors’ and officers’ fiduciary duties. Id. at 571-73, 598-607. That article, and the other sources it cites, are not discussed in greater detail herein, because (i) that article examines in detail aspects of corporate and securities law not at the heart of this Article and (ii) the timing of that article’s publication makes such a discussion impracticable. This Article does concur with Professor Cunningham's suggestion "that legal scholars and policymakers focus more closely on recent developments in mathematics and physics that call into question even the weak form of the [Efficient Capital Markets Hypothesis]," id. at 608, or that call into question other assumptions underlying legal doctrines, with the slight refinement that older insights and those of the applied sciences should not be overlooked. Of course, where a legal doctrine historically has been justified on the basis of an economic theory that is shown to be inaccurate, the doctrine should not be abandoned unless the inaccurate assumption is necessary to support the doctrine.


81. Id. at 388.

82. Id. at 409.
assumed to reflect all "obviously" publicly available information. In the weak form, "the information subset of interest is just past price (or return) histories." The legal literature based on the Efficient Capital Markets Hypothesis has generally adopted the semi-strong version (the strong form not being consistent with insider trading being actionable and the weak form not being of significant use).

A refinement of this analysis noted that this hypothesis only addresses the extent to which relevant information is reflected in a security's price, and drew a distinction between this hypothesis, referred to as " informational efficiency," and whether a security price actually reflects an assessment of fundamental values, referred to as "fundamental efficiency." For example, if the securities market fully reflected all publicly available information and the market prices equaled the discounted value of the expected payment stream to be derived from owning a security but used arbitrarily different discount factors to value different business segments, such a market would be informationally efficient but not fundamentally efficient.

Certain facts have lead some economists more recently to question whether the securities markets are efficient. Some of this evidence is based on tests of the informational efficiency of the capital markets consisting of determining whether there are any trading schemes that outperform the market. Evidence suggesting that additional returns are available in the month of January and that there are historically greater returns from investing in securities selected by Value Line seems to contradict the informational efficiency of the capital markets.

83. Id. at 404.
84. Id. at 388.
85. E.g., Ayres, supra note 1, at 966 (stating that only the semi-strong version supports the fraud on the market theory); Daniel R. Fischel, Efficient Capital Markets, the Crash, and the Fraud on the Market Theory, 74 CORNELL L. REV. 907, 911 (1989) ("The central premise of the fraud on the market theory is that prices of actively-traded securities reflect publicly-available information. This premise is roughly equivalent to the semi-strong version of the efficient capital markets hypothesis."); Langevoort, supra note 79, at 853 n.7; Daines & Hanson, supra note 1, at 611 n.160 ("The evidence, however, suggests that market prices do not fully reflect nonpublic information.").
86. Langevoort, supra note 79, at 853 n.7. See also id. at 877 n.88.
87. E.g., Ayres, supra note 1, at 968-69; Fischel, supra note 85, at 913 (using the term "value efficiency"); William K.S. Wang, Some Arguments that the Stock Market Is Not Efficient, 19 U.C. DAVIS L. REV. 341, 344 (1986); Daines & Hanson, supra note 1, at 615.
89. See, e.g., LeRoy, supra note 88, at 1609-10; Wang, supra note 87, at 349-52.
The substantial market decline of October 1987 also seems inexplicable if the securities markets are fundamentally efficient.\textsuperscript{90}

One proposed explanation is that the securities markets are in part affected by investors who purchase and sell securities in "fads" or follow a "herd instinct."\textsuperscript{91} These investors are assumed to be more inclined to purchase a security if others are purchasing the security or may make investment decisions based on the advice of financial "gurus."\textsuperscript{92} In securities markets affected by such fads, one would expect to find securities prices to be oscillatory or mean-reverting, i.e., securities that perform relatively well in one period would perform relatively poorly in the following period. Empirical evidence indicates that securities prices exhibit this trait over periods of varying durations. That investors trade in such patterns may also explain the continued existence of "technical analysts," who recommend securities based on historical trading patterns as opposed to an analysis of the earnings

\textsuperscript{90} E.g., Ayres, supra note 1, at 974-75 (stating, however, that the decline may support informational efficiency); Kahan, supra note 62, at 992; Andrei Shleifer & Lawrence H. Summers, The Noise Trader Approach to Finance, J. ECON. PERSP., Spring 1990, at 19, 29. Contra Fischel, supra note 85, at 916.

Although anecdotal evidence contradicting the informational efficiency of the capital markets abounds, and may be of little significance, recent events may have provided an extraordinary example. When news of a merger of Tele-Communications Inc., commonly called "TCI," with Bell Atlantic Corp. was announced, the market price of shares of Transcontinental Realty Investors, whose trading symbol is TCI, rose 15% in 15 minutes. A trading halt was subsequently imposed and a warning was sent by the NYSE to its member firms. Anita Raghvan, In Rush to Buy Shares of "TCI," Investors Trip over Stock Symbols, WALL ST. J., Oct. 14, 1993, at B1. Transcontinental’s shares ended the day down $.25. Id. One could plausibly construe the rapid return of the stock price as supporting the informational efficiency of the markets, although that view would not explain the original price change.

\textsuperscript{91} Hazen, supra note 6, at 145; Hu, supra note 2, at 357; Kahan, supra note 62, at 991, 996 (“[S]tudies show that many people overreact to unexpected and dramatic news events . . . Speculative trading could also cause excess market volatility. For example, excessive declines in stock prices could be caused by speculators that anticipate, and thereby fuel, panic sales by other investors.”); Bruce N. Lehmann, Fads, Martingales, and Market Efficiency, 105 Q.J. ECON. 1, 2 (1990); Youguo Liang & Donald J. Mullineaux, Overreaction and Reverse Anticipation: Two Related Puzzles?, 17 J. FIN. RES. 31, 42 (1994) (finding significantly negative post-event cumulative abnormal returns following positive surprises); Shleifer & Summers, supra note 90, at 23, 28-30; Simmonds et al., supra note 6, at 143; Wang, supra note 87, at 348. In 1936, Keynes characterized the securities markets as reflecting “animal spirits.” John M. Keynes, The General Theory of Employment, Interest and Money 161 (1936), cited in Hazen, supra note 6, at 145. See generally Fischel, supra note 85, at 913-15 (arguing that there is no better model for market prices than those based on the efficient capital markets theory); LeRoy, supra note 88, at 1608-16. A detailed description of the literature analyzing the theoretical basis of these fads is contained in Langevoort, supra note 79, at 857-72.

\textsuperscript{92} Shleifer & Summers, supra note 90, at 23-24.
potential of companies. It is these trading patterns that can be usefully modeled with system dynamics concepts.

In the shortest term, if the market price for a security increases in any particular trade, the next price change is more than twice as likely to be a decrease than an increase, and conversely. Securities prices show similar movements when periods on the order of one week are reviewed. One study of equity securities listed on the NYSE or the AMEX indicated that portfolios of securities that had a positive return in one week typically had a negative return in the following week, and vice versa. These results were found to yield a measured arbitrage opportunity after deducting transaction costs.

Empirical evidence also suggests that stock prices are mean reversion over periods of a number of years. One study found that in portfolios of securities traded on the NYSE, those that had performed the worst over the immediately preceding five years had a greater annual return than those that had performed the best over that five-year period. This correlation was found to be strongest among, and statistically significant for, firms with the smallest market capitalizations, from which the authors inferred that individual investors, who are the primary holders of stock of smaller firms, cause the overreaction effect.

The information described above indicates that securities prices manifest oscillations at various frequencies. Two additional aspects of

93. A description of these traders is included in Ross et al., supra note 88, at 342-43 and Hazen, supra note 6, at 150-53.

94. Patell & Wolfson, supra note 14, at 226. The mean-reverting nature of stock prices, without an indication of the frequency of the oscillations, was noted in Ayres, supra note 1, at 967.

95. Lehmann, supra note 91, at 25-26. Others have characterized the market for securities as being excessively volatile, e.g., Ayres, supra note 1, at 970; Hazen, supra note 6, at 145, which is a different way to describe the same phenomenon.

96. Lehmann, supra note 91, at 19-23.


98. Id. at 255-57. Cf. Bagwell, Evidence and Implications, supra note 42, at 218, 221 (noting preliminary findings that supply curves for stock experienced in Dutch auction repurchases are more elastic when institutional holdings are high). However, the evidence from the study of securities based on their prior five-year return indicates that securities prices exhibit momentum over periods of one year—securities underperforming over a one-year period are more likely to underperform in the following year, with a similar effect for securities that outperform the market. Chopra et al., supra note 97, at 252. The authors suggest that this effect may account for the Value Line anomaly. Id. See supra text accompanying note 89. Similar evidence of momentum in stock prices for up to one year, with one-half of the excess dissipating over the following two years, is included in Narasimhan Jegadeesh & Sheridan Titman, Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency, 48 J. Fin. 65, 68-69, 89 (1993).
the trading market for securities must be considered: (i) the time period over which these oscillations to any particular event will dissipate and (ii) the percentage by which the market for a security overreacts to new information. Some information concerning the time period over which securities prices reach a new equilibrium in response to new information can be derived from reviewing the time period through which trading rules provide statistically significant returns.

A trading rule consisting of buying and holding for thirty minutes (and then selling) the stock of companies whose earnings announcements exceeded the most recent forecast contained in Value Line, and selling the stock if the announced earnings were less than that forecast, yielded statistically significant returns when commenced at any time through the first thirty minutes of trading in the day following the date of the announcement.99 This evidence suggests that unambiguous information is fully assimilated within one or two days.

Additional evidence supporting the hypothesis that the market responds quickly can be found by reviewing the prices at which stocks trade immediately following an IPO. Empirical evidence indicates that these stocks on average trade quickly at approximately 15% of the public offering price.100 The market completes its upward adjustment within a few days of the public offering.101 Recent evidence suggests that within one to three years, a strategy of holding securities acquired at the initial public offering price actually underperforms the market when compared to various adjusted NYSE or NASDAQ returns.102

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99. Patell & Wolfson, supra note 14, at 231-36. The authors noted that others have found that systematic trading profits may be realized for up to two to three months after certain types of announcements. Id. at 227-28.


101. See Miller & Reilly, supra note 100, at 38.

102. Ritter, supra note 100, at 11. See also C. Sherman Cheung & Itzhak Krinsky, Information Asymmetry and the Underpricing of Initial Public Offerings: Further Empirical Evidence, 21 J. BUS. FIN. & ACCT. 739, 746 (1994) ("underpricing appears to be a short-run phenomenon"); Tim Loughran, NYSE vs NASDAQ Returns: Market Microstructure or the Poor Performance of Initial Public Offerings, 33 J. FIN. ECON. 241, 250, 259 (1993) (finding that the average return for IPO's over six calendar years in a specified period was 17%, compared to 76% for the NASDAQ index, and noting that much of the underperformance is concentrated in periods following years with a high volume of IPO's); William Power, In IPO's, if You're Not in on Day One, It's Usually Going to Be a Losing Play, WALL ST. J., Mar. 17, 1994, at CI (citing a to be released study showing the NASDAQ-adjusted return of stock bought at the IPO price peaked at 15% after one quarter and decreased to 3% after two years).
From this evidence, one can conclude that IPO's are not overpriced and that the trading market for securities offered in an IPO is affected by forces that dissipate over a period of time on the order of one or a few years. It has been proposed that "fads" develop after an IPO because potential investors base their decision to purchase on the success of earlier sales efforts and disregard any private information of the earlier purchasers (because that information is not available to subsequent purchasers) and their own internally generated private information. It should be noted, however, that the existence of such fads remains controversial.

103. These articles provide only indirect evidence of when securities sold in an IPO are no longer overpriced, and does not provide longer-term returns, because the articles address their return (as compared to stock prices). For example, one could rationally postulate that the decreased returns from holding stock over the period commencing one day after the IPO and ending one to three years thereafter to be an oscillation that dissipates subsequently. This Article disregards that hypothesis, based on the absence of any rationale that would support the existence of such a post-offering trend.

Although Professor Ritter's article analyzing the long-run performance of IPO's does not address their short-run performance, it is interesting to note that some of the adjusted returns appear to manifest a minor secondary oscillation in the returns experienced in the first few months following the IPO, Ritter, supra note 100, at 11, which may not be statistically significant.


105. See, e.g., Thomas J. Chemmanur, The Pricing of Initial Public Offerings: A Dynamic Model with Information Production, 48 J. Fin. 285-87, 300 (1993) (collecting various reasons attributed to the IPO pricing puzzle, and arguing that there is underpricing caused by "insiders inducing information production in order to obtain a more precise valuation of their firm in the secondary market"). Postulated theories have included the following non-exhaustive list: (i) that the market for stocks sold in an IPO includes two classes of prospective purchasers, informed and uninformed, and that IPO's are underpriced because otherwise uninformed purchasers would realize that they would buy in a disproportionately large percentage of those IPO's that were poor investments; Cheung & Krinsky, supra note 102, at 739; (ii) that underpricing is a signal of quality and will be recouped, at least in part, in subsequent sales; Narasimhan Jegadeesh et al., An Empirical Investigation of IPO Returns and Subsequent Equity Offerings, 34 J. Fin. Econ. 153, 174 (1993) (finding, contrary to this postulated rationale, that "the return on the date of the IPO does not play a unique role in predicting future seasoned equity offerings"); Jon A. Garfinkel, IPO Underpricing, Insider Selling and Subsequent Equity Offerings: Is Underpricing a Signal of Quality?, Fin. Mgmt., Spring 1993, at 74, 82 (revealing results inconsistent with this theory); (iii) that underpricing arises from the market giving the issuer a superior assessment of the issuer's value; Cheung & Krinsky, supra note 102, at 745-46 (finding that the amount of underpricing is not decreased when the issuer is an investment bank, which is inconsistent with the hypothesis); Garfinkel, supra, at 75, 82 (finding evidence inconsistent with that proposition); Jegadeesh et al., supra, at 156; and (iv) that underpricing is an attempt to insure against liability for improper disclosure under the Securities Act of 1933 and the 1934 Act; Philip D. Drake & Michael R. Vetsupnens, IPO Underpricing and Insurance Against Legal Liability, Fin. Mgmt., Spring 1993, at 64, 72 (concluding that underpricing "has little effect on the issuer's potential damage payments"). These theories are not discussed in detail, because they are inconsistent with the increase in the post-offering price of stock being a temporary phenomenon.

Recently, it has been argued that stabilizing accounts for the rise in the average price of stock sold in an IPO. Judith S. Ruud, Underwriter Price Support and the IPO Underpricing Puzzle, 34 J. Fin. Econ. 135 (1993). The term "stabilizing" refers to the underwriters' practice of placing a bid for (or purchasing) securities that are the subject of a distribution at, or just below, the offering price,
The asymmetry in the response of prices of stock following an IPO also suggests that there are separate mechanisms that cause the initial price rise and the subsequent returns. This increase in price following an offering also has been attributed, in part, to evidence that individuals who purchase stock in an IPO are more likely to make the purchase based on an assessment of the company's product description or strategic plan, and not based on a "theory about fundamentals such as profits or dividends." 

C. The Dynamic Model

Because the Safe Harbor protects only estimates of financial items (and underlying assumptions) but not intermediate estimates or opinions, the rule discourages the frequent release of estimates or opinions, each having a small incremental effect on the expected return on a security. Rather, the rule encourages dissemination of fewer opinions, each having a relatively larger impact on the market price of the affected security.

The economic information summarized above has identified a number of separate dynamic responses that are observed in stock prices. Creating a model incorporating all these effects would be too complex and, in light of the continuing controversy concerning the causes of these oscillations, would convey an unwarranted sense of certainty. Instead, circumstances that may be similar to one of the effects, the stock price fluctuations arising after an IPO, will be considered.

The factors identified above, suggested by some as contributing to the overreaction after an IPO, are circumstances in which investment decisions are made based on general assessments of products or strategic plans. A company that is developing a novel product or entering

which is designed to maintain an orderly market during the period when the offering is taking place. See 17 C.F.R. §§ 240.10b-7(b)(3), 240.10b-7(j) (1994); Exchange Act Release No. 17,371, 45 Fed. Reg. 83,707, 83,709 (1980); LOUIS LOSS & JOEL SELIGMAN, SECURITIES REGULATION 336 (3d ed. 1989); Harry S. Gerla, Swimming Against the Deregulatory Tide: Maintaining Fixed Prices in Public Offerings of Securities Through the NASD Antidiscounting Rules, 36 VAND. L. REV. 9, 30 n.113 (1983). However, "[practitioners] acknowledge . . . that it would not be atypical to find that 10-20% of IPOs are stabilized." Ruud, supra, at 140. In addition, "practicing underwriters claim that stabilization seldom continues for more than two to four days . . . ." Id. at 139. See generally Kathleen W. Hanley et al., Price Stabilization in the Market for New Issues, 34 J. FIN. ECON. 177 (1993) (examining the scope of stabilizing in new issues). Therefore, it is not plausible that stabilizing fully accounts for an effect that takes one to three years to dissipate.

a new, unusual business line also presents these factors, and may manifest a similar overreaction, if the new product or business is expected to represent a substantial portion of the company's business.\footnote{Others have hypothesized that the speed with which information is reflected in market prices may depend on the nature of the information. E.g., Ayres, supra note 1, at 976; Ronald J. Gilson & Reinier H. Kraakman, The Mechanisms of Market Efficiency, 70 VA. L. REV. 549, 556-57 (1984).} In that context, the limitation in the Safe Harbor described above discourages early dissemination of estimates that would facilitate analysis of the effect that the new product or business would have on the corporation's future results of operations.

To create a simple quantitative model, it is assumed that the magnitude of any overreaction and its duration are similar to those manifested in IPO's. In particular, it is assumed that the stock price of a company entering a new business or developing a new product manifests the following characteristics: (i) the stock price overreacts by 15% if the company delays disclosure of its new business or product that significantly affects the market's valuation of the company's prospects; (ii) the stock price responds quickly to the announcement, reaching a peak one and one-half weeks after the announcement; and (iii) 90% of the overreaction dissipates within one year of the announcement.

An example of a simple second-order system that manifests those results is given by the following equation:

$$\frac{d^2P}{dt^2} + 4.5 \frac{dP}{dt} + .2065P = 5.1625P_f \left[ \frac{dV}{dt} + .04V \right]$$

where $P(t)$ = the stock price at time $t$, minus the pre-announcement price,

$P_f$ = the equilibrium stock price after the announcement, and

$V(t)$ = the change in value of the stock at time $t$, based on information publicly available at time $t$, expressed as a fraction of $P_f$.

The response of this system is pictured in Figure 1. Curve A shows the response of the system if the value of the company is increased.
gradually by $5.00 over nine weeks, in the manner shown in Curve \( B \), to approximate the effect of a company that releases intermediate estimates and opinions over that period. Curve \( C \) shows the response of the same system if the company delays its announcement for nine weeks, at which time the company releases information that changes the value of the stock by $5.00 in one day. Curve \( C \) manifests the assumed response: an overreaction of 15% of $5.00, or $.75, that dissipates in one year. The difference in the responses is consistent with intuitive expectations. The overreaction is substantially reduced if the information is gradually disseminated. This benefit is separate from the obvious benefit of having changes in securities prices not lag new developments affecting the issuer.

**FIGURE 1**

The model depicted in Figure 1 is not intended to provide a numerical estimate of the effect of a revision of the terms of the Safe Harbor. The model depicted in Figure 1 has been selected because it is a simple system, *i.e.*, one with few terms, that manifests the assumed characteristics. It has not been developed by modeling individual behavioral characteristics of market participants. The coefficients have been selected solely to create a model that exhibits the postulated

108. For ease of computation, the value of \( V(t) \) is assumed to be in the form of \( 1-e^{-\alpha t} \). Curve \( A \) shows the response where \( 1-e^{-\alpha t} = .95 \) at the end of nine weeks, *i.e.*, the value has reached 95% of its final value by the end of nine weeks.

109. \( V(t) \) is again assumed to be in the form of \( 1-e^{-\alpha t} \), where \( 1-e^{-\alpha t} = .95 \) at the end of one day.

overreaction where the information is disseminated at one time in whole, and to see how such a system reacts when inputs are more gradual. The model is uncommon because the rapid initial response dissipates over a relatively long period of time without secondary oscillations. However, the responses depicted in Figure 1 are generally representative of the response of well behaved systems that manifest overreactions—the overreaction is decreased where new inputs are applied more gradually.

Figure 1 might seem to suggest that the overreactions are insignificant in light of the benefit of disseminating information promptly, as depicted in the area between Curves B and C over the first nine weeks. Such a conclusion is not warranted. The overreaction depicted is an estimate of the average overreaction; in many circumstances, the overreaction will be significantly larger. In addition, the timing between sequential changes in information available to the participants may create a synergistic overreaction.

This model assumes that the rate of change of the equilibrium value of a stock price affects the time-response of the market price. One possible objection to this aspect of this model is that it "assumes the result," i.e., one could argue that of course overreactions will be increased by more rapid changes in inputs if there is such a term. That criticism is not well founded, because the same effect would occur in a model that did not contain such a term. A term dependent on the derivative of the value of the stock with respect to time has been included to increase the accuracy of the model. If such a term were not included, the maximum overreaction that would be exhibited by a second order model (with terms of the same signs) that did not oscillate would be less than 15%. Moreover, this model is not unique in assuming the existence of such a factor.111

111. For example, one article in considering, and rejecting, the hypothesis of a bubble in Germany's hyperinflation during the early 1920's, stated, "A bubble can arise when the actual market price depends positively on its own expected rate of change, as normally occurs in asset markets." Robert P. Flood & Peter M. Garber, Market Fundamentals Versus Price-Level Bubbles: The First Tests, 88 J. POL. ECON. 745, 746-47, 761-62 (1980). That assumption is slightly different from the one used in the model contained in this Article, as the model assumes that the derivative of a security's value positively affects the market price, whereas Flood & Garber assume that the derivative of the price itself positively affects the price.

Alternative, more complex and dynamically unstable models in which the market overreacts could be developed where slight changes in inputs produced radically different results. See supra note 79. For a variety of reasons, the simple model described above seems preferable to a more complex, unstable model, absent compelling reasons to conclude that approximations from the simple model are not adequate. An essential element of any attempt to apply quantitative analyses is the adoption
The quantities involved may appear to be insignificant. However, the large number of transactions whose prices are affected by these overreactions suggests that the aggregate dollar amount involved is substantial. Others have noted that after-market trading is a zero-sum game. That fact might suggest that the increased overreactions to new developments should not be of concern, particularly as investors may appear to be able to eliminate any losses through diversification. However, there are two reasons why overreactions should be of concern. First, there is a bias in the type of investor who will be the winner in this context. Investors who are able to purchase securities quickly, before the overreaction peaks, are more likely to be institutional purchasers, and not individual investors. Individual investors also are more likely to purchase at the peak of the overreaction, because the fad traders are more likely to be individual investors. Second, the SEC has been charged with regulation of after-market trading. Any exercise of that power should be rational. Since there are no identifiable benefits to the public from increased volatility in securities prices, the disadvantages arising from increased risk that inevitably will not be eliminated, as investors will not be completely diversified, indicate that increased volatility should not be disregarded.

Another commentator has stated that it is more important that stock prices be accurate at the time offerings occur than during after-market
trading.\footnote{116} It clearly is important that securities be offered with full disclosure. However, the efficiency of a market consisting of offerings made with full disclosure in allocating capital is suspect if after-market trades, which act as substitutes and whose prices are used to calculate initial offering prices, do not benefit from complete disclosure.\footnote{117} Even if an offering market can be efficient in allocating capital notwithstanding after-market fundamental inefficiency, the importance of full disclosure during public offerings is not inconsistent with encouraging proper pricing at other times.

Others have implicitly acknowledged the value of decreased volatility. One commentator has stated that pursuit of efficiency in the securities markets is not necessarily desirable, because an inefficient market may incorporate information more slowly and therefore be less volatile.\footnote{118} This Article demonstrates that volatility may be affected by the relationship between the speed with which the market reacts to information and the frequency with which new information that affects the expected value of the security becomes publicly available. That is, it can be important to match the speed with which new information is disseminated to the speed with which market participants react.\footnote{119} Regulations that are based on such matching will be superior to rules that cause the same decrease in volatility and are intentionally “inefficient,” because “inefficient” regulations impose ongoing variations between market prices and actual values.

This Article does not attempt to quantify the extent of the impact that the limitation of the Safe Harbor to estimates of financial statement items has on the trading market for particular securities. Adoption of the Safe Harbor has not been successful in causing substantial numbers of reporting companies to include projections of financial statement items in their annual and quarterly filings with the SEC.\footnote{120}

\begin{footnotes}
\item[116] Kahan, supra note 62, at 1000.
\item[117] Cf. id. at 1041. This Article does not purport to address whether such an offering market may allocate capital efficiently.
\item[118] That commentator stated, “[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.” Stout, supra note 112, at 674. It is not clear how the term “efficiency” is being used in that context.
\item[119] But see Kahan, supra note 62, at 988 (“[A] requirement that companies disclose important information immediately and in detail may speed up the degree to which stock prices reflect such information, but not reduce the proclivity of investors to overvalue companies in trendy industries.”); id. at 990 (“Inaccuracies caused by non-public information can generally be reduced by inducing disclosure; inaccuracies caused by misassessment cannot be effectively eliminated in this manner.”).
\item[120] LOSS & SELIGMAN, supra note 105, at 635.
\end{footnotes}
This failure may in part be caused by the incorporation of these filings into registration statements under the Securities Act of 1933 (the 1933 Act). Under the 1933 Act, issuers may be subject to liability with respect to statements for which they would not incur liability under the 1934 Act. Projections within the scope of the Safe Harbor prepared without a reasonable basis but not prepared recklessly will be actionable under the 1933 Act if included in a registration statement but will not be actionable under the 1934 Act. Therefore, companies that file registration statements on Form S-2 or S-3 that believe that they have not prepared certain opinions recklessly, but are unwilling to risk incurring the cost of defending against, and possible liability for, a claim of negligence, will decide not to include those opinions in periodic reports.

Reporting companies also may not include projections in documents filed with the SEC to avoid an obligation to update the projections. A reluctance to update projections may arise for proper reasons. For example, updated projections might require a premature release of confidential information. Thus, removing the financial information limitation probably would not, by itself, result in a large increase in the number of projections filed with the SEC. The increased volatility that this Article demonstrates arises from less frequent disclosure of material information concerning reporting companies suggests that those other provisions of the Safe Harbor that discourage disclosure of projections be reexamined. Perhaps removal of the financial information limitation would encourage dissemination of opinions that are inordinately likely to mislead investors. This Article suggests only that the volatility of stock prices should be considered in evaluating the benefits of the terms of the Safe Harbor.

The evidence described above indicates that the securities markets exhibit oscillatory movements over varying periods of time. It is


124. Of course, if these oscillations were predictable, market forces would eliminate the oscillations through purchases in advance of a rise and sales before the fall. Cf. Ross et al., supra note 88, at 342.
not inconsistent for a system to exhibit oscillatory movements over different time periods;\textsuperscript{125} such a response may indicate the existence of separate effects, each accounting for oscillation at one of the observed frequencies.\textsuperscript{126} Economists are not unanimous in attributing the observed oscillations to fad traders.\textsuperscript{127} For example, that any price change is twice as likely to be followed by a reversal than by a change in the same direction has been attributed to another aspect of the securities markets. One economist has argued that a majority of the price changes of stocks that are traded through market makers who quote bid and asked prices will be price reversals. The underlying concept is that if there were no change in the value of the stock, all successive price changes would necessarily be reversals, as trades are made at either the bid or asked price.\textsuperscript{128} With respect to the long-term oscillations, others have hypothesized that these oscillations are caused by varying risks or sizes of the relevant firms.\textsuperscript{129} The import of these disagreements among economists, for the purposes of this Article, is that perhaps some part of the observed oscillations in securities prices results from causes that are not within the scope of the discussion set forth above.

\textbf{D. The Filing Requirement of the Safe Harbor}

Applicability of the Safe Harbor also is conditioned on the estimate or opinion either (i) being first disclosed in a document filed with the SEC or (ii) being promptly reaffirmed in a document so filed.\textsuperscript{130} Before the SEC first proposed the Safe Harbor in the early 1970's, the SEC had prohibited the inclusion of earnings estimates in documents required to be filed under the 1933 Act or the 1934 Act.\textsuperscript{131} The SEC became concerned that these estimates were being selectively released by reporting companies and that investors without preferred access to

\begin{itemize}
\item \textsuperscript{125} See Fisher Black, Noise, 41 J. Fin. 529, 532 n.9 (1986) (citing a model in which long-run prices were efficient although short-run prices did not need to be efficient).
\item \textsuperscript{126} See Lehmann, supra note 91, at 2 (noting different dynamic aspects affecting short-term and long-term responses).
\item \textsuperscript{127} See Chopra et al., supra note 97, at 236; Langevoort, supra note 79, at 864-65.
\item \textsuperscript{128} Richard Roll, A Simple Implicit Measure of the Effective Bid-Ask Spread in an Efficient Market, 39 J. Fin. 1127, 1128 (1984).
\item \textsuperscript{129} Chopra et al., supra note 97, at 236; Langevoort, supra note 79, at 866 n.48.
\item \textsuperscript{130} 17 C.F.R. § 240.3b-6(b)(1) (1994).
\end{itemize}
management were at a disadvantage.\textsuperscript{132} The SEC originally proposed that reporting companies that release projections to any third party be required to file the projections with the SEC, ensuring equal access.\textsuperscript{133} The SEC substantially revised its original proposal when it adopted the Safe Harbor and eliminated the obligation to disclose all projections made available to third parties, but the requirement that the estimate be filed with the SEC if the Safe Harbor is to be applied remains as a vestige of that initial concern.\textsuperscript{134}

As noted above,\textsuperscript{135} empirical evidence indicates that the market reacts to earnings announcements within a few trading days. To the extent that the filing requirement is designed to assure that outsiders (\textit{i.e.}, individual investors) are granted equal access to this information through the SEC, the requirement is ineffective because market prices will reflect new information released to analysts before it is required to be filed. The effects of the filing requirement are particularly perverse where a statement that has not been so filed forms the basis of a suit under Rule 10b-5 in which reliance is alleged through fraud on the market. Elimination of this requirement would not prevent the SEC's commencing an enforcement action for selective disclosure.\textsuperscript{136}

IV. THE IPO PRICING MARKET

Some efforts in legal journals to explain average increases in the prices at which stock trades immediately after an IPO have been troublesome in that they impute complex economic analyses to individuals who may not acknowledge that they are motivated by those

\begin{itemize}
    \item \textsuperscript{132} \textit{Id.}
    \item \textsuperscript{133} \textit{Id.} at 7221.
    \item \textsuperscript{134} The present effect of this requirement is unclear, because courts have developed a separate doctrine under which disclosure that "bespeaks caution" cannot form the basis for an action under the federal securities laws. See, \textit{e.g.}, \textit{Krim v. BancTexas Group, Inc.}, 989 F.2d 1435 (5th Cir. 1993); \textit{Mayer v. Mylod}, 988 F.2d 635 (6th Cir. 1993); \textit{Moorhead v. Merrill Lynch, Pierce, Fenner & Smith, Inc.}, 949 F.2d 243 (8th Cir. 1991); \textit{Sinay v. Lamson & Sessions Co.}, 948 F.2d 1037 (6th Cir. 1991); \textit{Luce v. Edelstein}, 802 F.2d 49 (2d Cir. 1986); Royce de R. Barondes, \textit{The Bespeaks Caution Doctrine: Revisiting the Application of Federal Securities Law to Opinions and Estimates}, 19 J. CORP. L. 243 (1994); Donald C. Langevoort, \textit{Disclosures that "Bespeak Caution,"} 49 BUS. L. 481 (1994).
    \item \textsuperscript{135} Under this doctrine, reporting companies may avoid liability on a basis similar to that provided by the Safe Harbor.
    \item \textsuperscript{136} See supra note 99 and accompanying text.
    \item \textsuperscript{136} See, \textit{e.g.}, \textit{SEC v. Stevens}, SEC Litigation Release No. 12,813, 48 SEC Docket (CCH) 735 (Mar. 19, 1991) (announcing the settlement of claims alleging selective disclosure by a company's CEO of negative, nonpublic information to a few analysts).
\end{itemize}
Those articles did not benefit from evidence indicating that the post-offering increase is temporary. Analysis of the legal framework regulating initial public offerings may explain why dynamic overreactions are exacerbated following an IPO. Stock sold in IPO's typically is distributed to the public in a firm-commitment, fixed-price offering. In such an offering, the underwriters are required to sell the stock to the public during the distribution at a price fixed in the prospectus. The underwriters also are required to buy all the offered stock if all the conditions in the underwriting agreement are satisfied, even if the aggregate demand for the stock at the public offering price is less than the number of shares offered.

These conditions create an incentive for underwriters to agree to sell underwritten securities as quickly as possible, because there is a substantial risk that intervening events will adversely affect the value of the securities. To sell securities more quickly, underwriters will naturally tend to place the securities with investors willing to purchase large amounts of the securities. As a result, the group of purchasers to whom underwriters will sell the securities may include a proportionately greater amount of institutional purchasers than is reflected in the securities markets as a whole. However, individuals can purchase in the aftermarket, and those sales generally will initially be at a higher price than the initial public offering price (because the initial purchasers will not be willing to sell at an immediate loss and the underwriters may be stabilizing). The aggregate demand for the security

137. E.g., Gilson & Kraakman, supra note 107, at 622 n.197 ("We argue that passing on to the customer a portion of the return the underwriter receives for pledging its reputation is best understood as a capital investment in reputation, a way of ensuring that the customer's ex post experience will be consistent with the issuer's and the investment banker's ex ante representations."); Levmore, supra note 42, at 657-63. Cf. RASMUSEN, supra note 15, at 218-19 (arguing that issuers underprice to signal that the variance of the share value is high, which is important to the undiversified original shareholder(s) but not to the market and suggests that the market price should be higher than the value assigned by the selling shareholders).

138. The possibility that the nature of a fixed-price offering may play a part in post-offering price increases was identified in Ibbotson, supra note 100, at 262-64. However, it is not clear what conclusions that article draws concerning the causes of the price increase.

139. LOSS & SELIGMAN, supra note 105, at 324.

140. These conditions typically include that the offering documents are not false or misleading as of the closing and that there has not been some extraordinary event that adversely affects the securities markets generally. See LOSS & SELIGMAN, supra note 105, at 328.

141. Regulatory difficulties that may arise if an underwriter takes a part of the offering into its investment account in an overpriced offering are described in Daniel J. Winnike & Christopher E. Nordquist, Federal Securities Law Issues for the Sticky Offering, 48 BUS. LAW. 869 (1993).

142. See supra note 105 for a definition of stabilizing.
will be greater immediately following the IPO, because those able to purchase the security will include all investors. The post-offering participation of the individual investors may magnify the "herd trading" effect, because investors who follow those trading patterns are more likely to be purchasers.

As noted above, decisions to purchase stock in an IPO frequently are not based on an analysis of fundamentals. Thus, the increased price arising after the IPO has a diminished effect on the desire of these investors to purchase the stock, as their decisions are not based on some formal analysis of the earnings compared to the cost of the stock. This analysis of the regulatory environment of IPO’s also is consistent with the hypothesis noted above that fads arise when the later purchasers do not examine fundamentals, as this analysis of the regulatory environment postulates that individual investors, who will generally have less private information, are more likely to be the subsequent purchasers.

Even though the regulatory scheme increases the likelihood that there will be an initial increase in the price of a stock immediately after an IPO, this fact does not necessarily mean that the SEC should encourage alternative methods of stock distribution. Although there is a bias against individual purchasers, perhaps revising the rule would have a greater adverse impact. If offering prices were not fixed, perhaps individual investors generally would be sold the securities at prices higher than those charged to knowledgeable institutional investors. Such discounts were given to institutional investors before the SEC approved the NASD’s anti-discounting rules in 1980. Also, alternative distribution methods might create a chaotic market that would be to the detriment of all investors.

Alternatively, one might attempt to decrease overreactions by facilitating inclusion of investors whose investment decisions are less af-

143. See supra note 106 and accompanying text.
144. See supra note 104 and accompanying text.
146. Gerla, supra note 105, at 14-15. Since the overreactions existed before this change in the NASD’s rules, see supra note 100, the overreaction is not solely attributable to the restriction on underwriters rebating a part of the underwriting spread to institutional investors. Rather, the point is that firm commitment offerings, whether such rebates are permitted or not, create incentives to place stock quickly, which increases the likelihood that fad traders will not be the initial purchasers.

ected by a rigorous comparison of price/earnings ratios. Rule 430A under the Securities Act recently authorized registration statements to be declared effective before determination of the pricing information. Since the registration statement must otherwise be complete, one alternative would be to permit underwriters to agree to sell up to a specified portion, e.g., twenty percent, of the offering to investors at a price to be determined in the near future, e.g., within one week. As long as a substantial majority of the shares were placed with investors in the traditional fashion, those agreeing to purchase shares shortly before the shares were priced could rely on the self-interest of those who purchase after the price shall have been set to result in a reasonable price. To limit the financial exposure of those investors, the terms of those purchases might require that the price be within the range required to be set forth in the preliminary prospectus.

The thrust of this discussion is not to express an opinion on the desirability of these regulatory revisions or to analyze them in detail. Rather, the point is that areas for potential regulatory reform in dynamic environments may be identified by considering similar dynamic effects.

V. CONCLUSIONS

In creating a model for any economic system, various assumptions must be made. The allure of intellectually elegant theories, such as the Efficient Capital Markets Hypothesis, may entice their application without confirmation that the underlying assumptions are warranted in the particular context in which the theories are applied.

149. This time frame is consistent with subparagraph (a)(3) of Rule 430A, 17 C.F.R. § 230.430A(a)(3) (1993), which requires that previously omitted pricing information must be included in a prospectus filed within five business days of the effective date of the registration statement (or a post-effective amendment to the registration statement). A short period of time is desirable to minimize the likelihood that there would be intervening material developments, which also underlies the timing requirement of Rule 430A.
150. This range is required to be included in prospectuses for IPO's under 17 C.F.R. § 229.501(c)(6) (1993).
151. A similar concern was expressed by Professor Donald Langevoort:

People may not be rational investors, but they should be. The temptation to mold the doctrine in the image of the ideal is strong, especially if the implications of reality are more intellectually chaotic than we are comfortable to admit.

....

.... Whatever the substantive or political motivations, statements regarding efficiency
For example, commentators also have argued that the Efficient Capital Markets Hypothesis supports requiring less disclosure of companies that file registration statements of Form S-3.\textsuperscript{152} In fact, the integrated disclosure system, with limited exceptions, does not impose on larger issuers decreased disclosure obligations. Much information is filed by those firms in periodic reports under the 1934 Act that are available to all investors through the SEC, and the firms are merely not required to deliver a copy to each purchaser.\textsuperscript{153} Regardless of

in the process of policy formulation are frequently stronger and less careful than they should be. The danger is that a new wave of SEC and judicial policy making may thoughtlessly reify this rhetoric, in areas such as the regulation of takeovers or the role of shareholder monitoring.\cite{Langevoort} supra note 79, at 912-14. A related sentiment was expressed in Daniel A. Farber, \textit{The Case Against Brilliance}, 70 MINN. L. REV. 917 (1986):

In most fields of intellectual endeavor, the highest praise is reserved for brilliant insights that overturn conventional thinking and common sense. . . . I will argue, however, that “brilliance” should count heavily against an economic or legal theory. The same traits of novelty, surprise, and unconventionality that are considered marks of distinction in other fields should be considered suspect in economics and law, in which thoughtfulness may be a more important virtue.

\textsuperscript{152} See, e.g., \textit{Easterbrook & Fischel}, supra note 1, at 304 (“Larger firms disclose less than others (Schedule S-3, for the largest firms, is quite streamlined in recognition of the fact that markets generate great quantities of information about such firms.”) (emphasis added); Stout, supra note 112, at 638 (“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 \textit{which reduced the disclosure responsibilities of such firms.”) (emphasis added).

\textsuperscript{153} Some detail is required to demonstrate this proposition. Some disclosure requirements address items representing a specified percentage of a financial statement item. Those provisions do not provide a lower disclosure threshold for large firms; they merely recognize that materiality depends on the firm’s size. In addition to that type of differing disclosure obligation, and those that are only relevant to one or the other type of offering, e.g., the prior stock trading range, there are a few other distinctions. Those provisions concerning a registrant’s business that issuers filing a registration statement on Form S-1 for a stock IPO are required to disclose (excluding executive compensation, quarterly items or information required for specific industries) that are not required to be included in a registration statement on Form S-3 or the most recent annual report on Form 10-K are as follows: (i) the development of the registrant’s business for the four fiscal years preceding the most recent fiscal year, 17 C.F.R. § 229.101(a) (1993), Form 10-K, Item 1, \textit{reprinted in 5 Fed. Sec. L. Rep. (CCH) }\textbackslash{} 31,103, at 22,067 (May 24, 1982); (ii) a plan of operation for the next two to four fiscal quarters (including liquidity needs), which is required of certain firms, 17 C.F.R. § 229.101(a)(2) (1993); (iii) the overhang of shares subject to resale under Rule 144 or issuance upon exercise of warrants or options or on conversion of other securities, 17 C.F.R. § 229.201(a)(2), Form 10-K, Item 5, \textit{reprinted in 5 Fed. Sec. L. Rep. (CCH) }\textbackslash{} 31,103, at 22,068 (May 24, 1982), although similar, but less detailed, information may be included as a note to the financial statements; (iv) the identities of certain key employees who are not executive officers, 17 C.F.R. § 229.401(c), Form 10-K, Item 10, \textit{reprinted in 5 Fed. Sec. L. Rep. (CCH) }\textbackslash{} 31,103, at 22,069 (Dec. 31, 1992); (v) activities of promoters, 17 C.F.R. § 229.401(g) (1993); (vi) any material dilution to the purchasers following the offering, 17 C.F.R. § 229.506 (1993); (vii) information concerning new underwriters, 17 C.F.R. § 229.508(b) (1993); and (viii) whether underwriters will confirm sales to discretionary accounts, 17 C.F.R. § 229.508(j) (1993). Information referred to in (i) would be included in prior reports on Form 10-K for reporting.
the differences among the registration forms, all issuers are required to disclose any information required to make their offering documents not false or misleading. In addition, larger firms that conduct business in more than one segment have greater disclosure obligations, as they are required separately to provide certain financial information attributable to each segment. There also are lesser disclosure requirements for small business issuers (which have revenues and a public float of less than $25 million). Thus, larger firms do not have materially reduced disclosure obligations, yet application of an elegant theoretical model may suggest a conclusion inconsistent with the structure of federal securities law. Similarly, conclusions derived from static economic analyses of regulations affecting dynamic markets may be misleading.

This Article has identified particular aspects of groups of market participants that are well behaved, (i) that any feedback created by the system has the effect of reinforcing an equilibrium and (ii) that changes in the environment arise gradually relative to the time the system needs to respond, and applied these criteria to refine economic analyses of selected legal relationships created by corporate law. The prob-
lems that result from applying static or digital theories to analyze circumstances where transient effects predominate, which have been demonstrated by this Article, are not limited to the particular areas described above. For example, a similar analysis might permit interesting inferences concerning the effect that permitting insider trading as a method of signaling changing stock values\(^\text{156}\) would have on stock volatility. In circumstances where transient responses are of interest, dynamic economic analyses may prove helpful.

\(^{156}\) See, e.g., Kahan, \textit{supra} note 62, at 1003-05.