CORPORATE SHORT-TERMISM AND INTERTEMPORAL CHOICE

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ABSTRACT

This paper presents an intertemporal model of short-termism. Critics have portrayed short-termism in broad brushstrokes as the bane of corporate governance. But short-termism does not have a self-evident, efficiency-based normative value. A simple application of a well-accepted asset valuation theory shows that short-termism is not per se inefficient. If profitable enough, a short-term strategy would be better than a long-term strategy. This intuition is a mathematical and financial fact. The model presented here is tested in a case study of Air Products and Chemicals, Inc. v. Airgas, Inc., a prominent and legally significant Delaware hostile takeover battle. Short-termism was a key fact in the court's legal analysis of the target's poison pill defense. The case enables a counterfactual analysis of the financial returns based on the target's intertemporal strategic choices and the time horizons of shareholders. The choice of a short-term strategy is contextual; the outcomes therefrom can result in random errors or rational outcomes. It can also result in a systemic social problem, but only when two levels of market inefficiency coexist: the corporate market is systemically biased in intertemporal decisions, and the capital market is inefficient in failing to incorporate this bias into stock prices. These conditions are special, occurring only infrequently. They are intrinsic qualities of a market bubble.

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INTRODUCTION

The concern over corporate short-termism has been long expressed.[1] Short-termism is the idea that managers myopically focus on short-term results at the cost of long-term profitability and firm value. Recent debate over short-termism expresses the concern that, given the heterogeneity of shareholder investment time horizons, activist short-term shareholders—archetypically hedge funds—pressure managers to adopt strategies that increase short-term share price at some cost to the firm's long-term profit or prospect.[2] The debate is important on several levels. At the level of theory, it informs the fundamental allocation of power between managers and shareholders.[3] At the level of corporate governance, it informs directors and

1. Martin Lipton & Steven A. Rosenblum, *A New System of Corporate Governance: The Quinquennial Election of Directors*, 58 U. CHI. L. REV. 187, 202–15 (1991); Jeremy C. Stein, *Takeover Threats and Management Myopia*, 96 J. POL. ECON. 61 (1988); Martin Lipton, *Takeover Bids in the Target's Boardroom*, 33 BUS. LAW. 101, 104 (1979).

2. *See infra* Section I.A.

3. MM Cos., Inc. v. Liquid Audio, Inc., 813 A.2d 1118, 1126 (Del. 2003); Air Prods. & Chems., Inc. v. Airgas, Inc., 16 A.3d 48, 54 (Del. Ch. 2011); *infra* note 149.

officers of the broad directive to create value.[4] At the level of policy, it informs whether corporation law or other laws should be used to remedy a perceived social problem or market inefficiency.[5]

If short-termism exists in the market and diminishes the value of firms, it undermines the idea that greater shareholder power and activism leads to wealth maximization. Some have argued that activist short-term shareholders do not create value, and they instead extract rent resulting in net social cost in the form of lower firm values over the long-term.[6] This argument strikes at the heart of a strong shareholder-centric paradigm and the legitimacy of increasing activism by shareholders with shorter investment horizons such as hedge funds.[7]

Academic attention on short-termism has been legion.[8] Engaging in theoretical and empirical analyses, commentators have sharply disagreed on the hypothesis of short-termism.[9] The perception that short-termism is a problem has influenced elite levels of the corporate community, business courts, and policymakers.[10] The academic debate has a direct connection to the levers of policy.

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4. *See infra* Section I.B. (describing the comments of some Delaware judges and courts).

5. *See infra* notes 247–248 (providing various proposals for dealing with perceived short-termism).

6. Leo E. Strine, Jr., *One Fundamental Corporate Governance Question: Can Corporations Be Managed for the Long Term Unless Their Powerful Electorates Also Act and Think Long Term?*, 66 BUS. LAW. 1, 8 (2010); Martijn Cremers, Saura Masconale & Simone M. Sepe, *Activist Hedge Funds and the Corporation*, 94 WASH. U. L. REV. 261, 264 (2016).

7. *See* Marcel Kahan & Edward B. Rock, *Hedge Funds in Corporate Governance and Corporate Control*, 155 U. PA. L. REV. 1021, 1087 (2007) ("Short-termism thus presents the potentially most important, most controversial, most ambiguous, and most complex problem associated with hedge fund activism.").

8. *E.g.*, David J. Berger, Steven Davidoff Solomon & Aaron J. Benjamin, *Tenure Voting and the U.S. Public Company*, 72 BUS. LAW. 295 (2017); J.B. Heaton, *The "Long Term" in Corporate Law*, 72 BUS. LAW. 353 (2017); Leo E. Strine, Jr., *Who Bleeds When the Wolves Bite?: A Flesh-and-Blood Perspective on Hedge Fund Activism and Our Strange Corporate Governance System*, 116 YALE L.J. 1870 (2017); John C. Coffee, Jr. & Darius Palia, *The Wolf at the Door: The Impact of Hedge Fund Activism on Corporate Governance*, 41 J. CORP. L. 545 (2016); Jesse M. Fried, *The Uneasy Case for Favoring Long-Term Shareholders*, 124 YALE L.J. 1554 (2015); Lucian A. Bebchuk, Alon Brav & Wei Jiang, *The Long-Term Effects of Hedge Fund Activism*, 115 COLUM. L. REV. 1085 (2015); Robert Anderson IV, *The Long and Short of Corporate Governance*, 23 GEO. MASON L. REV. 19 (2015); Mark J. Roe, *Corporate Short-Termism—In the Boardroom and in the Courtroom*, 68 BUS. LAW. 977 (2013); Iman Anabtawi & Lynn Stout, *Fiduciary Duties for Activist Shareholders*, 60 STAN. L. REV. 1255 (2008).

9. *See infra* Section I.A.

10. *See* Roe, *supra* note 8, at 982 & n.13 (noting comments of commissioners of the Securities and Exchange Commission (SEC)); *infra* Section I.B. (discussing the viewpoints of Delaware judges); ASPEN INST., OVERCOMING SHORT-TERMISM: A CALL FOR A MORE RESPONSIBLE APPROACH TO INVESTMENT AND BUSINESS MANAGEMENT (Sept. 9, 2009) (signatories include prominent business leaders John Bogle, Warren Buffett, and Louis Gerston); Joe Biden, *How Short-Termism Saps the Economy*, WALL ST. J. (Sept. 27, 2016), https://www.wsj.com/articles/how-short-termism-saps-the-eco

This paper contributes a theoretical model of short-termism. The thesis is simple: when a firm faces an intertemporal choice of profit tradeoff, the choice of the short-term profit is not *per se* inefficient. This idea is empirically testable against the facts of one of the most prominent hostile takeover cases in recent years. Based on this analysis of theory and case study, this paper presents a framework for understanding how short-termism can be benign, beneficial, or harmful.[11] These ideas are organized into four sections.

Section I briefly summarizes the academic and judicial literature on the hypothesis of short-termism. Commentators sharply disagree on theory and empirical evidence. They sometimes use or confuse subtle but different definitions and conceptions of short-termism. These differences are significant. Ambiguity in the conversation hinders understanding; precise definitions and concepts advance it. This paper proposes three distinct forms short-termism. Each form requires a specific analysis.

Section II constructs an intertemporal model of short-termism. The core scenario in the debate concerns managerial choice of intertemporal tradeoff of short-term profit and long-term cost. The model is based on a theory of asset valuation that is well-accepted by the financial community and Delaware courts. It confirms as a matter of mathematical and financial truth the intuition that, if profitable enough, a short-term strategy can be rational and maximize firm value. The model shows that short-term choices can frequently be the optimal strategy.

Section III applies the model in an empirical case study of *Air Products & Chemicals, Inc. v. Airgas, Inc.*[12] The case provides an ideal set of facts to test the model and its idea. Unique events permit a counterfactual analysis of the target's intertemporal choices in a legal context where the short-term time horizon of shareholders was the most important factor in the court's

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nomy-1475018087 (commenting that short-termism "is one of the greatest threats to America's enduring prosperity").

11. As a prefatory matter, the scope of this paper is limited to a sustained study of short-term corporate actions. This paper's primary contribution is the idea that neither long-term nor short-term corporate actions and strategies have a self-evident, efficiency-based normative value as demonstrated through a financial model of intertemporal choice at the microeconomic level of managerial decision-making. This paper is not a general study of shareholder activism, which is a broad subject. It discusses shareholder activism and hedge funds in the specific context of the short-termism debate. *See* Coffee & Palia, *supra* note 8, at 573 ("One of the most frequently voiced concerns about hedge fund activism is that it will lead to 'short-termism' . . . ."); Bernard S. Sharfman, *Activist Hedge Funds in a World of Board Independence: Creators or Destroyers of Long-Term Value?*, 2015 COLUM. BUS. L. REV. 813, 816 (2015) (same). The debate on short-termism is had in various areas of public policy. *See, e.g.*, Ian Bremmer, *How the Financial Crisis Undermined America's Place Atop the Global Order*, TIME (Sept. 20, 2018) ("And Americans still invest for short-term gain rather than long-term productivity. That's why the stock market is rising while infrastructure crumbles."). The paper should not be construed as a contextless, general endorsement of short-termism.

12. Air Prods. & Chems., Inc. v. Airgas, Inc., 16 A.3d 48 (Del. Ch. 2011); Airgas, Inc. v. Air Prods. & Chems., Inc., 8 A.3d 1182 (Del. 2010).

analysis of the target's poison pill. This case study confirms that, given a specific condition, the short-term strategy can be more profitable. It shows that the intertemporal model has explanatory power in understanding board decisions and judicial analyses.

Section IV analyzes the conditions in which short-termism is benign, beneficial, and harmful. The form of short-termism and its systematicity determine whether it can be a social problem. Short-term shareholders, such as hedge funds, can play a beneficial role. By providing a liquidity of concentrated ownership, they push the traditional, historical structure of diffuse ownership in United States (U.S.) public corporations toward the structure of concentrated ownership commonly seen in other parts of the world, though the U.S. form of such ownership is transient and transactional.

I. THE PROBLEM OF SHORT-TERMISM

In the new century, U.S. companies have continued to experience three interrelated phenomena: increasing institutional ownership,[13] shortening hold periods,[14] and increasing shareholder activism.[15] The idea of short-termism connects these trends to hypothesize that some activist shareholders with short-term holding periods as an investment strategy—archetypically hedge funds[16]—pressure managers to select suboptimal corporate strategies and actions that increase short-term profit by sacrificing the firm's long-term prospects. Among other pressure tactics, they coerce management through publicity campaigns and proxy contests.[17] Strategies and actions advocated through such coercion include an array of financial decisions, strategic choices, and governance changes: for example, changes in policies on distributions such as dividends and stock buybacks, divestitures, mergers and acquisitions (M&A), asset allocation, capital

13. *See* Ronald J. Gilson & Jeffrey N. Gordon, *The Agency Costs of Agency Capitalism: Activist Investors and the Revaluation of Governance Rights*, 113 COLUM. L. REV. 863, 864–65 (2013) (showing that institutional shareholding increased from 6.1% of U.S. equities in 1950 to 50.6% and 73% of the 1,000 largest U.S. corporations in 2009).

14. *See infra* notes 164–166 and accompanying text; Berger, Solomon & Benjamin, *supra* note 8, at 298–99.

15. *See* Simone M. Sepe, *Board and Shareholder Power, Revisited*, 101 MINN. L. REV. 1377, 1392 n.72 (2017) (providing data on shareholder activists); Bebchuk, Brav & Jiang, *supra* note 8, at 1100 (same). *See also* Coffee & Palia, *supra* note 8, at 553–72 (explaining the factors spurring activism by hedge funds).

16. *See* Coffee & Palia, *supra* note 8, at 573–74.

17. Kahan & Rock, *supra* note 7, at 1029; Cremers, Masconale & Sepe, *supra* note 6, at 271–72, 312. *See* Andrei Shleifer & Robert W. Vishny, *Equilibrium Short Horizons of Investors and Firms*, 80 AM. ECON. REV. (PAPERS & PROC.) 148 (1990) (arguing that short-term investment horizons of arbitrageurs influence the time horizon of managers).

expenditures, research and development (R&D), internal governance matters such as takeover defenses, and leadership changes in the board and senior management.[18]

A. Academic Debate

Scholars have vigorously disputed the hypothesis of short-termism. Proponents of the hypothesis have argued that short-termism exists, is a serious problem, and must be fixed through policy.[19] They are suspicious of short-term shareholders and question whether the abnormal returns reflect "value actually created" or value "merely appropriated from fellow stockholders with longer-term investment horizons."[20] Disunity of shareholders' interests is possible because markets are imperfect, resulting in increased short-term stock price even when long-term value has been diminished, and because shareholders have heterogeneous preferences in terms of risk and time horizon.[21] A myopic, short-term perspective has broad social implications because it has been a causal factor in past major crises in the corporate and financial markets.[22] Thus, short-termism not only adversely affects companies and long-term shareholders, but also the broader society.

Opponents of the hypothesis have argued that short-termism is an incoherent idea.[23] One argument is that as a matter of finance theory, short-termism cannot exist in informationally rich, liquid capital markets.[24] Short-

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18. *See* Anderson, *supra* note 8, at 29; Coffee & Palia, *supra* note 8, at 550, 573; Bebchuk, Brav & Jiang, *supra* note 8, at 1093; Alon Brav, Wei Jiang, Frank Partnoy & Randall Thomas, *Hedge Fund Activism, Corporate Governance, and Firm Performance*, 63 J. FIN. 1729, 1741–45 (2008).

19. *See, e.g.*, K.J. Martijn Cremers, Saura Masconale & Simone M. Sepe, *Commitment and Entrenchment in Corporate Governance*, 110 NW. U. L. REV. 727, 747–51 (2016); Strine, *supra* note 8, at 1873; Lipton & Rosenblum, *supra* note 1, at 202–15; Jack Jacobs, *"Patient Capital": Can Delaware Corporate Law Help Revive It?*, 68 WASH. & LEE L. REV. 1645, 1657 (2011).

20. Martin Lipton, Wachtell, Lipton, Rosen & Katz, *Important Questions About Activists Hedge Funds*, HARVARD LAW SCH. FORUM ON CORP. GOV. & FIN. REG. (Mar. 9, 2013), https://corpgov.law.harvard.edu/2013/03/09/important-questions-about-activist-hedge-funds.

21. *See* Cremers, Masconale & Sepe, *supra* note 6, at 276–79.

22. *See* Lynne L. Dallas, *Short-Termism, the Financial Crisis, and Corporate Governance*, 37 J. CORP. L. 265, 268 n.7, 269 (2012); Jill E. Fisch, *Measuring Efficiency in Corporate Law: The Role of Shareholder Primacy*, 31 J. CORP. L. 637, 673 (2006); William W. Bratton, *Enron and the Dark Side of Shareholder Value*, 76 TUL. L. REV. 1275, 1283 (2002); Leo E. Strine, Jr., *Why Excessive Risk-Taking Is Not Unexpected*, N.Y. TIMES: DEALBOOK (Oct. 5, 2009), https://dealbook.nytimes.com/2009/10/05/dealbook-dialogue-leo-strine; Martin Lipton, Theodore N. Mirvis & Jay W. Lorsch, *The Proposed "Shareholder Bill of Rights Act of 2009"*, HARV. LAW SCH. FORUM ON CORP. GOV. & FIN. REG. (May 12 2009), https://corpgov.law.harvard.edu/2009/05/12/the-proposed-shareholder-bill-of-rights-act-of-2009.

23. *See, e.g.*, Bebchuk, Brav & Jiang, *supra* note 8; Anderson, *supra* note 8.

24. *See infra* notes 65 and 235; Heaton, *supra* note 8, at 359 ("[F]inancial economists, as a rule, do not take the short-termism assertion seriously."); Anderson, *supra* note 8, at 20 ("That assertion is

term shareholders can profit at the expense of long-term shareholders only if the stock market has a systematic bias; the market must undervalue long-term profit relative to short-term profit. If information on profitability is correctly incorporated into stock price, all shareholders are in the same position. There is a unity of shareholders' interests because their profit, short-term or long-term, inures to the benefit of all shareholders.[25]

Other skeptics have argued that short-termism is consistent with firm value maximization[26] or that no policy redress is needed in light of already existing corrective mechanisms in the market.[27] Some have also suggested that proponents of the hypothesis have a hidden agenda: that is, a belief that short-termism tends to increase shareholder profit at the cost of long-term stakeholder interest and an objection thereto.[28] This objective, opponents argue, is really just another iteration of the long-continuing debate on shareholder primacy.[29] Evidence of this contention is seen in the *ALI Principles of Corporate Governance*, which explicitly justifies a preference for long-term profit on the ground that long-term profitability promotes the interest of all stakeholders.[30]

Empirical studies have tried to test the short-termism hypothesis. These studies have focused on stock price returns before and after activist intervention to determine whether it results in a pump-and-dump stock price manipulation. A recent paper studied stock price movement during a five-year period following activist intervention.[31] It found that the public disclosure of activist intervention resulted in an average abnormal positive

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inconsistent with basic principles of mainstream financial economics."); George W. Dent, Jr., *The Essential Unity of Shareholders and the Myth of Investor Short-Termism*, 35 DEL. J. CORP. L. 97, 100 (2010) ("Most experts in corporate law and in financial economics believe that most shareholders have the same investment goal . . . .").

25. Kahan & Rock, *supra* note 7, at 1084.

26. Fried, *supra* note 8, at 1561–64, 1574; Bernard S. Sharfman, *The Tension Between Hedge Fund Activism and Corporate Law*, 12 J.L. ECON. & POL'Y 251 (2016).

27. Roe, *supra* note 8, at 1005–06; Kahan & Rock, *supra* note 7, at 1989.

28. *See* Anderson, *supra* note 8, at 53–62; Heaton, *supra* note 8, at 357; Roe, *supra* note 8, at 1004; Thomas Lee Hazen, *The Short-Term/Long-Term Dichotomy and Investment Theory: Implication for Securities Market Regulation and for Corporate Law*, 70 N.C. L. REV. 137, 142 (1991).

29. *See generally* Robert J. Rhee, *A Legal Theory of Shareholder Primacy*, 108 MINN. L. REV. 1951 (2018).

30. *See* ALI PRINCIPLES OF CORPORATE GOVERNANCE: ANALYSIS AND RECOMMENDATIONS § 2.01 cmt. f (1994) ("Short-term profits may properly be subordinated to recognition that responsible maintenance of these interdependencies [among employees, customers, suppliers, and members of the communities] is likely to contribute to long-term corporate profit and shareholder gain."). *Cf.* William T. Allen, *Our Schizophrenic Conception of the Business Corporation*, 14 CARDOZO L. REV. 261, 272–73 (1992) (corporate law "papered over" the debate on shareholder primacy "by invoking a murky distinction between long-term profit maximization and short-term profit maximization").

31. Bebchuk, Brav & Jiang, *supra* note 8, at 1089.

return, and after shareholder intervention it found operational gains and no abnormal negative stock returns.[32] Some scholars have criticized this study and argued that the abnormal returns reported are attributable to successful stock picking instead of value added by activism.[33] They have presented other empirical evidence supporting the argument that short-term shareholder activism does not mitigate managerial agency cost.[34] Other scholars have suggested that indirect empirical evidence, such as the use of dual class stock and earnings manipulations, supports the contention that markets have focused on short-term results.[35] Some commentators have argued that the entire empirical enterprise is inherently limited because such studies cannot explain causality.[36] In sum, empirical analyses thus far have been inconclusive.[37]

B. Delaware Judges and Courts

Delaware judges have also weighed in. In scholarly writings, some have endorsed the idea that corporations should be managed for the long-term and have disapproved of short-termism.[38] Jack Jacobs has called short-termism "a national problem that needs to be fixed."[39] Leo Strine has warned against "the emergence of activist hedge funds as a powerful force acting upon public companies."[40] The corporate governance system should favor the long-term perspective and the adoption of sustainable strategies to

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32. *Id.* at 1117, 1122, 1130–31, 1134.

33. Cremers, Masconale & Sepe, *supra* note 6, at 280–85; Coffee & Palia, *supra* note 8, at 586.

34. Id. at 285–304. *See* Leo E. Strine, Jr., *Can We Do Better by Ordinary Investors? A Pragmatic Reaction to the Dueling Ideological Mythologists of Corporate Law*, 114 COLUM. L. REV. 449, 462–63, 463 n.41 (2014).

35. Roe, *supra* note 8, at 980, 986; Berger, Solomon & Benjamin, *supra* note 8, at 303.

36. *See* Lucian A. Bebchuk, Jonathan R. Macey, Robert T. Miller & Steven A. Rosenblum, *Corporations: The Short-Termism Debate*, 85 MISS. L.J. 697, 708 (2016) (comment of Steven Rosenblum) (hereinafter "The Short-Termism Debate"). *Cf.* Anabtawi & Stout, *supra* note 8, at 1301 ("[T]he temporary nature of the price increase will become apparent only after some time, and then any decline could be attributed to other causes.").

37. *See* Zohar Goshen & Richard Squire, *Principal Costs: A New Theory of Corporate Law and Governance*, 117 COLUM. L. REV. 767, 821 (2017) ("produced mixed results"); Emiliano M. Catan & Marcel Kahan, *The Law and Finance of Antitakeover Statutes*, 68 STAN. L. REV. 629, 665–67 (2016) ("yielded little knowledge"); Kahan & Rock, *supra* note 7, at 1085 & n.271 ("sketchy at best"); Coffee & Palia, *supra* note 8, at 551 ("decidedly more mixed"). *See also* Sharfman, *supra* note 11, at 819 (noting that some prominent corporate law commentators have rejected empirical studies supporting hedge fund activism).

38. *See* Leo E. Strine, Jr., *One Fundamental Corporate Governance Question We Face: Can Corporations Be Managed for the Long-Term Unless Their Powerful Electorates Also Act and Think Long Term?*, 66 BUS. LAW. 1, 7–9 (2010); Jacobs, *supra* note 19, at 1652, 1661–63; William T. Allen, Jack B. Jacobs & Leo E. Strine, Jr., *The Great Takeover Debate: A Meditation on Bridging the Conceptual Divide*, 69 U. CHI. L. REV. 1067, 1096 (2002).

39. Jacobs, *supra* note 19, at 1657.

40. Strine, *supra* note 8, at 1873.

do business.[41] These judges are wary of increased power of short-term shareholders to influence policy in corporate governance beyond the traditional framework of the corporate franchise.[42]

These scholarly statements are consistent with the judicial refrain that the board should manage the business and affairs of the corporation for the "long-term" interest of the shareholders and the corporation.[43] Presumably, the long-term equates to the animating goal of maximizing firm value.[44] But the "long-run" has also been said to be an elision to harmonize conflicting models of corporate nature and purpose.[45] When courts refer to the "long-term," it may be code for managerial authority encompassing the consideration of the interests of all stakeholders.[46]

A problem with the "long-run" refrain is that courts do not define what the long-term is in instrumental terms that translate to specific corporate actions.[47] It presumably means perpetuity.[48] But in truth courts cannot guide managers toward selection of time horizons. The judicial prescription thus must be taken with a grain of salt. Delaware courts have been more equivocal when cases require a specific analysis of intertemporal choice, though ultimately their thumb is firmly on the scale of managerial prerogative and authority as long as certain fiduciary conditions are met.

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41. Strine has argued that corporations should "make money the old-fashioned way, by implementing sustainable strategies to sell products and services and not through edgy practices, accounting gimmickry, or never-ending cycles of spin-offs and mergers." *Id.* at 1874.

42. *See* Leo E. Strine, Jr., *Toward Common Sense and Common Ground? Reflections on the Shared Interests of Managers and Labor in a More Rational System of Corporate Governance*, 33 J. CORP. L. 1, 7 (2007); Jacobs, *supra* note 19, at 1652; E. Norman Veasey, *The Stockholder Franchise Is Not a Myth: A Response to Professor Bebchuk*, 93 VA. L. REV. 811, 815–16 (2007).

43. *E.g.*, Virtus Capital L.P. v. Eastman Chem. Co., C.A. No. 9808-VCL, 2015 WL 580553, at *16 n.5 (Del. Ch. Feb. 11, 2015) ("maximize the corporation's value over the long-term"); *In re* Rural Metro Corp., 88 A.3d 54, 80 (Del. Ch. 2014) ("maximize value over the long-term"); Gantler v. Stephens, 965 A.2d 695, 706 (Del. 2009) ("enhancing the corporation's long term share value"); Credit Lyonnais Bank Nederland, N.V. v. Pathe Commc'ns Corp., Civ. A. No. 12150, 1991 WL 277613, at *34 (Del. Ch. Dec. 30, 1991) ("maximize the corporation's long-term wealth"); TW Servs., Inc. v. SWT Acquisition Corp., Civ. A. Nos. 10427, 10298, 1989 WL 20290, at *7 (Del. Ch. Mar. 2, 1989) ("long run interests of shareholders"); Katz v. Oak Indus., 508 A.2d 873, 879 (Del. Ch. 1986) ("maximize the long-run interests of the corporation's stockholders").

44. *See* Leo E. Strine, Jr., *Our Continuing Struggle with the Idea that For-Profit Corporations Seek Profit*, 47 WAKE FOREST L. REV. 135, 155 (2012) ("[C]orporate law requires directors, as a matter of their duty of loyalty, to pursue a good faith strategy to maximize profits . . . .").

45. Allen, *supra* note 30, at 273.

46. *See supra* notes 28–30 and accompanying text.

47. *See* Heaton, *supra* note 8, at 360 ("But what is this 'long-term' shareholder value? The courts never say. It is not a concept from financial economics. Does anyone have a coherent explanation for what it means, in economic terms?").

48. *See infra* note 79.

Shareholders and managers often conflict in intertemporal choices in the takeover context.[49] Shareholders often desire a short-term cash out, and managers often prefer a long-term strategy.[50] The leading case addressing the issue of time horizon is *Paramount Communications, Inc. v. Time Inc.* The Delaware Supreme Court there analyzed whether the Time board breached its fiduciary duty when it rejected Paramount's takeover offer in favor of acquiring Warner as a part of its long-term corporate strategy to remain independent.[51] The court framed the issue of time horizon as this: "Did Time's board, having developed a [long-term] strategic plan . . . come under a fiduciary duty to jettison its plan and put the corporation's future in the hands of its stockholders?"[52] The court answered no: "Directors are not obliged to abandon a deliberately conceived corporate plan for a short-term shareholder profit unless there is clearly no basis to sustain the corporate strategy."[53] On the specific issue of intertemporal choice, it is "unwise to place undue emphasis upon long-term versus short-term corporate strategy."[54] The choice is a matter of managerial prerogative to select the time horizon in exercising business judgment.

> This broad mandate [to manage the corporation under DGCL § 141(a)] includes a conferred authority to set a corporate course of action, including time frame, designed to enhance corporate profitability. Thus, the question of "long-term" versus "short-term" values is largely irrelevant because directors, generally, are obliged to chart a course for a corporation which is in its best interests without regard to a fixed investment horizon.[55]

The court's observation is correct. The lodestar of value maximization is not some specific timeframe. It is the strategy that maximizes the present value of all future free cashflow.[56] Short-term profit maximization is the legally required strategy only when a firm is in the *Revlon* zone;[57] then the

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49. *See* Allen, *supra* note 30, at 275 ("The long-term/short-term distinction could not persuasively be used to answer or evade that question when it arose in [the takeover] context.").

50. *See* Lipton, *supra* note 1, at 104.

51. Paramount Commc'ns, Inc. v. Time Inc., 571 A.2d 1140 (Del. 1989).

52. *Id.* at 1149–50.

53. *Id.* at 1154.

54. *Id.* at 1150.

55. *Id.* "Indeed, in our view, precepts underlying the business judgment rule militate against a court's engaging in the process of attempting to appraise and evaluate the relative merits of a long-term versus a short-term investment goal for shareholders." *Id.* at 1153.

56. *See infra* Section II.A. *See also* Sharfman, *supra* note 11, at 837 ("Long-term value creation means a decision-making process where management strives to maximize a firm's net present value.").

57. Revlon v. MacAndrews & Forbes Holdings, Inc., 506 A.2d 173, 182 (Del. 1986). *See* Paramount Commc'ns, Inc. v. Time Inc., 571 A.2d 1140, 1150 (Del. 1989) ("Thus, the question of 'long-term' versus 'short-term' values is largely irrelevant because directors, generally, are obliged to chart a

board's substantive action is legally cabined to the short-term because "for the present shareholders, there is no long run."[58] Otherwise, the court does not require a specific time horizon despite the oft-repeated "long-term" leitmotif in judicial commentary.[59]

C. Forms of Short-Termism

Short-termism as an idea is the excessive focus on short-term goals at the expense of longer-term goals resulting in insufficient attention to long-term strategy and value.[60] When applied to corporate governance and managerial decision-making, the idea lacks concreteness.[61] The concept has been elusive. Scholars have assumed or conflated different and consequential definitions of short-termism, which can be confusing. Unless these definitional differences are explicitly teased out, we gloss over important facets of the short-termism debate.

Commentary at times employ two conceptions of how short-termism works. Short-termism has sometimes been defined in terms of increasing *stock price* at the expense of long-term firm value.[62] At other times, it has been defined in terms of increasing short-term *profit* at the expense of long-term firm value.[63] Price and profit can be coterminous, but they are not the same. In a semi-strong efficient market, they can be used interchangeably without much problem because information related to profits is incorporated into the market price.[64] Any disclosed current action that harms the firm's

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course for a corporation which is in its best interests without regard to a fixed investment horizon. Second, absent a limited set of circumstances as defined under *Revlon*, a board of directors, while always required to act in an informed manner, is not under any *per se* duty to maximize shareholder value in the short term, even in the context of a takeover.").

58. TW Servs., Inc. v. SWT Acquisition Corp., Civ. A. Nos. 10427, 10298, 1989 WL 202290, at *7 (Del. Ch. Mar. 2, 1989).

59. "The fiduciary duty to manage a corporate enterprise includes the selection of a time frame for achievement of corporate goals." Paramount Commc'ns, Inc. v. Time Inc., 571 A.2d 1140, 1154 (Del. 1989). *See* Sharfman, *supra* note 11, at 833 ("Thus, the meaning of 'long-term' cannot be characterized by being greater than any specific number of days, months, or years. It simply depends on the situation.").

60. *See* BARTOSZ OLESIŃSKI ET AL., EY POLAND, SHORT-TERMISM IN BUSINESS: CAUSES, MECHANISMS AND CONSEQUENCES 7 (2014).

61. Berger, Solomon & Benjamin, *supra* note 8, at 299–300; Kahan & Rock, *supra* note 7, at 1087.

62. Fried, *supra* note 8, at 1557–58, 1580–81; Anderson, *supra* note 8, at 30; Strine, *supra* note 34, at 477.

63. Lynne L. Dallas & Jordan M. Barry, *Long-Term Shareholders and Time-Phased Voting*, 40 DEL. J. CORP. L. 541, 559 (2016).

64. Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. FIN. 383, 383 (1970). *See generally* Ronald J. Gilson & Reinier H. Kraakman, *The Mechanisms of Market Efficiency*, 70 VA. L. REV. 549, 565–92 (1984).

long-term prospect will be incorporated into the stock price; such disclosure makes short-termism impossible because it would diminish current stock price, defeating the whole purpose of increasing stock price through short-term action. In an efficient market, short-termism cannot exist. The short-termism hypothesis must assume that markets are inefficient.[65] In an inefficient market, profit and price are not coterminous.[66] The difference between profit and stock price implies three forms of short-termism.

The first form, termed the "tradeoff form" here, is the concept that managers increase short-term *profit* by sacrificing long-term profit.[67] For example, a company does not make investments in the short-term that could yield long-term profit. If this strategy increases short-term profit, the correctness of the strategy is subject to a standard cost-benefit analysis. Well-accepted theoretical and practical tools in finance can answer that question. When a manager correctly executes a tradeoff strategy, a conflict between a short-term and a long-term shareholder cannot exist.

The second form of short-termism is premised on the concept that managers inflate *stock price* through tactics that generate no real profit in the short-term.[68] It is a pump-and-dump stock scheme at best, and a form of fraud at worst.[69] Managers somehow fool the market into believing that the short-term action creates value, but firm value is either unaffected or suffers when the market ultimately learns the truth. The inflation form of short-termism has two variants. The "inflation no loss form" is stock price inflation in the short-term without harm to long-term profit. Intrinsic firm value is ultimately unaffected. The "inflation loss form" is stock price

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65. *See supra* note 23; *infra* note 235; Heaton, *supra* note 8, at 359 ("It assumes a level of investor irrationality that the facts cannot bear."); Anderson, *supra* note 8, at 33 ("In order for short-term prices to differ in predictable ways from long-term prices, the capital markets must be inefficient."); Bebchuk, Brav & Jiang, *supra* note 8, at 1096 ("Supporters of the myopic-activists claim believe that stock market prices are sometimes informationally inefficient . . . ."); Lucian A. Bebchuk, *The Myth That Insulating Boards Serve Long-Term Value*, 113 COLUM. L. REV. 1637, 1660–76 (2013) (same).

66. *See* Fried, *supra* note 8, at 1583 n.105 ("If markets are rational, then short-term shareholders cannot systematically benefit from costly price-boosting manipulation. . . . If markets are noisy rather than rational . . . short-term shareholders can benefit both ex post and ex ante from costly price-boosting manipulation.").

67. "Profit" broadly means real economic gain, which ultimately results in free cash flow available to stockholders in a financial analysis. *See infra* note 72.

68. *See* Berger, Solomon & Benjamin, *supra* note 8, at 300 (referencing inflation of stock price); Anderson, *supra* note 8, at 37 (same); Anabtawi & Stout, *supra* note 8, at 170 (same).

69. *See* Fried, *supra* note 8, at 1581 (describing earnings manipulation and other misleading tactics); Coffee & Palia, *supra* note 8, at 549 (noting that critics have charged hedge funds with "pump and dump" schemes); Bill George, *Activists Seek Short-Term Gain, Not Long-Term Value*, N.Y. TIMES: DEALBOOK (Aug. 26, 2013), https://dealbook.nytimes.com/2013/08/26/activists-seek-short-term-gain-not-long-term-value ("They lobby publicly for significant structural changes, hoping to drive up the share price and book quick profits. Then they bail out, leaving corporate management to clean up the mess.").

inflation in the short-term with real harm to long-term profit.[70] Since long-term profit has been sacrificed with no concomitant offset in short-term profit, managerial action diminishes intrinsic firm value. Like the tradeoff form of short-termism, the inflation form presents its own analytical and policy considerations.

The three forms of short-termism, often conflated in conversation, are conceptually consequential. Because short-termism is an ambiguous concept, we should specify its precise mechanisms. The above three forms of short-termism inform the analysis in this article.

II. INTERTEMPORAL MODEL OF PROFIT TRADEOFF

Of the three forms of short-termism, the tradeoff form should be the least contestable analysis—at least if fundamental finance principles are not disputed. Short-termism is sometimes characterized in broad brush strokes as the bane of corporate governance, creating a misleading impression that elevates long-term strategies as aspirational and short-term choices as suboptimal. Such characterization is too simplistic and misleading, frankly, at the microeconomic level to describe the range of strategies managers must select. Managers routinely make intertemporal cost-benefit choices.[71] We can model the cost-benefit of these choices by applying a generally accepted financial theory of asset valuation.

A. Primer on Asset Valuation

At the most abstract level, the theoretical value of a firm is the expected cashflow that a firm provides investors discounted by a rate reflecting the riskiness of the cashflow, and so the expectation of return is commensurate with the risk taken.[72] When investors purchase a security, they give the firm cash in the present and expect the firm to pay cash in the future. The firm should provide a return sufficient to entice investors to contribute capital in light of the fact that they have other investment opportunities, such as risk-free securities and a market-indexed portfolio.[73]

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70. *See* Fried, *supra* note 8, at 1581 (describing two situations, one where stock price manipulation is economically costless and another where it is costly).

71. *See* TIM KOLLER, MARC GOEDHART & DAVID WESSELS, VALUATION: MEASURING AND MANAGING THE VALUE OF COMPANIES 13 (6th ed. 2015) (noting the tradeoffs managers make between short-term profit and long-term value).

72. *Id.* at 17; RICHARD A. BREALEY, STEWART C. MYERS & FRANKLIN ALLEN, PRINCIPLES OF CORPORATE FINANCE 94 (11th ed. 2014).

73. *See* ROBERT J. RHEE, CORPORATE FINANCE 61–73 (2016) (explaining the concept of cost of capital and investment returns).

This theory is applied in the practice of finance. In securities analysis, the most prominent and generally accepted technique to calculate a firm's theoretical value is the discounted cashflow (DCF) analysis.[74] This technique is founded on Nobel Prize-winning works in portfolio theory and capital asset pricing model.[75] The DCF has long been accepted by Delaware courts.[76] The technique requires discounting free cashflow (hereinafter

74. *See* Robert J. Rhee, *The Effect of Risk on Legal Valuation*, 78 U. COLO. L. REV. 193, 203 (2007) ("generally accepted technique"); Ryan v. Tad's Enters., Inc., 709 A.2d 682, 702 (Del. Ch. 1996) ("well-established and accepted in the financial community"), *aff'd*, 693 A.2d 1082 (Del. 1997); Neal v. Alabama By-Products Corp., Civ. A. No. 8282, 1990 WL 109243, at *7 (Del. Ch. Aug. 1, 1990) ("the preeminent valuation methodology"), *aff'd*, 588 A.2d 255 (Del. 1991); Cede & Co. v. Technicolor, Inc., Civ. A. No. 7129, 1990 WL 161084, at *7 (Del. Ch. Oct. 19, 1990) ("the single best technique to estimate the value of an economic asset"), *rev'd on other grounds*, 684 A.2d 289 (Del. 1996).

75. Harry Markowitz, *Portfolio Selection*, 7 J. FIN. 77 (1952); William F. Sharpe, *Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk*, 19 J. FIN. 425 (1964).

76. *See* Kahn v. M & F Worldwide Corp., 88 A.3d 635, 651 (Del. 2014); Weinberger v. UOP, Inc., 457 A.2d 701, 712–13 (Del. 1983). Recently, the Delaware Supreme Court has signaled a preference for market-based valuation techniques, such as analyses of market prices and market multiples, over the DCF analysis in appraisal proceedings under DGCL § 262. *See* Dell v. Magnetar Global Master Fund, 177 A.3d 1, 35–38 (Del. 2017); DFC Global Corp. v. Muirfield Value Partners, L.P., 172 A.3d 346, 368–71 (Del. 2017). These decisions do not reject the economic theory underlying the DCF analysis. *See DFC Global*, 172 A.3d at 369 (suggesting that the same principles of economics and corporate finance underlie the market and theoretical value of stocks, which is the discounting of free cash flows to present value). It would be rather uninformed for business courts to reject the most prominent theory of asset value, supported by well-established academic literature and regularly applied by financial market professionals in the marketplace. Rather, these decisions must be read in the specific context of adversarial appraisal proceedings. They are best understood as skepticism of a single judge's ability to engage in an objective valuation in the context of adversarial litigation. *See DFC Global*, 172 A.3d at 369–70 ("Market prices are typically viewed superior to other valuation techniques because, unlike, e.g., a single person's discounted cash flow model, the market price should distill the collective judgment of the many based on all the publicly available information about a given company and the value of its shares."). In the litigation context, courts have long confronted the disquieting fact that the DCF analysis can produce valuations that are oceans apart because financial models depend on the underlying assumptions and inputs, which often depend on subjective judgment of experts hired by litigating parties. *See* Cede & Co. v. Technicolor, Inc., Civ. A. No. 7129, 1990 WL 161084, at *1 (Del. Ch. Oct. 19, 1990) (noting that the "dynamics of litigation no doubt contribute to this distressingly wide difference" in valuations by experts using the DCF analysis). *See also Dell*, 177 A.3d at 35 (noting "the hazards that always come when a law-trained judge is forced to make a point estimate of fair value based on widely divergent partisan expert testimony"); *id.* at 38 ("DCF valuations involve many inputs—all subject to disagreement by well-compensated and highly credentialed experts—and even slight differences in these inputs can produce large valuation gaps."); RHEE, *supra* note 73, at 108 ("[Valuation] requires subjective judgment on many variables that materially affect the results. Valuations typically produce a range of values. Assumptions and subjective judgments matter."). In the face of this problem, the court expressed greater confidence in the objective, if not infallible (*see infra* note 91), capital markets to determine asset values, i.e., a general starting presumption that the market is efficient if the asset is freely trading and values are readily seen. *See DFC Global*, 172 A.3d at 370 (suggesting that "you can trust prices, for they impound all available information about the value of each security") (quoting RICHARD A. BREALEY ET AL., PRINCIPLES OF CORPORATE FINANCE 373 (2008)); *Dell*, 177 A.3d at 24 ("Further, the Court of Chancery's analysis ignored the efficient market hypothesis long endorsed by this Court. It teaches that the price produced by an efficient market is generally a more reliable assessment of fair value than the view of a single analyst, especially an expert witness who caters her valuation to the litigation imperatives of a well-heeled client."). The court's reliance on efficient

"cashflow") by a suitable discount rate.[77] Cashflow is cash that is freely available to investors after payment of all expenditures.[78] The typical DCF analysis assumes a going concern that operates in perpetuity.[79] The discount rate is calculated as a suitable rate of return to investors that reflects the riskiness of the cashflow; the greater the risk, the more return an investor will demand and thus the more the cashflow is discounted by a greater discount rate.[80] With perfect forecast of future cashflows discounted by the correct cost of capital, a DCF analysis should yield *the* precise intrinsic value of a firm. But perfect foresight is beyond human ability and ontological reality, and thus a perfectly competent analysis provides a best estimate of the firm's theoretical value.[81]

Since the economic value of any financial asset is the investor's expected return discounted by a rate that compensates for the risk taken, the value of a firm can be expressed as:

$$V = \sum_{t=0}^{\infty} \frac{C_t}{(1+r)^t}$$

markets and market valuations is driven by the dynamics of litigation and rules of law applicable thereto. In essence, the decisions diminish the influence of the "battle of the experts" and the potential warping of an objective valuation.

77. Rhee, *supra* note 74, at 202–03; RHEE, *supra* note 73, at 90–93.

78. RHEE, *supra* note 73, at 91.

79. Perpetual existence is the legal default rule. *See* DEL. CODE ANN. tit. 8, § 102(b)(5) (2017) (noting that a certificate of incorporation may provide a provision "limiting the duration of the corporation's existence to a specified date; otherwise, the corporation shall have perpetual existence"); *In re* Trados Inc. S'holder Litig., 73 A.3d 17, 37 (Del. Ch. 2013) ("A Delaware corporation, by default, has a perpetual existence."); Trs. of Dartmouth Coll. v. Woodward, 17 U.S. 518, 552 (1819) (noting that the charter of Dartmouth College "create[d] such a corporation . . . to have perpetual existence"); Wicomico Cty. Comm'rs v. Bancroft, 203 U.S. 112, 115 (1906) (same). *See also supra* note 43 (citing Delaware cases expressing preference for "long-term" view); William T. Allen, *Ambiguity in Corporation Law*, 22 DEL. J. CORP. L. 894, 896–97 (1997) ("[T]he proper orientation of corporation law is the protection of long-term value of capital committed indefinitely to the firm.").

80. RHEE, *supra* note 73, at 69–70, 92–93.

81. Courts recognize the fallacies of subjective judgment and uncertainties associated with valuations. *See* Cede & Co. v. Technicolor, Inc., Civ. A. No. 7129, 1990 WL 161084, at *1, *8 n.17 (Del. Ch. Oct. 19, 1990) ("radically different estimates of value" by experts conducting the same DCF analysis due to the "dynamics of litigation"), *rev'd on other grounds*, 684 A.2d 289 (Del. 1996); Cede & Co. v. Technicolor, Inc., Civ. A. No. 7129, 2003 WL 23700218, at *2 (Del. Ch. Dec. 31, 2003) ("[I]t is one of the conceits of our law that we purport to declare something as elusive as the fair value of an entity on a given date."), *aff'd in part, rev'd in part,* 875 A.2d 602 (Del. 2005).

where C is the cashflow, r the discount rate, and t time.[82] For simplicity of expression, the discount factor $\left(\frac{1}{(1+r)^t}\right)$ is noted hereinafter simply as d.

A DCF analysis values a firm's cashflow for two discrete time periods: a forecast period for years 1 to n, and a terminal period for years (n + 1) to ∞.[83] The time n can be any selected future year. Since the credibility of a projection diminishes the further one forecasts into the future,[84] a common choice for the forecast period is some period between 5 to 20 years.[85] The terminal cashflow can be calculated in several ways, but a standard method is the perpetuity formula $\left(\frac{C_{(t+1)}}{r}\right)$.[86]

Once the cashflow is forecasted and the time periods selected, the two cashflows from the forecast and the terminal periods are discounted at the rate r and the discount factor d.[87]

$$V = \sum_{t=0}^{n} C_t d_t + \frac{C_{(n+1)}}{r} d_n$$

Thus, the theoretical value of a firm under the DCF analysis is the total sum of the discounted cashflow attributable to investors, which is the sum of the present value of the cashflows of the two periods—the forecast period cashflow and the terminal cashflow.

The application of asset pricing theory to the short-termism problem is clear. If we define the forecast period as the cashflow from the short-term and the terminal value as the cashflow from the long-term, the DCF analysis provides the economic framework for scrutinizing the short-termism

82. The DCF methodology is textbook analysis. *See* RHEE, *supra* note 73, at 90–93; KOLLER, GOEDHART & WESSELS, *supra* note 71, at 31–33; BREALEY, MYERS & ALLEN, *supra* note 72, at 24, 93–97; ASWATH DAMODARAN, APPLIED CORPORATE FINANCE 516 (4th ed. 2015); ASWATH DAMODARAN, INVESTMENT VALUATION: TOOLS AND TECHNIQUES FOR DETERMINING THE VALUE OF ANY ASSET 11–19 (3rd ed. 2012).

83. *See* Rhee, *supra* note 74, at 202–03 ("Under the DCF, value depends on expected cashflow and the risk to that cashflow. The exercise is a two-step process: (1) forecast the future cashflow, and (2) discount it by the cost of capital."); Cede & Co. v. Technicolor, Inc., Civ. A. No. 7129, 1990 WL 161084, at *7 (Del. Ch. Oct. 19, 1990) (providing same description), *rev'd on other grounds*, 684 A.2d 289 (Del. 1996).

84. *See* KOLLER, GOEDHART & WESSELS, *supra* note 71, at 222 (recognizing "the difficulty of forecasting individual line items 10 to 15 years into the future").

85. *See* DAMODARAN, APPLIED CORPORATE FINANCE, *supra* note 82, at 553–54 (using ten-year forecast period); RHEE, *supra* note 73, at 90 ("typical forecast period of modeling is anywhere from 5 to 20 years"); KOLLER, GOEDHART & WESSELS, *supra* note 71, at 222 (recommending 10–15 years but suggesting a "detailed five-year to seven-year forecast" with a simplified forecast for the remaining years).

86. *See* RHEE, *supra* note 73, at 53–54, 90 (explaining the perpetuity formula and terminal value).

87. *See* BREALEY, MYERS & ALLEN, *supra* note 72, at 94.

hypothesis. This framework is so fundamental that a corporate manager "should rely on using the DCF approach for making strategic decisions."[88]

B. Intertemporal Model of Tradeoff

Proponents of the short-termism hypothesis must contend with the obvious: in a tradeoff of intertemporal profits, a short-term strategy can be, and often is, the optimal strategy. If there is only cost and no gain from a decision—i.e., the inflation loss form of short-termism—the answer is clear and uncontroversial. The model here shows the rationality of a short-term strategy that all shareholders, regardless of time horizon, would favor, thus eliminating the distinction between short-term and long-term.[89]

Before presenting the model, two assumptions are stated. First, any paper that substantially discusses firm value should explicitly state its assumption about market efficiency.[90] This paper assumes some degree of market inefficiency. It does not assume away the short-termism problem by assuming a perfect semi-strong efficient market. Markets are not perfect when pricing securities.[91] Even some opponents of the hypothesis assume a

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88. TIM KOLLER, RICHARD DOBBS & BILL HUYETT, VALUE: THE FOUR CORNERSTONES OF CORPORATE FINANCE 102 (2011).

89. *Infra* note 104 and accompanying text.

90. *See supra* notes 64–65 and accompanying text.

91. The ideas that markets are sometimes inefficient and that individuals and markets are not always rational (the premise of behavioral economics) have gained general acceptance. The Nobel Prize in economics has recently been awarded to Daniel Kahneman (2002), Robert Shiller (2012), and Richard Thaler (2017), for their contributions to the field of behavioral economics. Robert Shiller summarizes the basic perspective taken in this article: "[M]odern efficient-markets theory . . . says financial prices efficiently incorporate all available information and are in that sense perfect. In contrast, I have argued that the theory makes little sense, except in fairly trivial ways. Of course, prices reflect available information. But they are far from perfect." Robert J. Shiller, *Sharing Nobel Honors, and Agreeing to Disagree*, N.Y. TIMES (Oct. 26, 2013) https://www.nytimes.com/2013/10/27/business/sharing-nobel-honors-and-agreeing-to-disagree.html. *See* DAMODARAN, INVESTMENT VALUATION, *supra* note 82, at 5 ("It is best to approach market efficiency as a skeptic."). Markets can be inefficient at times for a number of reasons. *See generally* Lynn A. Stout, *The Mechanisms of Market Inefficiency: An Introduction to the New Finance*, 28 J. CORP. L. 635 (2003); Donald C. Langevoort, *Theories, Assumptions, and Securities Regulation: Market Efficiency Revisited*, 140 U. PA. L. REV. 183 (1992). Arbitrage in theory keeps securities prices in line with value, but there are limits to arbitrage in practice. *See* Andrei Shleifer & Robert W. Vishny, *The Limits of Arbitrage*, 52 J. FIN. 35, 52–54 (1997). Empirical analysis has shown that stock prices may be too volatile to be rationally explained. *See* Robert J. Shiller, *Do Stock Prices Move Too Much to be. Justified by Subsequent Changes in Dividends?*, 71 AM. ECON. REV. 421 (1981); ROBERT J. SHILLER, MARKET VOLATILITY (1992). Leading finance scholars have hypothesized that stock price may diverge from value in the short-term and the longer-term. *See* Fischer Black, *Noise*, 41 J. FIN. 529, 532 (1986). Logically, trading occurs because we cannot discern intrinsic value as ontological truth. Rhee, *supra* note 74, at 214. Historically, markets have systemically misvalued assets resulting in bubbles and crashes. *See* HAROLD L. VOGEL, FINANCIAL MARKET BUBBLES AND CRASHES (2009).

degree of market inefficiency.[92] Second, and relatedly, this paper assumes that profit, cashflow, value, and share price are rationally related, if not perfectly correlated. If profit is real and not an illusory gimmick, it eventually yields cashflow.[93] Profit and cashflow add to firm value, which stock price eventually, if not perfectly, reflects. Market prices are ultimately anchored by value, however long or short the rode may be at any given time.[94]

We start with a set of strategies that produces different cashflows. For simplicity, we limit the possible strategies to two $\{ S_S, S_L \}$: S_S is a short-term strategy of increasing short-term cashflow by sacrificing long-term cashflow; S_L is a long-term strategy of sacrificing short-term profit in exchange for increased long-term profit. These strategies produce different cashflows $\{ C_S, C_L \}$. Depending on the amounts of intertemporal profit and loss resulting from different strategies, different firm values result from a manager's intertemporal choice: $\{ V(S_S, C_S), V(S_L, C_L) \}$.

The model here presents a simple two phase cashflow analysis. The short-term period yields cashflow $\{ C_1, \ldots, C_n \}$, and the long-term period yields $\{ C_{(n+1)}, \ldots, C_\infty \}$. The choice between short-term and long-term strategy yields different cashflows in the short-term and the long-term time horizons: $\pm\Delta_S$ and $\pm\Delta_L$. Suppose a firm faces an intertemporal tradeoff. It can increase or decrease profit $\pm\Delta_S$ per period in the short-term period $\{ 1, \ldots, n \}$, and correspondingly this strategy can decrease or increase profit $\pm\Delta_L$ per period for the long-term period $\{ (n + 1), \ldots, \infty \}$. Accordingly, there are many sets of conditions, in fact infinite in theory, where the short-term gain equals the long-term loss, and vice versa:

$$\sum_{t=0}^{n} \Delta_{S,i}\, d_t = \frac{\Delta_{L,i}}{r_i} d_t$$

This formulation simply states the obvious intuition that at some point the short-term profit gained equals the long-term cost incurred, and vice versa. As a matter of mathematical and financial truth, for any set of conditions, such as a given discount rate, the equilibria between short-term and long-term strategies is theoretically infinite. In practice, this means that for any set of facts and conditions confronting a manager, there are many

92. *See* Bebchuk, Brav & Jiang, *supra* note 8, at 1088 (assuming market inefficiency in an empirical study of stock prices before and after activist intervention); Bebchuk, *supra* note 24, at 1660–76 (arguing that the short-termism hypothesis does not follow from an inefficient market).

93. BREALEY, MYERS & ALLEN, *supra* note 72, at 93–97.

94. *See* Black, *supra* note 91, at 532 (stating that share price can deviate significantly from intrinsic value due to "noise" and suggesting that value may deviate from price by as much as favor of two, but that prices are ultimately anchored by fundamental value).

outcomes within a range of reasonable expectation from the choice of intertemporal strategies.

A short-term strategy yields greater firm value if the value of the short-term gain or the long-term loss is more by some value ε.

$$V(S_S, C_S) > V(S_L, C_L) \qquad \begin{cases} +\Delta_{S,i} + \varepsilon > -\Delta_{L,i} \\ +\Delta_{S,i} < -(\Delta_{L,i} - \varepsilon) \end{cases}$$

Likewise, a long-term strategy yields greater firm value under the opposite conditions.

$$V(S_S, C_S) < V(S_L, C_L) \qquad \begin{cases} +\Delta_{S,i} - \varepsilon < -\Delta_{L,i} \\ +\Delta_{S,i} < -(\Delta_{L,i} + \varepsilon) \end{cases}$$

Neither a long-term nor a short-term strategy is intrinsically superior. A specific time horizon is not a virtue. From the microeconomic perspective of managerial decision-making in the firm, the optimal strategy depends on the interplay of the firm's cost of capital and the cost-benefit of intertemporal gains and losses given the context of the facts and conditions presented in the situation.

C. Numeric Examples

The model of intertemporal choice is simple but abstract. It states that in a tradeoff of profits, the optimal intertemporal choice depends on a time and risk value calculation of the costs and benefits. Numeric examples illustrate how it works and the general scale of the tradeoffs required for equilibrium between short-term and long-term strategies. The examples below portray a plausible, realistic picture of the sorts and scales of managerial decision-making processes occurring in the corporate market. The important takeaway is that equilibria between the short-term or the long-term do not depend on fantastical or unrealistic numeric assumptions.

Commentary often discusses time horizons in the abstract, but seldom commits to defining a period that is the "short-term." Actual calculations require a commitment to real numbers. To numerically define a short-term period, we consider a number of factors. Five to twenty years is a typical

forecast period for a DCF analysis.[95] Five to seven years is a feasible period for detailed forecasting.[96] Five years is the period that some empirical scholars use to measure the short-term stock price effects of activist intervention.[97] Three to five years is a typical period to do strategic planning.[98] Seven years is about the average tenure of a CEO.[99] For a CEO in mid-tenure, this time horizon might be shorter.[100] These lengths of time would be the focus of a CEO with a short-term horizon. There is also an absurdity consideration. It would be absurd for any corporate manager to enhance profit or share price for a year or two by sacrificing long-term sustained profit, if only because the careers of most senior managers are longer than a year or two. Given the totality of these considerations, the short-term is defined as years one through five, and the long-term as years six to perpetuity.[101]

With the time horizons numerically defined, assume two strategies $\{ S_S, S_L \}$. We start with a discount rate of 14.9%, but later will consider a range of discount rates (the precision of this discount rate will soon become apparent).

Assume first a short-term strategy S_S that adds short-term profit of +10 for each year of a five-year short-term period resulting in a *perpetual loss* of long-term profit of −10 in each year from year six to perpetuity. Any profit and loss is added or deducted from a baseline cashflow of 100 per year. Any perpetual loss of future profit constitutes an infinite undiscounted sum. Under well-accepted theory of time value and valuation, such sums must be discounted by time and risk.[102] The value $V(S_S, C_S)$ calculated from this short-term strategy S_S producing cash flows C_S is the following.

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95. *Supra* note 85.

96. KOLLER, GOEDHART & WESSELS, *supra* note 71, at 222.

97. *See* Bebchuk, Brav & Jiang, *supra* note 8, at 1089.

98. *See* Air Prods. & Chems., Inc. v. Airgas, Inc., 16 A.3d 48, 62 (Del. Ch. 2011) (indicating that Airgas had a five-year plan); Miles Inc. v. Cookson America, Inc., Civ. A. No. 12,310, 1993 WL 547186, at *3 (Del. Ch. Dec. 30, 1993) (five-year plan); *In re* Appraisal of SWS Grp., Inc., C.A. No. 10554–VCG, 2017 WL 2334852, at *4 (Del. Ch. May 30, 2017) (three-year plan); Dunmire v. Farmers & Merchs. Bancorp of W. Pa., Inc., C.A. No. 10589–CB, 2016 WL 6651411, at *2 (Del. Ch. Nov. 10, 2016) (three-year plan).

99. Roe, *supra* note 8, at 996 & n.86. *See* OLESIŃSKI ET AL., *supra* note 60, at 23 ("[T]he mean tenure of outgoing CEOs among the 2,500 top listed companies in the world dropped from 8.8 years in 1995 to 7.2 years in 2007.").

100. *See* OLESIŃSKI ET AL., *supra* note 99, at 29 chart 6 (indicating that 49.3% of CEOs in top listed companies in Europe serve less than four years).

101. *See* Anderson, *supra* note 8, at 28 (noting that commentators have defined the transition period from short-term to long-term as between five to ten years); KOLLER, GOEDHART & WESSELS, *supra* note 71, at 222 (indicating five years a "short explicit forecast period").

102. RHEE, *supra* note 73, at 69–70, 92–93.

	Short-Term Strategy					
Years	1	2	3	4	5	6 to ∞
Cashflow	110	110	110	110	110	604
Discount factor	0.870	0.757	0.659	0.574	0.499	
Present value	96	83	73	63	55	302
Total firm value (V)	671	100%				
V(1-5)	370	55%	Percent V(1-5)			
V(6-∞)	302	45%	Percent V(6-∞)			

The firm value is 671. Value allocation between the short-term and long-term periods is 55% and 45%, respectively. In other words, 55% of the firm's total value is attributable the short-term financial results of years one to five, and only 45% of total firm value is attributable to financial results in years six to perpetuity. It may be surprising to see that the shot-term profits of only five years account for the majority of the firm value.

Assume a long-term strategy S_L that results in cash flow C_L: a sacrifice of short-term profit by −10 for each year of the five-year period resulting in a *perpetual gain* of long-term profit by +10 for each year. The undiscounted long-term gain is an infinite sum. The value $V(S_L, C_L)$ calculated from this long-term strategy S_L producing cash flows C_L is the following.

	Longterm Strategy					
Years	1	2	3	4	5	6 to ∞
Cashflow	90	90	90	90	90	738
Discount factor	0.870	0.757	0.659	0.574	0.499	
Present value	78	68	59	52	45	369
Total firm value (V)	671	100%				
V(1-5)	302	45%	Percent V(1-5)			
V(6-∞)	369	55%	Percent V(6-∞)			

The firm value from the long-term strategy is 671, the same as the value from the short-term strategy. However, more value has been shifted to the long-term at the cost of short-term value. Value allocation between the short-term and long-term periods is 45% and 55%, respectively—the inverse of the short-term strategy. But the two strategies are financially equivalent. The example confirms that for a set of conditions { $(+\Delta_{S,i} = -$

$\Delta_{L,i}) = (-\Delta_{S,i} = +\Delta_{L,i})$, $r_i = 14.9\%$ }, there is an equilibrium { $V(S_S, C_S) = V(S_L, C_L)$ }.

The model is not a quirk of numeric manipulation, and it does not depend on a particularly unique condition. For example, assume all facts in the above example, except the following: the short-term gain is not evenly spread out through years one to five (i.e., each year producing profit of 110), but instead it is a single-year profit of 150 in year three; thus, the cashflow for years one to five is C_S (100, 100, 150, 100, 100). Under these facts, the firm values and value allocations are exactly identical to the above: { $V(S_S, C_S) = 671$, $V(1–5) = 55\%$, $V(6–\infty) = 45\%$ } and { $V(S_L, C_L) = 671$, V(1–5) = 45%, $V(6–\infty) = 55\%$ }.

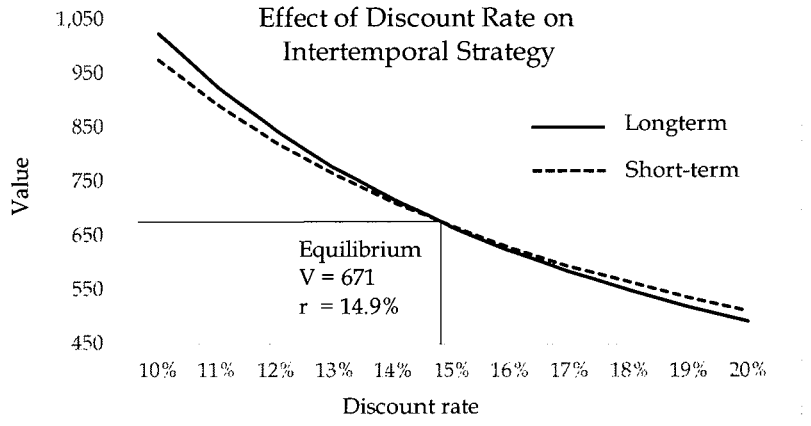
Again, these calculations are not quirks or manipulations. For example, the model does not require a unique, fixed discount rate. Let's change the discount rate to reflect a riskier venture, for example a discount rate of 18%. The obvious intuition is that short-term cashflow will be valued relatively more than the long-term cashflow. This is just the mathematics of discounting.[103] The effect of a higher rate over time diminishes the value of long-term cashflow. With all other assumptions the same, the results of short-term and long-term strategies are the following: $V_S = 563$ (with $V(1–5) = 61\%$ and $V(6–\infty) = 39\%$), and $V_L = 549$ (with $V(1–5) = 51\%$ and $V(6–\infty) = 49\%$). A higher discount rate reduces firm value, under both the short-term and long-term strategies. But asset pricing suggests that for a higher risk company, the short-term strategy is the value maximizing strategy relative to a long-term strategy. The calculations confirm that the short-strategy yields a firm value of 563 with greater proportional value attributed to the short-term, compared to 549 for the long-term strategy. The short-term perspective is better.

The intuition works in reverse. A less risky firm will maximize value by increasing the long-term cashflow. Assume a discount rate of 12%. The values from the two strategies are the following: $V_S = 822$ (with $V(1–5) = 48\%$ and $V(6–\infty) = 52\%$), and $V_L = 845$ (with $V(1–5) = 38\%$ and $V(6–\infty) = 62\%$). The long-term strategy creates more value than the short-term strategy. However, both strategies result in greater firm value than the prior example of a discount rate of 14.9% resulting in a firm value of 671. A lower discount rate produces greater value. The long-term perspective is better. Also, under both the short-term and long-term strategies, more value is allocated to the long-term period than the short-term period, though the long-term strategy sees the greater proportional allocation.

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103. For example, the perpetuity value of a value 10 discounted at 10% is 100 (= 10 ÷ 10%), whereas it is 200 at 5% (= 10 ÷ 5%).

The following table plots the change in values over different discount rates when $\{ (+\Delta_{S,i} = -\Delta_{L,i}) = (-\Delta_{S,i} = +\Delta_{L,i}) = 10 \}$.



The implication here—that there are rational tradeoffs between the short-term and the long-term—does not depend on the unique condition ($\pm\Delta_S = \pm\Delta_L$) or a specific discount rate. If the gains and losses in the short-term and long-term strategies are symmetrical, the equilibrium holds at any discount rate, though clearly the firm value changes with different sets of gains and losses. For example, assume that under a discount rate r (14.9%): (1) the short-term gain is twice as much as the long-term loss in the short-term strategy, and (2) the short-term loss is half as much as the long-term gain in the long-term strategy. The two strategies are equivalent:

$$S_S [\, \Delta_S = +20, \Delta_L = -10 \,] = S_L [\, \Delta_S = -10, \Delta_L = +20 \,] \Rightarrow V = 705$$

Nor are symmetrical gains and loses required. For the discount rate r (8.45%) for example, these strategies are equivalents:

$$S_S [\, \Delta_S = +15, \Delta_L = -10 \,] = S_L [\, \Delta_S = -15, \Delta_L = +5 \,] \Rightarrow V = 1{,}164$$

We need not belabor the point any further. These numeric examples suffice to illustrate the general proposition: There is always an innumerable set of conditions $\{ (+\Delta_{S,i}, -\Delta_{L,i}, r_i)$ or $(-\Delta_{S,i}, +\Delta_{L,i}, r_i) \}$ yielding an equilibrium between intertemporal corporate strategies. One strategy is not inherently superior to the other. In a range of plausible situations, short-term value maximization may be the optimal strategic choice if it is profitable

enough. Small differences in intertemporal profits can tip the balance. The insights here apply generally.

Viewed through this financial prism, the distinction between the short-term and the long-term merges into the standard proposition that a manager should manage the business to maximize firm value.[104] While Delaware courts frequently extol the virtue of the "long-term,"[105] they acknowledge that a manager must engage in rational intertemporal tradeoffs.[106] Since there are theoretically infinite equilibria points in such tradeoffs, corporation law cannot really intervene in the substance of business decision-making, as reflected in the business judgment rule.

III. AIRGAS CASE STUDY

The above theory of discounted cash flow and asset value is simple and uncontroversial in the abstract. But does it reflect reality? We can test the model of short-termism through a case study of one of the most prominent, closely watched Delaware hostile takeover battles in recent years. In *Air Products & Chemicals, Inc. v. Airgas, Inc.*, the Delaware Court of Chancery analyzed the issue of shareholder short-termism in the context of determining the propriety of the poison pill defense.[107] The takeover saga provides a unique opportunity to test the intertemporal model of profit tradeoff because the facts and circumstance of the case enable precise calculations of shareholder returns under the short-term and long-term strategies in both actual and counterfactual scenarios. The case thus permits a theoretical and empirical assessment of the legal framework for dealing

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104. *See* Paramount Commc'ns, Inc. v. Time Inc., 571 A.2d 1140, 1150 (Del. 1989) ("[T]he question of 'long-term' versus 'short-term' values is largely irrelevant because directors, generally, are obliged to chart a course for a corporation which is in its best interests without regard to a fixed investment horizon.").

105. *See supra* note 43.

106. The following insight describes the possible tradeoffs and a manager's duty to make such decisions:

> It also bears emphasizing that a duty to maximize long-term value does not always mean acting to ensure the corporation's perpetual existence. A fiduciary might readily determine that a near-term sale or other shorter-horizon initiative, such as declaring a dividend, is value-maximizing even when judged against the long-term. A trade bidder with access to synergies, for example, may offer a price for a corporation beyond what its standalone value could support. Or fiduciaries might conclude that continuing to manage the corporation for the long-term would be value destroying because of external market forces or other factors. The directors who managed the proverbial maker of horse-and-buggy whips would have acted loyally by selling to a competitor before the new-fangled horseless carriage caught on.

Frederick Hsu Living Tr. v. ODN Holding Corp., C.A. No. 12108–VCL, 2017 WL 1437308, at *19 (Del. Ch. Apr. 14, 2017).

107. Air Prods. & Chems., Inc. v. Airgas, Inc. (*Airgas II*), 16 A.3d 48, 67 (Del. Ch. 2011); Airgas, Inc. v. Air Prods. & Chems., Inc. (*Airgas I*), 8 A.3d 1182, 1187 (Del. 2010).

with short-term activist shareholders and the Delaware court's ruling. The analysis here shows that the intertemporal choice confronting the target board was complex and contextual, even with the benefit of hindsight, and that the optimal choice ultimately depended on the relative profitability of the short-term choice versus the expectation of the long-term.

A. Background and Chancery Court's Analysis

On October 15, 2009, Air Products and Chemicals ("Air Products"), a market leader in the industrial gas industry, privately approached Airgas, a midsize firm, about a potential acquisition. Private talks between the companies ensued. Air Products first offered $60 per share and then later upped the offer to $62 per share.[108] On January 4, 2010, the Airgas board rejected this offer because it "grossly undervalue[d] Airgas."[109] The bid was opportunistic, the board believed, because Air Products timed the offer during the stock market crash related to the financial crisis of 2008–2009.[110]

Undeterred, Air Products commenced a hostile takeover on February 4, 2010. The tender offer was a fully-financed, all-shares, all-cash offer at $60 per share, conditioned on the redemption of Airgas's poison pill.[111] The next day, Airgas shares incorporated the information into the price, which closed at $60.96. The offer provided a significant premium to Airgas's trading price.[112] Air Products later raised its offer several times: on July 8 to $63.50 per share and again on September 6 to $65.50 per share.[113] The Airgas board rejected these offers as "grossly inadequate."[114]

After the offer went public, the composition of Airgas's shareholders changed abruptly. Short-term shareholders, who were merger arbitrageurs (hedge funds), rushed in to buy Airgas shares.[115] The following chart shows the changing composition of shareholders over time.[116]

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108. *Airgas II*, 16 A.3d at 65–66.

109. *Id.* at 67.

110. *Id.* at 70 ("In explaining its reasons for recommending that shareholders not accept Air Products' offer, Airgas's filing stated that the timing of the offer was 'extremely opportunistic . . . in light of the depressed value of the Airgas Common shares prior to the announcement of the Offer,' so while the timing was excellent for Air Products, it was disadvantageous to Airgas.").

111. *Id.* at 69.

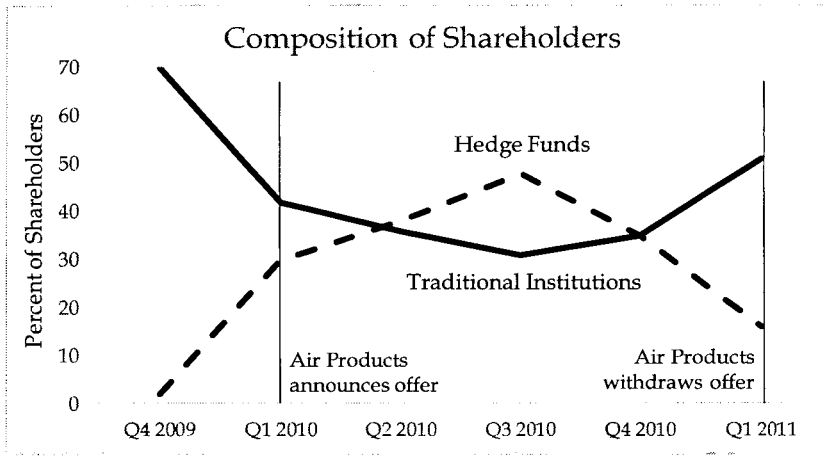
112. The offer provided a premium of 38% to Airgas's closing share price on February 4, 27% over the thirty-day trading average, 29% over the fifty-two-week average, and 18% over the fifty-two-week high. All stock price data on Airgas and Air Products were downloaded from Google Finance. *See* https://finance. google.com/finance.

113. *Airgas II*, 16 A.3d at 73, 76.

114. *Id.* at 74, 76.

115. CHARLES C.Y WANG, PAUL M. HEALY & KYLE THOMAS, HARVARD BUS. SCH., AIR PRODUCTS' PURSUIT OF AIRGAS (B), CASE STUDY 9-116-025, at 2 (Nov. 17, 2015).

116. *Id.* at 4 Exhibit 1 (providing data from Capital IQ).



In the fourth quarter of 2009, before the public offer, about 70% of Airgas stock was held by traditional institutional shareholders with very little held by hedge funds. In the first quarter of 2010, when Air Products made its public offer, hedge funds seeking short-term profit on merger arbitrage rushed in to take a significant stake.[117] They bought most of their shares from traditional institutional shareholders who were presumably longer-term investors.[118] These short-term shareholders sought to influence the Airgas management,[119] and they clearly wanted the Airgas board to sell the company.[120] This new shareholder composition and the intent of hedge funds to force a sale presented the key legal issue: whether short-term shareholders posed a threat to corporate policy under the *Unocal* analysis.[121]

117. Airgas's chief financial officer commented on the sudden change in the shareholder base and its implication for Airgas: "Within 3 months of February, 40% of Airgas shares were transferred into the hands of arbitrage firms. That was a huge change in the complexion of the shareholder base. We continued to talk about long-term value creation and how it would exceed that provided by Air Products but long-term was not really a part of their lexicon because the arbs were in it for the quick deal. They're all about quick money rather than making longer-term return. Their time horizon is very short." CHARLES C.Y WANG, PAUL M. HEALY, PENELOPE ROSSANO & KYLE THOMAS, HARVARD BUS. SCH., AIR PRODUCTS' PURSUIT OF AIRGAS (A), CASE STUDY 9-116-024, at 7 (Nov. 12, 2015).

118. *See infra* note 141.

119. *Airgas II*, 16 A.3d at 76, 109 n.411.

120. *Id.* at 76, 77, 105, 108, 109 n.411, 111 & n.424. "Air Products' tender offer would almost certainly result in a 'change of control' transaction, as the offer would likely succeed in achieving greater than 50% support from Airgas's stockholders, which largely consist of merger arbitrageurs and hedge funds who would gladly tender into Air Products' offer." *Id.* at 95 n.312.

121. *Id.* at 91–92 (relying on Unocal Corp. v. Mesa Petroleum Co., 493 A.2d 946, 955 (Del. 1985)).

Airgas had a staggered board and a shareholder rights plan ("poison pill").[122] This combination constitutes a formidable takeover defense.[123] To successfully win a proxy battle, an acquirer must wage a two-year battle for control and redemption of the poison pill.[124] The combined defense could potentially give a target board a "preclusive forever" power to rebuff all sales.[125] Air Products fought the takeover battle on two fronts: a proxy contest for the control of the Airgas board, and a lawsuit to force the Airgas board to redeem the poison pill.

Airgas had a nine-member staggered board.[126] For the coming election cycle, Air Products nominated three independent directors for election.[127] On September 15, 2010, it won the vote and installed its three nominees to the Airgas board.[128] Merger arbitrageurs delivered the necessary votes in this proxy battle.[129] But Air Products needed to wait a full year to nominate another slate of three directors and thereby potentially install a majority of the board.[130]

The takeover saga reached a fever pitch on December 9, 2010, when Air Products made its "best and final" offer of $70 per share and set it to expire on February 15, 2011.[131] The Airgas board rejected this bid as "clearly inadequate" and stated that Airgas was worth at least $78 per share.[132] In a surprising turn of events, the three newly elected Air Products nominees

122. *Id.* at 57.

123. *See id.* at 113 ("[N]o bidder to my knowledge has ever successfully stuck around for two years and waged two successful proxy contests to gain control of a classified board in order to remove a pill."). *See also* Jennifer G. Hill, *Subverting Shareholder Rights: Lessons from News Corp.'s Migration to Delaware*, 63 VAND. L. REV. 1, 39 (2010) (calling the combination an "impregnable takeover defense"). *Cf.* Strine, *supra* note 34, at 497 (commenting that staggered boards are becoming rare and thus it borders on "malpractice" for a company not to have a poison pill); Coffee & Palia, *supra* note 8, at 557 (same).

124. Lucian A. Bebchuk, John C. Coates IV & Guhan Subramanian, *The Powerful Antitakeover Force of Staggered Boards: Theory, Evidence, and Policy*, 54 STAN. L. REV. 887, 899 (2002); Versata Enterprises, Inc. v. Selectica, Inc., 5 A.3d 586, 604 (Del. 2010).

125. *Airgas II*, 16 A.3d at 113–14.

126. *Id.* at 62.

127. *Id.* at 71.

128. *Id.* at 61, 77.

129. Institutional Investor Services, a proxy advisory firm, recommended that shareholders vote in favor of Air Products' nominees. WANG, HEALY, ROSSANO & THOMAS, *supra* note 117, at 1. About 90% of hedge funds and merger arbitrageurs voted for the Air Products nominees. *Airgas II*, 16 A.3d at 117.

130. At the September 2010 shareholder meeting, Air Products successfully amended the bylaws to change the annual meeting from September to January, thus shortening the term of the second class of directors in the staggered board to a four-month term. *Airgas II*, 16 A.3d at 77. But the Delaware Supreme Court voided the bylaw amendment. *Airgas I*, 8 A.3d at 1190 n.18, 1194–95. As a result, Air Products had to wait a full year to nominate another class of directors.

131. *Airgas II*, 16 A.3d at 55, 86.

132. *Id.* at 55–56, 90.

agreed as a part of a unanimous Airgas board (they "changed teams" as the court loosely characterized this unexpected turn).[133]

In light of the Airgas board's continued resistance, Air Products could succeed in its tender offer only if the court ordered the board to redeem the poison pill.[134] The key question was: When shareholders are fully informed of all information related to the value of the company and they are not subject to structural coercion in the tender offer,[135] "who gets to decide when and if the corporation is for sale?"[136] The court applied the *Unocal* two-prong test to determine the propriety of the poison pill.[137] The Airgas board had to show that it had reasonable ground to believe a cognizable threat to corporate policy existed, and that its response was reasonable in relation to the threat posed.[138]

The issue of short-termism arose in the court's analysis of the first prong of *Unocal*. The court ruled that a cognizable threat can take the form of "substantive coercion," defined as the risk that the target's stockholders might accept an inadequate offer because of ignorance or mistaken belief regarding the board's assessment of the company's long-term value.[139] The Airgas board argued that it needed to maintain the poison pill to prevent Air Products from acquiring control at an unfair price. It argued that almost half of Airgas's stockholders were merger arbitrageurs who wanted to tender into an inadequate offer because they would make a significant return on investment even if the offer grossly undervalued Airgas. In this situation, a minority of shareholders would be "coerced" into accepting an inadequate offer.[140]

The court at first discounted the short-term and long-term dichotomy.[141] But it recognized the risk of short-termism, stating the issue: "is there evidence in the record that Airgas stockholders are so focused on the short-term that they would take a smaller harvest in the swelter of August over a

133. *Id.* at 58, 89, 122, 128.

134. *Id.* at 56.

135. *Id.* at 54, 77, 106.

136. *Id.* at 54.

137. *Id.* at 91–92.

138. Unocal Corp. v. Mesa Petroleum Co., 493 A.2d 946, 955 (Del. 1985).

139. *Airgas II*, 16 A.3d at 56–57, 108. *See* Unitrin, Inc. v. Am. Gen. Corp., 651 A.2d 1361, 1384 (Del. 1995) ("The record reflects that the Unitrin Board perceived the threat from American General's Offer to be a form of substantive coercion."); Paramount Commc'ns, Inc. v. Time Inc., 571 A.2d 1140, 1153 (Del. 1990) (holding that under the theory of "substantive coercion" "inadequate value" of an all-cash for all-shares offer can be a "legally cognizable threat").

140. *Airgas II*, 16 A.3d at 109.

141. Short-term arbitrageurs "bought their shares from long-term stockholders who viewed the increased market price generated by Air Products' offer as a good time to sell." *Id.* In other words, *both* short-term and long-term shareholders sought to sell in light of the offer's attractiveness.

larger one in Indian Summer?"[142] The court found that hedge funds would tender their shares regardless of Airgas's potential long-term value.[143] This reality posed a "clear risk" to the effectiveness of corporate policy because short-term shareholders could involuntarily throw the company into *Revlon* mode.[144]

Why would sophisticated short-term shareholders, such as hedge funds, leave money on the table by accepting an inadequate offer?[145] The choice depends on each shareholder's rate of return. The long-term Indian Summer could yield a larger share price but a smaller rate of return, in which case the short-term August swelter would be the superior choice. To illustrate this crucial point, assume that a short-term shareholder invests 100 today. If it sells the stock in one year at 120, the rate of return is 20%. Now assume that a long-term shareholder makes the same investment and expects to sell the stock in five years at a 200; the rate of return is about 15%.[146] The short-term shareholder leaves 80 of long-term profit on the table, but the long-term shareholder earns a lower rate of return. If the short-term shareholder is time neutral, the five-year return must be about 250 for it to be indifferent between the choice of 120 in year one or 250 in year five.[147] The rate of return is important, and the rate depends on the time horizon. The short-term choice is the superior economic choice, and thus rational, if it results in the higher *rate* of return even if the long-term hold presents the greater *amount* of return.

The court found that short-term shareholders, holding in total almost half of all shares, would likely tender their shares into an inadequate offer. They would force the company into the *Revlon* zone, terminate its long-term strategy, and thus make irrelevant the board's reasonable belief in the inadequacy of Air Products' tender offer to all shareholders.[148] In essence, shareholders would determine the corporate policy, and not the board. The case raises one of the most fundamental questions in corporate law and

142. *Id.* at 111 (internal quotations omitted).

143. *Id.* at 76, 109 n.441.

144. "The articulated risk that does exist, however, is that arbitrageurs with no long-term horizon in Airgas will tender, *whether or not* they believe the board that $70 clearly undervalues Airgas." *Id.* at 110 n.414 (emphasis in original). *See* C & J Energy Servs., Inc. v. City of Miami Gen. Emps.' & Sanitation Emps.' Ret. Tr., 107 A.3d 1049, 1067 (Del. 2014) ("*Revlon* made clear that when a board engages in a change of control transaction, it must not take actions inconsistent with achieving the highest immediate value reasonably attainable.").

145. *See* Heaton, *supra* note 8, at 359 ("The short-term/long-term complainants rarely try to provide a compelling response for why myopic shareholders would ignore the money they could make by waiting for large gains in the future . . . .").

146. $100 \times (1 + 15\%)^5 = 201$

147. $100 \times (1 + 20\%)^5 = 249$

148. *Airgas II*, 16 A.3d at 109, 111–12.

governance: What is the power allocation between managers and shareholders?[149] The court ruled that the board has the prerogative to determine whether or not an offer is inadequate.[150] The court acknowledged that Delaware law does not sanction a "preclusive forever" defense, but "it does bring us one step closer to that result."[151]

The practical effect of the court's ruling is that when challenging a board's decision to opt for the long-term strategy over a short-term profit opportunity, most short-term shareholders would have a steep legal and economic hill to climb to defeat a board's good faith, properly informed, and reasonable belief as to the adequacy of the offer.[152] If the court had struck down the poison pill, it would have shifted the power to direct corporate policy from managers to a newly coalesced group of short-term shareholders in a situation where a board has not otherwise chosen to enter the *Revlon* zone.

> To be clear, though, this case does not endorse "just say never." What it does endorse is Delaware's long-understood respect for reasonably exercised managerial discretion, so long as boards are found to be acting in good faith and in accordance with their fiduciary duties (after rigorous judicial fact-finding and enhanced scrutiny of their defensive actions). The Airgas board serves as a quintessential example.[153]

The court upheld the board's prerogative to manage the company for the long-term.[154] Even if shareholders are fully informed on the company's value and the deal is structurally non-coercive, the board may "just say no" when it is informed, acts in good faith, and holds a reasonable belief of a legitimate threat to corporate policy.[155]

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149. *See* MM Cos., Inc. v. Liquid Audio, Inc., 813 A.2d 1118, 1126 (Del. 2003) ("The most fundamental principles of corporate governance are a function of the allocation of power within a corporation between its stockholders and its board of directors."). The allocation of power between shareholders and managers has been the subject of much academic attention. *See, e.g.*, Lucian Arye Bebchuk, *The Case for Increasing Shareholder Power*, 118 HARV. L. REV. 833 (2005).

150. *Airgas II*, 16 A.3d at 112.

151. *Id.* at 113, 129.

152. *Id.* at 54, 109, 129.

153. *Id.* at 129.

154. "[T]he power to defeat an inadequate hostile tender offer ultimately lies with the board of directors." *Id.* at 55. *See* Paramount Commc'ns, Inc. v. Time Inc., 571 A.2d 1140, 1149–50 (Del. 1990).

155. *Airgas II*, 16 A.3d at 54, 103, 112, 129.

B. Counterfactual Analysis of Intertemporal Returns

After the chancery court's decision, Air Products ended its bid. But the Airgas saga lived on. Airgas stayed independent for a few more years, but continued to be the apple of acquirers' eyes. It faced another informal approach from Air Products, and it had to contend with an influential activist shareholder who took a stake in Airgas.[156] These events pressured Airgas to seek a friendly deal. On November 17, 2015, it agreed to be acquired by Air Liquide, another industry leader,[157] for $143 per share, and the acquisition closed in 2016.[158]

The Airgas takeover saga presents a unique opportunity to test the intertemporal model in a retrospective analysis. The Airgas board was presented with a choice between a short-term strategy and a long-term strategy. While there are innumerable instances in business history where a target company rejected an offer in favor of a long-term strategy, Airgas's choice of the long-term strategy had a terminal point at which all shareholders fully monetized the company's long-term strategy in a sale. Even this situation is not so special, occurring whenever a company is acquired. But in *Airgas* the public information provides a large cache of data and facts, *and* the case opinion engages in a specific, detailed analysis of the legality of a board's intertemporal choice and the power of short-term shareholders in determining the company's time horizon. A case study can answer the court's specific question: Would it have been better to sell in the August swelter of 2011 at $70 rather than in the Indian Summer of 2016 at $143?

With a few simple assumptions, we can precisely calculate the relative returns of shareholders with various time horizons. The rate of return R is calculated as: $Purchase\ Price \times (1 + R)^{(Hold\ Period)} = Sale\ Price$.[159] Four variables determine the rate of return: purchase date and price, sale date and

156. Leslie Picker, *Why Airgas Was Finally Sold, for $10 Billion Instead of $5 Billion*, N.Y. TIMES: DEALBOOK (Sept. 5, 2016), https://www.nytimes.com/2016/09/06/business/dealbook/why-airgas-was-finally-sold-for-10-billion-instead-of-5-billion.html.

157. Four companies (Air Liquide, Air Products, Linde, Praxair) dominate the market for industrial packaged gas. WANG, HEALY, ROSSANO & THOMAS, *supra* note 117, at 1.

158. Liz Moyer, *Air Liquide to Acquire Airgas for $10.3 Billion*, N.Y. TIMES: DEALBOOK (Nov. 17, 2015), https://www.nytimes.com/2015/11/18/business/dealbook/air-liquide-to-acquire-airgas-for-10-3-billion.html.

159. *See* RHEE, *supra* note 73, at 179–81 (explaining internal rate of return calculations). The analysis does not calculate total return that includes dividends. Airgas has historically paid dividends. *See* Airgas, Inc., Annual Report (Form 10-K) 18 (May 27, 2010); Airgas, Inc., Annual Report (Form 10-K) 16 (May 30, 2007). Dividends increase the total return, but complicate the calculations. An analysis of share appreciation provides the clear, simple insight.

price. Air Products' public tender offer date of February 5, 2010 is the reference point to consider the outcomes of Airgas shareholders over time.

Purchase dates.—We consider quarterly periods before the public tender offer: the first trading day of February, May, August, and November for 2007–2009, and February 1, 2010 (just prior to the public tender offer). We also consider two post-offer dates: February 5, 2010, the first trading day incorporating Air Products' first tender offer of $60 per share; July 9, 2010, the first trading day incorporating the second tender public offer of $63.50 per share. These later two purchases incorporate much of the acquisition premium from the first tender offer, and many hedge funds and merger arbitrageurs invested during this period.[160]

Sale dates.—We consider two sale dates. The first date assumes the counterfactual that Airgas pursued the short-term strategy and sold to Air Products, and shareholders tendered their shares on June 12, 2011, pursuant to the final offer of $70 per share.[161] The second date is the actual fact that Airgas pursued the long-term strategy, and shareholders tendered their shares on May 20, 2016, pursuant to Air Liquide's offer of $143 per share.

Based on these purchase and sale assumptions, there are fifteen purchase dates constituting a representative sample of shareholder investment in Airgas stock over a three-year period before the consummation of Air Product's tender offer and a nine-year period before a consummation of Air Liquide's tender offer.[162] The holding periods of Airgas shareholders range from less than one year to more than nine years. Per the intertemporal model, we define the short-term strategy as a holding period of five years or less, and the long-term strategy as a holding period of more than five years.

The table below sets forth the rates of return under the short-term strategy implied in a sale of Airgas to Air Products at $70 in 2011 and a long-term strategy implied in a sale to Air Liquide at $143 in 2016. The boxed figures in the last two rows of purchase dates (February 5, 2010 and July 9, 2010) represent the post-announcement purchase of stock and subsequent sale by short-term hedge funds.

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160. WANG, HEALY & THOMAS, *supra* note 116 and accompanying chart.

161. The assumed closing date for Air Products' final and best offer of December 9, 2010, was calculated as the same length of time, 185 days, that the Air Liquide transaction closed from the date of the public offer of November 17, 2015.

162. The purchase dates constitute only fifteen specific purchase dates in a 251-day trading year. Shareholder composition for many public companies changes constantly. Each purchase date and price will produce a unique rate of return. However, the fifteen dates constitute a fairly representative sample of stock purchases throughout the entire year. This is confirmed when we compare the average stock prices of the four quarterly days in the years 2007–2009 with the average yearly trading price: 2007 (average price of four quarterly dates $45.36, average yearly price $45.71), 2008 (average price of four quarterly dates $47.75, average yearly price $48.75), 2009 (average price of four quarterly dates $42.22, average yearly price $42.06).

At Tender Offer Prices: $70 Short-Term and $143 Longterm

Purchase Date	Purchase Price	Short-Term Return	Short-Term Hold Period	Longterm Return	Longterm Hold Period	Better Strategy
1-Feb-07	40.50	13.4%	4.36 years	14.5%	9.30 years	Longterm
1-May-07	44.52	11.6%	4.12 years	13.7%	9.06 years	Longterm
1-Aug-07	46.75	11.0%	3.87 years	13.5%	8.81 years	Longterm
1-Nov-07	49.67	10.0%	3.61 years	13.2%	8.56 years	Longterm
1-Feb-08	47.44	12.3%	3.36 years	14.2%	8.30 years	Longterm
1-May-08	48.29	12.7%	3.12 years	14.4%	8.06 years	Longterm
1-Aug-08	56.74	7.6%	2.86 years	12.6%	7.81 years	Longterm
3-Nov-08	38.54	25.7%	2.61 years	19.0%	7.55 years	Short-Term
2-Feb-09	36.54	31.8%	2.36 years	20.6%	7.30 years	Short-Term
1-May-09	42.00	27.3%	2.12 years	19.0%	7.06 years	Short-Term
3-Aug-09	45.25	26.5%	1.86 years	18.4%	6.80 years	Short-Term
2-Nov-09	45.10	31.4%	1.61 years	19.3%	6.55 years	Short-Term
1-Feb-10	44.76	38.9%	1.36 years	20.2%	6.30 years	Short-Term
5-Feb-10	60.96	10.8%	1.35 years	14.5%	6.29 years	Longterm
9-Jul-10	64.90	8.5%	0.93 years	14.4%	5.87 years	Longterm

These calculations are revealing. If shareholders purchased shares *before* Air Products' first tender offer, long-term shareholders fared better by a small but tangible margin than short-term shareholders when their hold periods were substantially long, from August 1, 2008 and before. This period represents a hold period of 7.81 to 9.30 years. Short-term shareholders fared better when their hold periods were shorter, from November 3, 2008 and after but *before* Air Products' first public tender offer. This period represents a hold period of 1.36 to 2.61 years. From a financial perspective, a tender of their shares to Air Products at $70 per share, rather than to Air Liquide at $143 per share, would have achieved a rate of return in the approximate range of 26%–39%, compared to long-term shareholders in the range of 18%–21%.

If shareholders purchased shares *after* Air Products' first tender offer, they would have been clearly better off if they had waited and tendered their shares to Air Liquide. These shareholders were merger arbitrageurs. They would have achieved a short-term rate of return of about 8%–11%, compared to the long-term return of about 14%–15%. The reason for lower returns is obvious. After the public announcement, Airgas's share price incorporated the takeover premium in Air Product's offer. The Air Liquide offer would have been better. Of course, no one is omniscient and could have known that Airgas would sell itself five years later, but as we will see the stock market prices behaved in a way that incorporated this expectation

into Airgas's stock price in the post-termination (post-February 2011) years.[163]

The above calculations are fanciful in one respect. They assume the plentiful existence of shareholders who hold shares for many years, including "short-term" shareholders who have held shares for more than two years. These kinds of shareholders are not unicorns, but they are rare. Several decades ago average hold periods of stock were measured in years.[164] Now it is measured in months,[165] and even traditional long-term shareholders hold for less than two years.[166] Most Airgas shareholders who bought shares before the tender offer would have likely bought within two or three years; for them the short-term strategy of selling to Air Products would have been better. But recall that about half of Airgas's shareholders were hedge funds that bought *after* the public tender offer.[167] They were short-term shareholders seeking a quick profit, but among all shareholders they would have most benefitted from the *long-term* strategy. The irony is rich.

The benefit of perfect hindsight shows that the Airgas board and the chancery court reasonably perceived "substantive coercion" in that short-term merger arbitrageurs would have been better off with Airgas's long-

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163. *See infra* Section III.C.

164. *See* Berger, Solomon & Benjamin, *supra* note 8, at 298 (average holding period ranged from about three to five years between 1960 to 1980, two years in 1990); Dallas, *supra* note 22, at 297 (seven years in 1960 and two years in 1992); Robert C. Pozen, *Curbing Short-Termism in Corporate America: Focus on Executive Compensation*, GOVERNANCE STUD. AT BROOKINGS, May 2014, at 3 n.5 (seven years in 1960 to two years in 1992).

165. See Harold Weston & Conrad Ciccotello, *Flash Traders (Milliseconds) to Indexed Institutions (Centuries): The Challenges of an Agency Theory Approach to Governance in the Era of Diverse Investor Time Horizons*, 41 SEATTLE U. L. REV. 613, 615 (2018) (noting that the average stock hold period as 200 days) (citing *Quick and Dirty*, THE ECONOMIST (Oct. 6, 2016), https://www.economist.com/business/2016/10/06/quick-and-dirty); Rachelle Sampson & Yuan Shi, *Are Investor Time Horizons Shortening?*, 41 SEATTLE U. L. REV. 543, 544–45 (2018) ("At the same time, holding periods for shares collapsed from the average of seven years in 1940 to seventeen weeks in 2015."); Lynn A. Stout, *The Toxic Side Effects of Shareholder Primacy*, 161 U. PA. L. REV. 2003, 2017 (2013) ("[T]he average holding period for stocks listed on U.S. exchanges has declined from eight years in 1960 to around four months today."); Berger, Solomon & Benjamin, *supra* note 8, at 298 (seventeen weeks in 2015); Dallas, *supra* note 22, at 297 (4.5 months for some investors such as hedge funds); Pozen, *supra* note 164, at 3 n.5 (less than 8 months in 2007); Sy Harding, *Stock Market Becomes Short Attention Span Theater Of Trading*, FORBES (Jan. 21, 2011) (eight years in 1960 to six months in 2010), https://www.forbes.com/sites/greatspeculations/2011/01/21/stock-market-becomes-short-attention-span-theater-of-trading/#4d3b57ba703e; Jesse Eisinger, *Challenging the Long-Held Belief in 'Shareholder Value'*, N.Y. TIMES: DEALBOOK (June 27, 2012) ("The average holding period of a stock was eight years in 1960; today, it's four months."), https://dealbook.nytimes.com/2012/06/27/challenging-the-long-held-belief-in-shareholder-value.

166. *See* Mark Roe, *Are Stock Markets Really Becoming More Short Term?*, PROJECT SYNDICATE, Feb. 21, 2013, (average hold period of 1.5 years in 2010 for long-term investors like the mutual funds Fidelity and Vanguard).

167. *Airgas II*, 16 A.3d at 109.

term strategy of selling to Air Liquide in 2016 rather than selling to Air Products in 2011. The Airgas board was correct when it argued that it was trying to save the short-term shareholders from themselves.[168]

The Airgas board believed that $70 per share was inadequate and that $78 per share was adequate. The board's hindsight auspiciousness is clearly evident when we consider its negotiation position. The board reasonably believed that the $70 per share offer price was inadequate, and it sought $78 per share.[169] At this price, the rates of return change significantly.

At Tender Offer Prices: $78 Short-Term and $143 Longterm

Purchase Date	Purchase Price	Short-Term Return	Short-Term Hold Period	Longterm Return	Longterm Hold Period	Better Strategy
1-Feb-07	40.50	16.2%	4.36 years	14.5%	9.30 years	Short-Term
1-May-07	44.52	14.6%	4.12 years	13.7%	9.06 years	Short-Term
1-Aug-07	46.75	14.2%	3.87 years	13.5%	8.81 years	Short-Term
1-Nov-07	49.67	13.3%	3.61 years	13.2%	8.56 years	Short-Term
1-Feb-08	47.44	15.9%	3.36 years	14.2%	8.30 years	Short-Term
1-May-08	48.29	16.6%	3.12 years	14.4%	8.06 years	Short-Term
1-Aug-08	56.74	11.8%	2.86 years	12.6%	7.81 years	Longterm
3-Nov-08	38.54	31.1%	2.61 years	19.0%	7.55 years	Short-Term
2-Feb-09	36.54	38.0%	2.36 years	20.6%	7.30 years	Short-Term
1-May-09	42.00	34.0%	2.12 years	19.0%	7.06 years	Short-Term
3-Aug-09	45.25	34.1%	1.86 years	18.4%	6.80 years	Short-Term
2-Nov-09	45.10	40.6%	1.61 years	19.3%	6.55 years	Short-Term
1-Feb-10	44.76	50.5%	1.36 years	20.2%	6.30 years	Short-Term
5-Feb-10	60.96	20.1%	1.35 years	14.5%	6.29 years	Short-Term
9-Jul-10	64.90	22.0%	0.93 years	14.4%	5.87 years	Short-Term

Two insights follow. First, the price the Airgas board sought ($78 per share) would have benefited virtually all shareholders irrespective of their relative holding periods, including the rare long-term shareholders who held their shares for many years and even the short-term shareholders who bought *after* the public announcement. Second, as the intertemporal model of profit tradeoff clearly shows, there is always a set of conditions in which

168. The chancery court quoted the CEO of Airgas who testified that the merger arbitrageurs needed to be "protected from themselves." *Id.* at 104. Of course, the Airgas board could not have known with certainty that shareholders would do better with the long-term plan, resulting in an eventual sale to Air Liquide. However, it is reasonable to infer that the Airgas board's decision at the time incorporated a belief, based on existing information, that Airgas's prospects would be better for shareholders on a long-term basis. Thus, the hindsight nature of the analysis here does not diminish the correctness of the Airgas board's decision at the time.

169. *Id.* at 55–56, 89.

the short-term strategy is more profitable than the long-term strategy. In this transaction, that condition is met when the short-term price is $78 per share.

The Airgas board's $78 price was probably a negotiation posture. Once a seller states an initial offering price as the Airgas board did, negotiation norms and expectations would make it difficult to ratchet that number upward during the negotiation process.[170] The tea leaves of facts indicate that the Airgas board was likely positioning to negotiate a sale price between $70 and $78.[171] Consider then a hypothetical where the two companies agreed on sale at the midpoint of $74 per share.[172]

170. The typical negotiation pattern of a seller is to offer a high aspirational selling price and then usually the parties negotiate toward the middle. *See* DONALD G. GIFFORD & ROBERT J. RHEE, LEGAL NEGOTIATION 158–61 (3d ed. 2016).

171. In a letter dated Nov. 2, 2010 to Air Products, the Airgas board stated: "To provide greater clarity, the board has unanimously concluded that it believes that the value of Airgas in a sale is at least $78 per share, in light of our view of relevant valuation metrics." *Airgas II*, 16 A.3d at 81 (emphasis omitted). Airgas's CEO also testified that Airgas would have been open to negotiation if Air Products "were to offer $70, with an indication that they were ready to sit down and have a full and fair discussion about real value and negotiate from that . . . ." *Id.* at 76. A prominent Airgas shareholder wrote a letter to the board stating: "We hope that the demand for $78 per share is a negotiating position. As an Airgas stockholder, we strongly believe that the Airgas board could accept a significant discount from $78 per share and still get a good deal for the Airgas stockholders." *Id.* at 111 n.424. The court found that two companies made a "legitimate attempt between the parties to reach some sort of a meeting of the minds" on Airgas's valuation in light of Air Products' $65.50 offer at the time and Airgas's $78 marker set in its letter. *Id.* at 81. The negotiation broke down because Air Products submitted and held to a "final and best offer" of $70 per share. *Id.* at 87–89.

172. This price presents a 70% premium to Airgas's closing price before the public tender on February 4, 2010, and a 23% increase from the original $60 tender offer price containing a 38% premium from the February 4th closing price. The $14 per share increase would represent the fruit of the Airgas board's continued resistance to Air Products on behalf of shareholders.

At Tender Offer Prices: $74 Short-Term and $143 Longterm

Purchase Date	Purchase Price	Short-Term Return	Short-Term Hold Period	Longterm Return	Longterm Hold Period	Better Strategy
1-Feb-07	40.50	14.8%	4.36 years	14.5%	9.30 years	Short-Term
1-May-07	44.52	13.1%	4.12 years	13.7%	9.06 years	Longterm
1-Aug-07	46.75	12.6%	3.87 years	13.5%	8.81 years	Longterm
1-Nov-07	49.67	11.7%	3.61 years	13.2%	8.56 years	Longterm
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1-May-08	48.29	14.7%	3.12 years	14.4%	8.06 years	Short-Term
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3-Nov-08	38.54	28.5%	2.61 years	19.0%	7.55 years	Short-Term
2-Feb-09	36.54	34.9%	2.36 years	20.6%	7.30 years	Short-Term
1-May-09	42.00	30.7%	2.12 years	19.0%	7.06 years	Short-Term
3-Aug-09	45.25	30.3%	1.86 years	18.4%	6.80 years	Short-Term
2-Nov-09	45.10	36.1%	1.61 years	19.3%	6.55 years	Short-Term
1-Feb-10	44.76	44.8%	1.36 years	20.2%	6.30 years	Short-Term
5-Feb-10	60.96	15.5%	1.35 years	14.5%	6.29 years	Short-Term
9-Jul-10	64.90	15.2%	0.93 years	14.4%	5.87 years	Short-Term

The above table shows that at $74 per share, most shareholders, including the short-term hedge funds holding half of all shares, would have benefitted from a sale to Air Products. Even when the long-term strategy is superior for some very long-term shareholders, the advantage is marginal at best. The price of $74 seems to be in the vicinity of this inflection point where the short-term strategy would be superior to the long-term strategy.

In hindsight, the chancery court's analysis of substantive coercion proved sound.[173] However, the decision left an open issue: What if Air Products had offered $74 as its best and final offer and the Airgas board held firm at $78?[174] Assume all material facts in the actual case,[175] and assume that both prices were demonstrated to be adequate per traditional analytical methods such as an appraisal-like evaluation of Airgas's business plan and valuation. Who decides the corporate strategy under these facts?

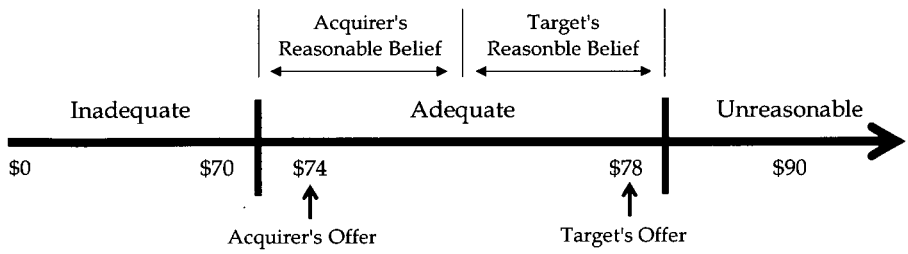
The answer depends on one of two potentially dispositive factors: (1) the objective adequacy of the price based on fact-finding; (2) the board's reasonable belief that the price is inadequate. The two inquiries are not the same. Price is a continuum. At some point, it crosses over from "inadequate"

173. The chancery court found that the Airgas board served as a "quintessential example" of good faith decision-making in battling a hostile takeover. *Airgas II*, 16 A.3d at 129.

174. The $4 difference in the offers is a difference of about $350 million in acquisition price. Airgas, Inc., Annual Report (Form 10-K) F-6 (Mar. 31, 2011) (86.6 million shares outstanding).

175. The unanimous Airgas board, including the three Air Products nominees, acted in subjective good faith and advisedly. The tender offer was structurally non-coercive, all-cash, and fully financed. Shareholders were fully informed of all information related to the value of Airgas.

to "adequate" as a factual matter. Adequacy is not a single price but a range of reasonable prices. At some point, the target board's asking price crosses over from the range of the adequate to the unreasonable, a price at which the board cannot reasonably justify raising the inference that it is not acting in the best interest of the corporation and its shareholders. Consider the following scenario in which: (1) $70 is objectively inadequate; (2) a range of $74 to $78 is adequate; and (3) $90 is objectively unreasonable.



What if the board's belief is reasonable but erroneous (e.g., the board believes that $74 is inadequate when in fact it is adequate)?[176]

Under the first prong of *Unocal*, the target board must show that it had "had *reasonable grounds for believing* that a danger to corporate policy and effectiveness existed."[177] Laws of various fields show that reasonableness is a flexible concept.[178] It can encompass conflicting ideas or actions.[179] One can hold a reasonable belief of a threat based on the circumstances,[180] even

176. If the board honestly but unreasonably held an unreasonable price as an adequate offer (e.g., a price of $90 per share which would represent a 107% premium based on the prior day's closing price), there would be no reasonable belief of a legitimate threat to corporate policy under *Unocal*. If the board knew the offer was adequate but stonewalled the deal, there would be no subjective belief of a legitimate threat and thus the board would be acting in bad faith.

177. Unocal Corp. v. Mesa Petroleum Co., 493 A.2d 946, 955 (Del. 1985) (emphasis added).

178. *See, e.g.*, Resser v. Boise-Cascade Corp., 587 P.2d 80, 84 (Or. 1978) (noting "the more flexible concept of 'reasonable care under the circumstances'"); U.S. v. Hawkins, 228 F. App'x 107, 109 (2d Cir. 2007) ("[r]easonableness is a flexible concept" in the context of reviewing a trial court's sentencing decision); Culver v. State, 956 A.2d 5, 19 (Del. 2008) ("[r]easonableness is a flexible concept" in the context of government searches) (quoting Williams v. State, 331 A.2d 380, 382 (Del. 1975)).

179. For example, tort law has long taught us that reasonableness is not a deductive analysis. *See* Pokora v. Wabash Ry. Co., 292 U.S. 98, 105 (1934) (Cardozo, J.). Contradictory actions could be considered reasonable under the circumstances. *See, e.g.*, Tedla v. Ellman, 19 N.E.2d 987, 991 (N.Y. 1939).

180. The *Unocal* framework is the same framework found in the law of self-defense in torts, which is based on reasonable belief of a threat and reasonable response to the threat. Robert J. Rhee, *The Tort Foundation of Duty of Care and Business Judgment*, 88 NOTRE DAME L. REV. 1139, 1181 (2013). *See* RESTATEMENT (SECOND) OF TORTS §§ 63(1), 70(1) (1965).

though that belief is factually erroneous.[181] In *Airgas*, the court focused on the factual existence of a legitimate threat to determine whether the board had reasonable grounds to believe in a threat to corporate policy. "The threat that merger arbs will tender into an inadequately priced offer is *only a legitimate threat if the offer is indeed inadequate*."[182] The board's action cannot forever preclude an acquisition "*if the price is right.*"[183] The only way to protect shareholders from substantive coercion "is for courts to ensure that *the threat is real.*"[184]

To determine whether the offer was adequate, the court could have engaged in an appraisal-like judicial inquiry into the company's business plan and fundamental value. But it declined to do so.[185] Instead, the court found the offer adequate based on the independent directors' subjective, good faith, informed beliefs; it found the board's credibility "more confidence-inspiring than judicial review of the board's business plan."[186] In this regard, the court's analysis leaves open an important question. Suppose under a *Unocal* analysis the court performs an independent appraisal-like analysis, and it finds that the offer is adequate in fact. Is a board's belief in the inadequacy of an offer unreasonable as a matter of law in light of the non-existence of a legitimate threat to corporate policy? Or, can a board's belief in the inadequacy of the offer be reasonable as a matter of fact in spite of the non-existence of a legitimate threat?

The plasticity of reasonableness can encompass a board's reasonable belief in the inadequacy of an offer that is factually incorrect in a searching, enhanced judicial review of firm value. If the factual adequacy of the offer is the dispositive factor—i.e., "courts [must] ensure that the threat is real"[187]—there is a viable path that acquirers and target shareholders can take in the control of a target's corporate policy in a tender offer. The court or the shareholder must establish that the price is right. This approach has much appeal: If an all-cash, all-shares offer is structurally non-coercive and is factually adequate, and shareholders have all available information, what

181. *See* RESTATEMENT (SECOND) OF TORTS §§ 63(1), 70(1), Reporter's Notes (1965) (noting that virtually all cases recognize a self-defense privilege when "the actor erroneously, but reasonably" believes a threat exists).

182. *Airgas II*, 16 A.3d at 109 (emphasis added).

183. *Id.* at 124 (emphasis added).

184. *Id.* at 109–10 (emphasis added) (quoting Chesapeake Corp. v. Shore, 771 A.2d 293, 326 (Del. Ch. 2000)).

185. *Id.* at 110 n.419.

186. *Id.* at 110 n.419, 128.

187. *Id.* at 110.

is the reason for blocking the tender offer, other than the board disagrees with shareholders?[188]

On the other hand, if a board's reasonable belief is the dispositive factor in spite of factual adequacy—i.e., "reasonable grounds for believing that a danger to corporate policy"[189]—the *Airgas* court may have been prophetic in suggesting that deference to reasonable managerial belief may bring us one step closer to a preclusive forever defense when there is a poison pill.[190] Although *Unocal* is an enhanced scrutiny, reasonableness is a flexible concept and reasonable belief may encompass erroneous belief in fact.[191] If a court finds a belief reasonable only on the ground that it is informed and in good faith, without leeway for an independent analysis or an opportunity for the plaintiff shareholder to prove factual adequacy, in what way is an "exacting" and "rigorous" [192] scrutiny anything other than dressed up business judgment deference to a board's substantive decision? The answer to these questions depends on a fundamental policy choice.

C. Financial Performance and Stock Price Analysis

The Airgas takeover saga provides one more lesson. The failed takeover and the exit of short-term hedge funds ended within a discrete time period, but the episode continued to affect Airgas's stock price for seven years. A stock price study provides insights into the possible effects of shareholder intervention on post-bid stock price movements.

The first observation is that before the tender offer, the relative stock price relationship between Air Products and Airgas was well defined over a sustained period of time. The chart below shows the relative stock price performance for the five-year period 2005 to 2009, which is the five years before the public tender offer in February 2010.[193]

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188. The chancery court was even skeptical that an offer could be deemed inadequate "in the context of a nondiscriminatory, all-cash, all-shares, fully financed offer poses any 'threat'—particularly given the wealth of information available to Airgas's stockholders at this point," though it acknowledged that Delaware law permits a finding of inadequacy based on the concept of substantive coercion. *Id.* at 56–57.

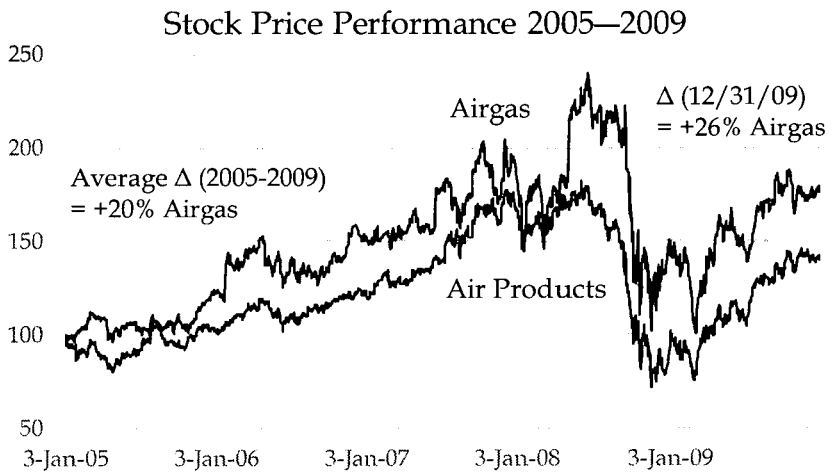
189. Unocal Corp. v. Mesa Petroleum Co., 493 A.2d 946, 955 (Del. 1985).

190. *Airgas II*, 16 A.3d at 113, 129.

191. *See supra* note 181.

192. *Airgas II*, 16 A.3d at 54, 129.

193. Since stock prices may have different absolute prices, relative stock price charts calculate the relative performance of stock over time by recalculating the stock price to a common base of 100. This technique permits a true comparison. Note that the large decline in stock prices of both companies in 2008 corresponds to the crash of the financial markets in 2008 and 2009.



Airgas stock price increased more than Air Products stock price. The Airgas board cited Airgas's superior stock performance as the one of the main factors supporting its view that Air Products' offers "grossly undervalue[d]" Airgas. [194] The price difference measured against Air Products' stock (the "price delta") was about +20%, meaning that Airgas's stock enjoyed a 20% premium to Air Products' stock over the five-year period. At the end of 2009 the price delta was +26%.

What accounted for Airgas's higher stock price? The answer is found in each company's fundamental financial measures over a corresponding period. The following tables provide profitability and margin data.[195]

	Airgas Revenue and Profit ($ million)					
Pro forma Dec. year end	2005	2006	2007	2008	2009	CAGR
Revenue	2,706	3,098	3,784	4,444	3,884	9.5%
Operating profit	247	322	411	568	432	15.0%
Net income	114	144	203	269	243	20.7%
Operating profit margin	*9.1%*	*10.4%*	*10.9%*	*12.8%*	*11.1%*	*5.1%*
Net income margin	*4.2%*	*4.7%*	*5.4%*	*6.0%*	*6.2%*	*10.3%*

194. *See* Airgas, Inc., Solicitation/Recommendation Statement (Schedule 14D-9) (Feb. 10, 2010) (providing Airgas's February 9, 2010 letter to Air Products).

195. All financial data were from each company's Forms 10-Q and 10-K. Pro forma financials were created in light of the fact that Airgas has a March fiscal year and Air Products has a September fiscal year. Quarterly results were calculated from the Forms 10-Q and 10-K, and pro forma financials were created for a common calendar year.

	Air Products Revenue and Profit ($ million)					
Pro forma Dec. year end	2005	2006	2007	2008	2009	CAGR
Revenue	7,793	9,004	9,288	10,202	8,234	1.4%
Operating profit	1,010	1,120	1,439	1,230	1,077	1.6%
Net income	726	773	1,069	720	826	3.3%
Operating profit margin	*13.0%*	*12.4%*	*15.5%*	*12.1%*	*13.1%*	*0.2%*
Net income margin	*9.3%*	*8.6%*	*11.5%*	*7.1%*	*10.0%*	*1.9%*

These data explain much of Airgas's superior stock price performance. While Air Products enjoyed higher profit margins, it was a slower growing company. Airgas's compounded average growth rates (CAGR) of revenues, operating profits, and net profits were in the 10% to 21% range, indicating a fast growing company.[196] The CAGRs for Airgas's profit margins were also growing, indicating that its operations were becoming more efficient over time. In sum, Airgas represented the more significant upside potential. Compare these growth rates to the growth rates of Air Products.

Airgas's premium is not explained by increasing valuations—i.e., multiple expansion on the part of Airgas's multiples related to Air Products' multiples.[197] The following table provides average price-to-earnings (P/E), price-to-book value of equity (P/B), and enterprise value to operating profit (EV/EBIT) ratios.[198]

196. Airgas historically relied on acquisitions in a fragmented packaged gas industry to grow the company. *Airgas II*, 16 A.3d at 60.

197. "Multiple expansion" refers to increasing valuation attributable to the financial market pricing the stock at higher multiples than in the past. For example, if a stock trades at price-to-earnings (P/E) ratio of 10x and earnings are 10, then the stock would trade at 100; and, if the P/E multiple expands to 12x earnings, the same stock at earnings of 10 would trade at 120. On the other hand, stock can also increase because earnings increase. If the P/E multiple remains 10x but earnings increase from 100 to 120, the stock would trade at 120. In the case of Airgas over the 2005–2010 period, most of the stock increase resulted from increased financial measures rather than multiple expansion.

198. These ratios represent multiples of a firm's financial measures such as net income, operating profit, and book value of equity. For example, suppose two firms, A and B, have $100 in net income and 100 shares outstanding. Their earnings-per-share is $1 per share. Firm A trades at a P/E of 10x and firm B at 20x. This means that the share price of firm A is $10 per share, and its market capitalization is $1000, whereas those of firm B are $20 and $2000, respectively. Multiples measure a company's value. Firm B's P/E of 20x shows that its stock is valued twice as much as that of firm A. Stock price, in and of itself, is not a measure of value. To illustrate, suppose firm B engages in a two-for-one stock split. It now has 200 shares outstanding, and as a result its stock price would decline to $10 per share, the same as that of firm A, but its P/E multiple would still be 20x, twice that of firm A (i.e., earning-per-share of $0.5 per share at a stock price of $10 per share would result in a P/E multiple of 20x). *See generally* RHEE, *supra* note 73, at 82–87 (discussing multiples as market-based valuation measures).

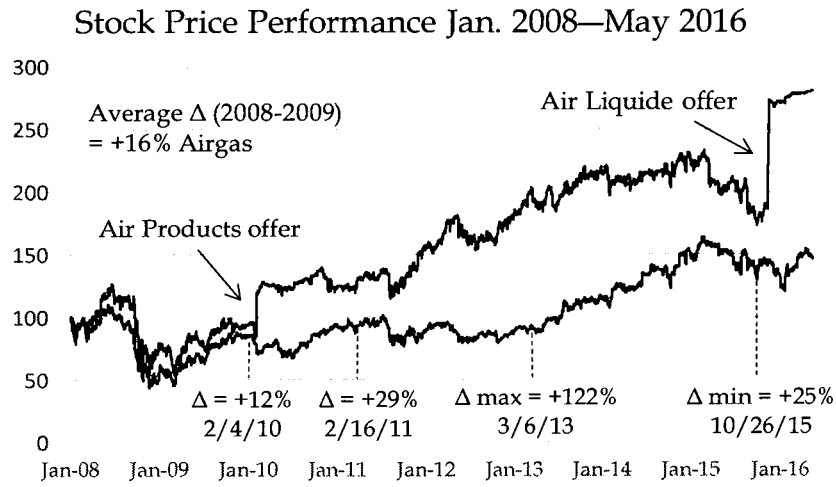
Pro forma Dec. year end	2005	2006	2007	2008	2009	Average
Airgas						
P/E	20.5 x	22.8 x	21.8 x	16.6 x	14.4 x	19.2 x
P/B	2.4 x	3.0 x	3.1 x	2.8 x	2.1 x	2.7 x
EV/EBIT	12.8 x	12.8 x	13.9 x	11.2 x	10.9 x	12.3 x
Air Products						
Price-to-earnings	19.5 x	19.7 x	20.0 x	19.4 x	21.1 x	20.0 x
Price-to-book	2.9 x	3.0 x	3.4 x	3.5 x	2.9 x	3.1 x
EV/EBIT	16.0 x	16.1 x	16.8 x	15.1 x	18.7 x	16.6 x

Airgas's multiples are not increasing over time. The valuation multiples of both companies were trading at a relatively stable range, both with respect to each other's multiples and internally over time.[199] Indeed, Airgas's multiples suffered a significant contraction during the financial crisis of 2008–2009 while Air Products' valuation fared better, which supports the Airgas board's view that Air Products' offer was opportunistic.[200] Airgas's relative stock price performance is explained by the growth of the company's financial performance.

The above pre-tender offer financial and stock price performances provide a baseline for comparing the post-tender offer performances. The chart below shows the relative stock price performance for the period January 2008 to May 2016, which encompasses two years before the tender offer (2008–2009), the year in which the public takeover battle was active (2010), and the post-failed takeover years including Air Liquide's ultimate acquisition (2011–2016).

199. The P/E multiple is the ratio of market capitalization to net income. The P/B multiple is the ratio of market capitalization to the book value of equity. The EV/EBITDA is the ratio of enterprise value (EV), which is the market capitalization plus long-term debt, to earnings before interest, tax, depreciation and amortization (EBITDA). *See generally* RHEE, *supra* note 73, at 82–86 (describing various valuation multiples).

200. *Airgas II*, 16 A.3d at 70.



This chart is striking. The average price delta over the 2008–2009 pre-offer period was +16%, and it was +12% on February 4, 2010, the day before the public announcement. Expectedly, Airgas's premium increased after Air Products' public tender offer on February 5, 2010, in response to the takeover price.[201] Unexpectedly, however, Airgas's premium *increased* over the five-year 2011–2015 period after the withdrawal of Air Products' bid on February 15, 2011. When the takeover bid ended, the price delta was +29%. From the end of Air Products' bid to just before Air Liquide's acquisition announcement,[202] the average price delta was +69%. This is almost 3.5 times the average price delta of the 2005–2009 period (+20%) when Airgas was fast growing.[203] The largest price delta was +122% occurring on March 6, 2013. After the failed acquisition, Airgas stock experienced a stock price inflation for a substantial period of time. But by the time that Air Liquide made its offer, Air Products had closed most of the gap in the 2011 to 2014 period, suggesting that Air Liquide opportunistically timed its offer when Airgas's stock price lost most of its post-intervention inflation.

What accounts for the widening price delta after Air Products ended its takeover bid? One possible answer is that Airgas continued to grow faster than Air Products. The hostile tender offer jolted Airgas into improving its business prospects and proving to shareholders that the long-term strategy

201. *See supra* notes 112–113 and accompanying text (providing information on the acquisition premium offered by Air Products).

202. This period is from February 16, 2011 to November 16, 2015.

203. *See supra* note 193 and accompanying chart.

was better. But the data does not support this answer. The following tables provide profitability and margin data for both companies in the period 2011–2015.

	Airgas Revenue and Profit ($ million)					
Pro forma Dec. year end	2011	2012	2013	2014	2015	CAGR
Revenue	4,608	4,936	5,068	5,271	5,321	3.7%
Operating profit	527	590	633	644	596	3.1%
Net income	288	343	349	369	348	4.8%
Operating profit margin	*11.4%*	*12.0%*	*12.5%*	*12.2%*	*11.2%*	*-0.5%*
Net income margin	*6.3%*	*6.9%*	*6.9%*	*7.0%*	*6.5%*	*1.1%*

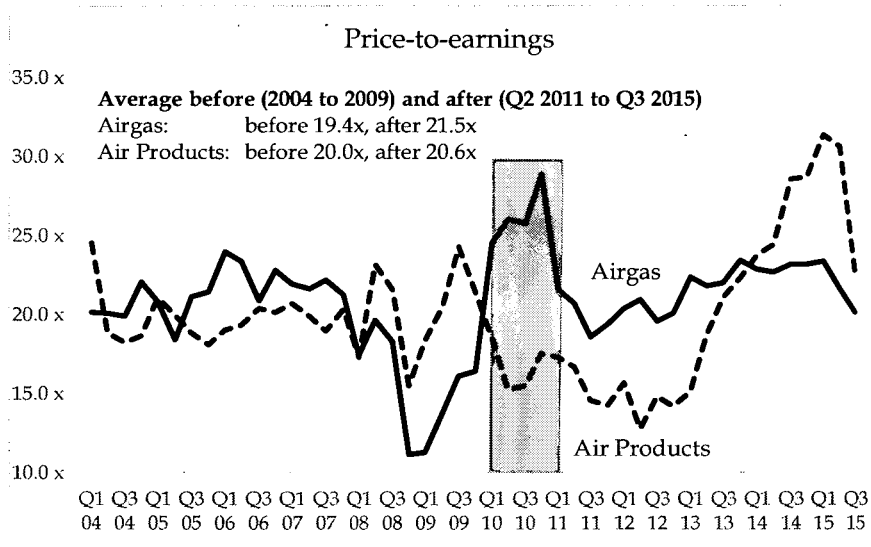
	Air Products Revenue and Profit ($ million)					
Pro forma Dec. year end	2011	2012	2013	2014	2015	CAGR
Revenue	9,604	9,853	10,164	10,454	9,690	0.2%
Operating profit	1,501	1,301	1,337	1,373	1,771	4.2%
Net income	1,242	1,224	1,044	1,032	1,352	2.1%
Operating profit margin	*15.6%*	*13.2%*	*13.2%*	*13.1%*	*18.3%*	*4.0%*
Net income margin	*12.9%*	*12.4%*	*10.3%*	*9.9%*	*14.0%*	*1.9%*

Airgas's financial measures continued to increase in the 2011–2016 period, but their growth rates were less than the 2005–2009 period. The efficiency gains in the profit margins have also slowed. In comparision, the results for Air Products have not changed as dramatically in the two time periods, though significantly net profit remained flat. Airgas's financial performance slowed in the years after the termination of Air Products' takeover attempt both internally and relatively.

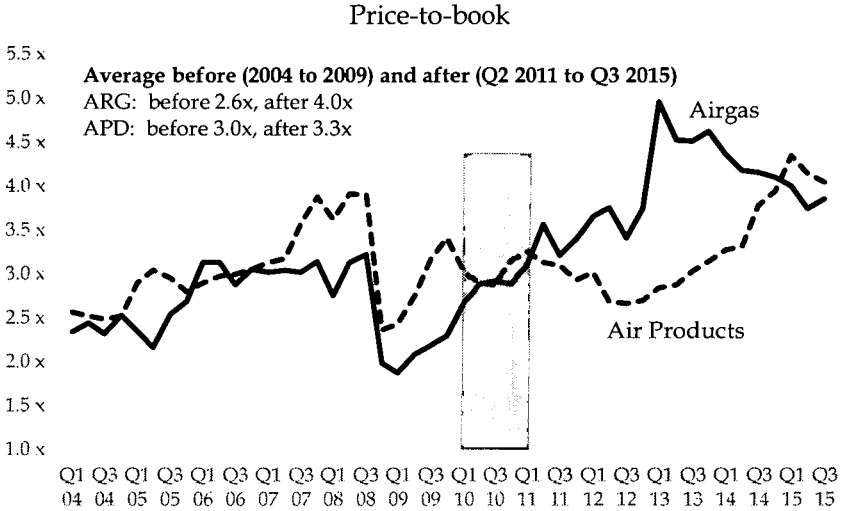
Another explanation for the widening price delta between the two companies is multiple expansion for Airgas. Data supports this answer for the period of time when Airgas's stock price substantially diverged from stock price of Air Products. The following chart provides the progression of each company's valuation multiples.

Pro forma Dec. year end	2011	2012	2013	2014	2015	Average
Airgas						
P/E	20.1 x	20.3 x	22.4 x	23.0 x	21.7 x	21.5 x
P/B	3.3 x	3.6 x	4.7 x	4.2 x	3.9 x	3.9 x
EV/EBIT	14.9 x	14.7 x	15.7 x	15.9 x	15.2 x	15.3 x
Air Products						
Price-to-earnings	15.7 x	14.4 x	19.3 x	26.4 x	28.2 x	20.8 x
Price-to-book	3.1 x	2.8 x	3.0 x	3.6 x	4.2 x	3.3 x
EV/EBIT	15.3 x	16.5 x	19.1 x	23.8 x	24.5 x	19.8 x

The following charts track the P/E and P/B ratios over the period Q1 2004 to Q3 2015.[204] They confirm Airgas's multiple expansion in the post-intervention period.



204. The period Q1 2010 to Q1 2011 constitutes Air Products' failed takeover bid. This period is indicated by the gray bar in the charts. Average multiples for before and after this period were calculated.



When compared with the 2005–2009 period, Airgas stock experience multiple expansion in the several years after the failed takeover. The opposite is true for Air Products for the years 2011–2013. Airgas gained and Air Products lost value, thus opening the large price delta. The capital markets were valuing Airgas at a higher level than in the previous period. But this answer raises its own question. When financial measures are slowing down, both internally and relatively, why would the financial markets increase Airgas's valuation?

There is no clear answer. The efficient market hypothesis states that stock prices incorporate public information into the stock.[205] The most important package of public information is financial performance as disclosed in financial statements. But this information does not support a theory of Airgas's relative premium. Randomness is probably not an answer because the price movement has been upwards only and sustained over a period of years.

In explaining stock prices, one must caveat analysis with the caution that there is always an element of speculation. Segregating noise and information is difficult in securities analysis.[206] Randomness (noise) and fundamental financial measure (information) do not fully explain Airgas's

205. *Supra* notes 64–65 and accompanying text.

206. "Information" is a fact or condition that is relevant to the value of stock. Noise is "the arbitrary element in expectations," the diverse array of unrelated elements that causes price to deviate from intrinsic value. Black, *supra* note 91, at 529–30. "The price of a stock reflects both information that information traders trade on and the noise that noise traders trade on." *Id.* at 531.

stock price. However, the capital markets also had an important piece of fact—Airgas was the subject of a hostile takeover and activist shareholder involvement. That attempt failed, but the financial markets are forward-looking. There was the possibility of a future takeover, which ultimately manifested in Air Liquide's acquisition. Absent an explanation based on financial fundamentals, the best explanation of Airgas's stock premium relative to Air Products' stock price and multiple expansion is the *expectation* of a future transaction or activist shareholder intervention. In this case at least, the market was correct because Airgas ultimately sold to Air Liquide.

The above stock price study of Airgas provides insight into the debate on short-termism. It suggests some limits of post-intervention stock price studies and cautions against over-reliance on conclusions drawn. Such empirical studies, of course, provide useful information and insights.[207] Data and empirical analyses provide another view of the cathederal, however limited or obstructed the view may be. At the same time, empirical studies are also inherently fraught with uncertainty, noise, and interpretive speculation, as the above analysis also exhibits.[208] The stock price analysis suggests one such possibility: that post-intervention stock price may increase for a significant period of time due a premium attributable to the expectation of future transactions or interventions in light of the fact that the subject company was the target of activist shareholder intervention in the past.[209]

IV. SHORT-TERMISM AND THE ROLE OF HEDGE FUNDS

The intertemporal model and the Airgas case study in Section III show that a short-term decision or financial perspective does not have an intrinsic normative quality. Like many matters in corporation law and corporate governance, the quality of an intertemporal choice is contextual; the outcome depends on a number of variables. This section explores these questions: When is short-termism benign, beneficial, or harmful? What is the role of short-term activist shareholders who are archetypically hedge funds?

207. *See, e.g.*, Bebchuk, Brav & Jiang, *supra* note 8.

208. *See supra* notes 33–34 and accompanying text.

209. *See* Coffee & Palia, *supra* note 8, at 588 (citing empirical studies suggesting that changes in expected takeover premium can impact stock prices of companies targeted by activist hedge funds).

A. Benign and Beneficial Short-Termism

We start with a benign form of short-termism, which is the inflation no loss form. Corporate action inflates stock price in the short-term, but does not affect either short-term or long-term profit. How this can be done is irrelevant. Perhaps managers raise market expectations, but fail to deliver on the hype. Or perhaps the mere presence of activists alone is sufficient speculation to increase stock price without any basis in fundamental value.[210] If there is no fraud or illegality or even trust-diminishing behavior—important caveats—inflation no loss form cannot be a problem. When price eventually falls to reflect the unaffected fundamental value, stockholders are not injured. This does not mean that individual shareholders do not suffer loss; rather, the disappointment in expectation is not in itself a cognizable harm. With respect to traders in the short-term inflationary period, do we care whether some lose while others win when intrinsic firm value has not been harmed? Stated differently, in what way is such stock price movement different from any other "noise" incorporated into the stock price? Where there has been no fraud or illegality, there is no social cost, only short-term winners and losers in zero sum trading.

Benign short-termism can also occur in two other forms of short-termism. In the inflation loss form, managers inflate short-term stock *price* while compromising long-term *profit* that ultimately diminish firm value; and in the tradeoff form, managers make intertemporal choices of *profits*, but can make bad tradeoffs that ultimately diminish firm value. In both situations, harm may be done at the micro-level of individual firms, but there is no real social harm at the system level as long as aggregate decisions are random.[211] In a complex market, we expect random errors in many facets of decision-making.

The tradeoff form can also result in beneficial short-termism, actions that increase firm value.[212] The intertemporal model sheds light on firms that may be best served by operating under a short-term framework. Riskier firms with higher cost of capital would generally be better served by focusing on the short-term.[213] The logic of this proposition is inherent in the

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210. *See* Bebchuk, Brav & Jiang, *supra* note 8, at 1122 ("[T]he average abnormal returns observed during the twenty-day period before and after an investor files a Schedule 13D are approximately 6%, a magnitude consistent with the findings in prior work.").

211. *See* Roe, *supra* note 8, at 979–80 (arguing that "one must evaluate the American economy from a system-wide perspective").

212. *See supra* Section II.

213. *See supra* Section II.C.

process of discounting cashflow. Concretely, we can think about two situations.

Consider first a leveraged buyout (LBO). LBOs are risky transactions.[214] The firm, of course, must have a long-term strategy because investors seek a profitable exit. But the substantial strategic focus must be on the short-term. The firm must increase operating profit and cashflow to service the leverage.[215] There is no tomorrow unless the now is viable, and all efforts must be geared toward that end. Short-term profits and financial results are required for survival, and survival is success in many of these transactions.

Consider next an industry that is characterized by high dynamism or susceptibility to competitive disruptions. The technology industry fits this bill. In certain segments of the industry, strategic planning for a long-term period may not make sense.[216] Assets, such as intellectual property in information technology, may have shorter lifecycles irrespective of legal protections. Managers may not be able to project technology and market trends in the long-term. These companies may need to focus on short-term trends, profits and results. Their "long-term" strategy may simply be a tautology—nothing more than a commitment to being a going concern. For example, a long-term commitment to R&D is a commitment to continue to do R&D in each continuous short-term period that is required for short-term results. In these examples, the short-term strategy is rational, and the long-term strategy can best be described as a commitment to be excellent in each successive short-term period constituting in total the long-term life of the firm.

Conversely, some firms would be better served by a long-term focus. Less risky companies with lower cost of capital[217] or industries with durable business models or long-lived assets would be better served by focusing on the long-term. Such industries include banking and finance. The business of commercial banking as depository institutions and traditional investment banking[218] as capital markets intermediaries are durable functions with high social utility. The financial industry should be managed with a long-term

214. Frank H. Easterbrook, *High-Yield Debt as an Incentive Device*, 11 INT'L REV. L. & ECON. 183, 191 (1991).

215. *See* RHEE, *supra* note 73, at 185–88 (explaining the constraints in an LBO transaction); John H. Ginsberg et al., *Befuddlement Betwixt Two Fulcrums: Calibrating the Scales of Justice to Ascertain Fraudulent Transfers in Leveraged Buyouts*, 19 AM. BANKR. INST. L. REV. 71, 75 (2011) (present debt service in an LBO "is an inflexible demand on the target's cash-flow").

216. *See generally* D. Daniel Sokol, *Vertical Mergers and Entrepreneurial Exit*, 70 FLA. L. REV. (forthcoming 2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3217095.

217. *See supra* Section II.C.

218. "Traditional" investment banking refers to core investment banking activities such as securities underwriting, M&A advisory, asset management, and broker-dealer services in the pursuit of corporate client service.

view where sacrifice of short-term profit for long-term sustainability would be better.[219] Another example is biotechnology and pharmaceuticals, which depend on long-term investments in R&D to procure a pipeline of products that are long-lived assets.[220] Biotechnology and drugs may have longer lifecycles than information technology. The energy industry may be subject to a similar analysis.

We should also consider the possibility that, in spite of exhortations from some academics and judges, a broad segment of shareholders may prefer short-term profit and return over longer-term risk and investment.[221] This preference may reflect views that perhaps managements have an innate tendency towards empire-building and inefficient investment of assets,[222] or that perhaps the dynamism of the macroeconomy and the corporate landscape merits greater emphasis on short-term returns over long-term expectation from specific investments.[223] Rather than causing short-termism, as some claim, hedge funds may simply be the "spearhead" in a broader movement by skeptical shareholders who prefer more finite short-term cash returns rather than longer-term expectation of returns.[224] To the extent that short-termism reflects a broader shareholder preference, a presumption of benign short-termism should attach unless it can be shown that the aggregate of independent preferences in the capital market is inefficient.

This preference may reflect a reality of the marketplace. Despite the default presumption of perpetual corporate life in corporation law,[225] most corporations on average live only a fraction of the average life of natural persons. Various studies have shown that the implied survival rate of large public companies is measured in a few decades only.[226] While some firms

219. *See* Robert J. Rhee, *The Decline of Investment Banking: Preliminary Thoughts on the Evolution of the Industry 1996–2008*, 5 J. BUS. & TECH. L. 75 (2010) (showing that investment banks took excessive risk by maintaining highly leveraged balance sheets to increase short-term profit).

220. *See* Bill George, *Another View: Can Biotech Survive Icahn?*, N.Y. TIMES: DEALBOOK (June 3, 2010) https://dealbook.nytimes.com/2010/06/03/another-view-can-biotech-survive-icahn (arguing that biotechnology companies require "enormous investments and extended time frames are required to create long-term shareholder value"). *Cf.* Roe, *supra* note 8, at 994 (citing studies showing a positive correlation between R&D investment and institution share ownership and greater entrenchment with lower R&D investment).

221. Coffee & Palia, *supra* note 8, at 580.

222. *Id.* Executives may have an incentive to create bigger companies because pay is highly correlated with the size of the corporation.

223. This concept fits within the DCF framework. A greater uncertainty of the long-term means a higher discount rate, resulting in greater discounting of long-term cashflow. *See supra* Section II.

224. Coffee & Palia, *supra* note 8, at 580.

225. *Supra* note 79.

226. *See* MICHAEL J. MAUBOUSSIN, DAN CALLAHAN & DARIUS MAJD, CREDIT SUISSE, CORPORATE LONGEVITY: INDEX TURNOVER AND CORPORATE PERFORMANCE 2 exhibit 1 (2017) (noting

"die" from liquidation and failure, most firms cease to exist through mergers and acquisitions.[227] Companies like the Ford Motor Co. are the exception,[228] and Airgas, which survived for thirty years before being acquired, the unremarkable example.[229] We infer two observations from this market reality. The first is that macroeconomic developments driving innovation and M&A activity may be largely unaffected by particular legal reforms enacted to combat a perceived problem of short-termism. The second is that in light of the average life and half-life of firms, shareholders may believe that any given short-term period constitutes the firm's end of life. Such reasonable belief, based on probabilistic thinking, would incentivize shareholders to emphasize the importance of the short-term.

The selection of time horizon and strategic management are not a one-size-fits-all proposition across industries and companies. Broad, abstract, and ambiguous discussions of short-termism as a didactic exercise are unhelpful. Certain industries and circumstances may be more optimally managed on the whole with shorter or longer time horizons than other industries. Even then, the choice of intertemporal strategy at the micro-level of specific managerial decisions is always an economic cost-benefit analysis of relative opportunities and their relation to firm value.[230] In many instances, the short-term view is benign or beneficial. Short-termism surely exists randomly. In exercising business judgment, managers routinely make wrong strategic choices in the selection of time horizon. The question is not whether wrong decisions are sometimes made; of course they are. Any claim of mismanagement—intentional, negligent, or innocent—would be subject to existing redress available in corporation law and corporate governance such as derivative suits, shareholder exit, shareholder activism, and, more unlikely, challenge to corporate control.[231] Otherwise, random

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that the implied survival rate of S&P 500 and Fortune 500 firms range from sixteen to twenty-four years, and the typical half-life of public companies is about ten years); Madeleine I.G. Daepp et al., *The Mortality of Companies*, 12 J. ROYAL SOC. INTERFACE 1 (2015) (finding that the typical half-life of public companies is about a decade regardless of business sectors).

227. *See* Daepp et al., *supra* note 226, at 1 ("While liquidation is often responsible for firm deaths, a much more common cause of death relates to the disappearance of companies through mergers and acquisitions."); MAUBOUSSIN, CALLAHAN & MAJD, *supra* note 226, at 6 ("[M]ore than half the removals are the result of M&A, while only one-third are from failure.").

228. Ford was incorporated in 1903, went public in 1956, and of course still exists today. *See* https://corporate.ford.com/history.html. *See also* Daniel Roberts, *The Oldest Companies of the Fortune 500*, FORTUNE (June 10, 2015) http://fortune.com/2015/06/10/oldest-companies-fortune-500 (providing other examples of long-existing companies).

229. Airgas was created as a public company in 1986 and it survived until 2016 when Air Liquide acquired it. WANG, HEALY, ROSSANO & THOMAS, *supra* note 117, at 2; *supra* note 158.

230. *See* City Capital Assocs. v. Interco Inc., 551 A.2d 787, 802 (Del. Ch. 1988) ("The essence of rational choice is an assessment of costs and benefits and the consideration of alternatives.").

231. *See* Anderson, *supra* note 8, at 50; Roe, *supra* note 8, at 980–81.

errors in the selection of time horizon distributed across the market are not distinguishable from random instances of bad management. They are subject to traditional deference to managerial decisions and thus fall within the realm of business judgment.[232] No other policy response is necessary.[233]

B. Harmful Short-Termism

Short-termism is a social problem if it is *systemic*.[234] Systemic short-termism is possible only when two conditions coexist. First, aggregate managerial decisions are biased toward short-termism in the corporate market. Managers systemically inflate short-term stock price at the expense of long-term profit or make bad intertemporal tradeoffs. If that is the hypothesis, we should identify the precise mechanism by which business decisions are systemically biased. But this is only the first part of showing the hypothesis to be true. Second, the capital market is also inefficient. Otherwise, if systemic biased managerial actions are evident in public information, an efficient capital market would preclude the possibility of short-termism. Shareholders, seeking the highest risk-adjusted returns, would know that stock prices are inflated; knowing this they would sell shares in the short-term before the stock declines at some point in the future in response to the firm's diminished long-term prospect; but doing so would reduce the current stock price.[235] For systemic short-termism to manifest, the mechanisms of managerial decision-making and efficient capital markets must somehow fail together.

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232. *See* DEL. CODE ANN. tit. 8, § 141(a) (2016) (providing that the board shall manage the business and affairs of the corporation); MODEL BUS. CORP. ACT § 8.01(b) (2003) (same); Aronson v. Lewis, 473 A.2d 805, 812 (Del. 1984) (articulating the business judgment rule); *In re* Caremark Int'l Inc. Derivative Litig., 698 A.2d 959, 967 (Del. Ch. 1996) (same).

233. *See supra* note 27.

234. *See supra* note 211.

235. *See* Lucian A. Bebchuk, *Letting Shareholders Set the Rules*, 119 HARV. L. REV. 1784, 1802 (2006) ("If a governance provision does not serve long-term shareholder value, its adoption will likely reduce short-term prices (which reflect expectations about long-term value) . . . ."); Kahan & Rock, *supra* note 7, at 1084 (explaining that in an efficient market "interests of investors with short-term trading horizons will not conflict with those of investors with long-term trading horizons"); Jonathan R. Macey, *State Anti-Takeover Legislation and the National Economy*, 1988 WIS. L. REV. 467, 481 (1988) ("The point, of course, is that the distinction between maximizing firm value for the present versus maximizing firm value for the future is wholly false. What matters in determining the value of a firm's shares is the present value of all flows—present and future."); Bernard Black & Reinier Kraakman, *Delaware's Takeover Law: The Uncertain Search for Hidden Value*, 96 NW. U. L. REV. 521, 532–33 (2002) (arguing that the distinction between long-term and short-term investors is nonsensical because "[u]nder elementary principles of finance, even short-term investors have an incentive to maximize the firm's long-term value"). *See also supra* notes 23, 65.

Proponents of the hypothesis have argued that the two conditions of inefficiency can coexist. Pressure from short-term focused shareholders is the mechanism that induces systematic errors in corporate decision-making. Stock prices are inflated on a short-term basis through some sort of accounting or financial gimmickry or deception, having no relation to actual value creation. Systemic inflation of short-term stock price unjustified by fundamentals is possible, they have argued, because markets are inefficient and do not perfectly incorporate all information.[236]

Can systemic inefficiencies in the corporate and capital markets coexist? They can, but it is a special condition, one that does not occur routinely. A systemic increase in stock prices unjustified by fundamental value is the definition of an asset bubble.[237] The short-termism hypothesis is, then, an argument that shareholder-induced short-termism is a form of a stock market bubble based on systemic failure of corporate governance.[238] The unjustified stock price increase across the market may be pronounced or mild, but short-termism is a social problem only if it is an asset bubble.

Bubbles in business history are not unique,[239] but the argument that short-termism creates a bubble is a difficult one. The nature of corporate strategy must somehow decouple stock price from fundamental value. The markets must misperceive value in some fundamental way in a liquid, informationally rich stock market. This can happen. The last two instances of asset bubbles involved complex asset classes: business models based on the revolutionary technology called the internet seen in the late 1990s and structured finance and derivative instruments tied to residential mortgages seen in the late 2000s. The narrative of short-termism tells a story that activist shareholders pursue a menu of strategies, including changes in policies on dividends and stock buybacks, divestitures, asset allocation, corporate leadership, M&A, and R&D.[240] These strategies are not arcane or

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236. *See* Strine, *supra* note 34, at 464–65; Dallas & Barry, *supra* note 63, at 546; William W. Bratton & Michael L. Wachter, *The Case Against Shareholder Empowerment*, 158 U. PA. L. REV. 653, 691–94 (2010); Lynn A. Stout, *The Mechanisms of Market Inefficiency: An Introduction to the New Finance*, 28 J. CORP. L. 635, 659–60 (1991); Lipton & Rosenblum, *supra* note 1, at 198. *Cf.* MARK J. ROE, STRONG MANAGERS WEAK OWNERS: THE POLITICAL ROOTS OF AMERICAN CORPORATE FINANCE 13 (1994) (noting that the arguments explaining short-termism "are highly speculative, cut against the usual belief that American securities markets are informationally efficient, and so far lack strong empirical backup" but that "there is just enough suspicion in the business world that securities markets induce short-term behavior").

237. Erik F. Gerding, *Laws Against Bubbles: An Experimental-Asset-Market Approach to Analyzing Financial Regulation*, 2007 WIS. L. REV. 977, 990 (2007).

238. *See* Strine, *supra* note 34, at 462–67 (discussing the long-term and short-term debate in the context of efficient markets and stock market bubbles).

239. *See, e.g.*, MALCOLM BALEN, THE SECRET HISTORY OF THE SOUTH SEA BUBBLE: THE WORLD'S FIRST GREAT FINANCIAL SCANDAL (2003).

240. *See supra* note 18 and accompanying text.

complex. They are plain vanilla. They have long been the subjects of academic study and routine aspects of business strategy and consideration.

The argument for the short-termism bubble is distinguishable in other ways. In the most recent examples of bubbles in the securities markets, bubbles occurred in specific industry sectors or products: for example, the internet or residential mortgages.[241] Most proponents of the short-termism hypothesis assume that the markets have systemically misvalued stocks broadly, across different firms, industries, and strategic choices. Scholars do not explicitly state this assumption, but most commentaries do not limit the scope of the hypothesis to a localized market segment or a specific firm profile. Lastly, the hypothesis of short-termism is based on the argument that short-termism inflates stock prices in the short-term, but some empirical evidence contradicts the notion that stock prices systematically declined after the short-term intervention.[242] If there is a bubble, there is no evidence that a market correction or a crash has occurred as of yet.

Despite skepticism of the bubble theory expressed above, this article does not reject that possibility. Even opponents must acknowledge that only in the past thirty years, we have had three major market crashes, at least two market bubbles, and systemic crises in the honesty of financial accounting and the soundness of financial engineering.[243] Were markets efficient in 1987, 1996–2000, and 2006–2008? Those empirical experiences caution against hubris of theory and the unskeptical belief in market prices at any given moment. Market mishaps, among other reasons, have spurred the idea that short-termism has been a cause. Commentators have argued that short-termism was a causal factor in two prominent instances of market bubbles and crashes and that the market did not sufficiently incorporate the negative effects of short-termism into stock prices: the accounting scandals of the late 1990s that resulted in the passage of the Sarbanes-Oxley Act,[244] and the financial crisis of 2008–2009 that resulted in the passage of the Dodd-Frank

241. *See* KOLLER, DOBBS & HUYETT, *supra* note 88, at 99 ("Sector and company bubbles are more frequent than marketwide bubbles, but they're still rare.").

242. *See* Bebchuk, Brav & Jiang, *supra* note 8, at 1089–91.

243. Major market crashes are Black Monday of October 1987, the internet dot com crash of 2000, and the crash precipitated by the financial crisis of 2008–2009. Market bubbles include the internet bubble of the late 1990s and the housing bubble in the late 2000s. In the late 1990s, accounting scandals were endemic, resulting in the passage of the Sarbanes-Oxley Act. In the late 2000s, abuses of financial engineering in structured finance and derivatives were endemic, resulting in the passage of the Dodd-Frank Act.

244. *See, e.g.*, ERIC W. ORTS, BUSINESS PERSONS: A LEGAL THEORY OF THE FIRM 237 (2013); William W. Bratton, *Enron and the Dark Side of Shareholder Value*, 76 TUL. L. REV. 1275, 1359 (2002).

Act.[245] Yet, the argument that short-termism principally explains these complex events would be too simplistic.[246]

If systemic short-termism exists, what should be the policy response? Reform in corporation law is one answer. But this prescription is sound only if short-termism is systemic across all corporations and industries. If corporate governance is the common problem, corporation law is the common thread. Some scholars have assumed this scenario, prompting them to propose broadly applicable prescriptions founded in corporation law[247] or regulation of capital markets.[248]

Systemic short-termism and market failure may exist in a localized segment of the market. This situation requires a different policy response. Examples are easy to conjure. Suppose the energy sector may be afflicted with short-termism. Companies choose short-term profit by focusing on fossil fuel and forego long-term profitability by failing to develop alternative energy products. If systemic short-termism is localized to an industry sector or a particular firm profile, the policy response would not lie in corporation law. It would most likely be legislation in the particular sector or profile afflicted with the inefficient short-termism. For example, a shortfall in R&D in a particular industry sector could be stimulated through changes in tax or accounting policies. Localized problems would most likely require substantive changes in the rules of the specific industry as opposed to universally applicable rules such as corporation law.

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245. *See, e.g.*, Dallas, *supra* note 22, at 268; Cremers, Masconale & Sepe, *supra* note 19, at 748.

246. *See generally* THE FINANCIAL CRISIS INQUIRY REPORT: FINAL REPORT OF THE NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES (2011) (describing the complex causes of the financial crisis).

247. *See* K.J. Martijn Cremers & Simone M. Sepe, *Institutional Investors, Corporate Governance, and Firm Value*, 41 SEATTLE U. L. REV. 387, 396–97 (2018) (noting that critics of short-termism have proposed various means to protect boards); Caroline Flammer, *Long-Term Executive Compensation as a Remedy for Corporate Short-Termism*, 41 SEATTLE U. L. REV. 419, 420 (2018) (proposing long-term executive compensation plans); Lipton & Rosenblum, *supra* note 1 (proposing quinquennial election of directors); Berger, Solomon & Benjamin, *supra* note 8 (proposing tenure voting system based on duration of stock holding); Justin Fox & Jay W. Lorsch, *What Good Are Shareholders?*, HARV. BUS. REV. 48, 56–57 (July 2012) (proposing voting power be tied to tenure); Strine, *supra* note 8 (proposing multiple solutions to address short-termism); Dallas & Barry, *supra* note 63 (proposing time-phased voting). Corporate law has provided some devices to thwart short-term shareholders. *See, e.g.*, Williams v. Geier, 671 A.2d 1368, 1384–85 (Del. 1996) (upholding charter provision granting superior voting rights for shareholders who held for three years or more); Third Point LLC v. Ruprecht, C.A. Nos. 9469–VCP, 9497–VCP, 9508–VCP, 2014 WL 1922029, at *1 (Del. Ch. May 2, 2014) (upholding a poison pill designed to thwart activist hedge funds using "wolf pack" tactics).

248. *See* James Tobin, *A Proposal for International Monetary Reform*, 4 E. ECON. J. 153, 155 (1978) (proposing a transaction tax to curb speculative currency trading); Joseph E. Stiglitz, *Using Tax Policy to Curb Short-Term Trading*, 3 J. FIN. SERVS. RES. 101, 109 (1989) (same); Lawrence H. Summers & Victoria P. Summers, *When Financial Markets Work Too Well: A Cautious Case for a Securities Transactions Tax*, 3 J. FIN. SERVS. RES. 261, 272 (1989) (same); LOUIS LOWENSTEIN, WHAT'S WRONG WITH WALL STREET—SHORT-TERM GAIN AND THE ABSENTEE SHAREHOLDER 204–05 (1988) (proposing a progressive capital gains tax based on duration of holding).

The legislative responses to the accounting scandals of the late 1990s and the financial crisis of the late 2000s illustrate the different approaches toward problems caused, at least in part by short-termism. The accounting fraud problems were perceived to be endemic to the entire corporate market. WorldCom and Enron, the two poster children of the era, did business in different industry sectors, the telecommunications and the energy industries respectively. The Sarbanes-Oxley Act applied new rules across the entire corporate market. On the other hand, the epicenter of the financial crisis of 2008–2009 was the broad financial sector, and the Dodd-Frank Act, albeit voluminous because the financial sector is enormous, principally focused on this industry.

C. Liquidity of Concentrated Ownership

Hedge funds have been the ire of critics of short-termism. Does the short-term focus of hedge funds pose a systemic problem? Not at the moment, but not because the short-term focus is benign or beneficial in the aggregate. We do not know that hedge fund-induced short-termism, if it exists at all, is benign, beneficial or harmful in the aggregate. Empirical evidence seems to be inconclusive, and any positive statement that such short-termism is either good or bad seems to be based on educated guesses, intuitions, and anecdotes. Rather, hedge funds with a business model based on influencing corporate governance with a short-term horizon do not pose a problem because they do not currently have the scale to pose a systemic threat in the market.

In 2016, the total assets managed by activist hedge funds was about $176 billion.[249] Compare this figure to the total market capitalization of companies listed on the New York Stock Exchange and NASDAQ, which is $32 trillion.[250] The total size of assets held by activist hedge funds is about the same size as the market capitalization of DowDuPont,[251] and is less than the market capitalizations of many other large public companies.[252] Based

249. *See* Josh Black, *The Activist Investing Annual Review 2017*, HARV. LAW SCH. FORUM ON CORP. GOV. & FIN. REG. (Feb. 21, 2017) ($194 billion in 2015). *See also* Coffee & Palia, *supra* note 8, at 555 ($166 billion in 2014).

250. Jeff Desjardins, *Here's the Difference between NASDAQ and NYSE*, BUSINESS INSIDER (July 11, 2017).

251. The company's market capitalization is as of January 13, 2018 on Yahoo Finance.

252. For example, as of January 13, 2018, the following companies had these market capitalizations ($ billion): Citigroup $203, Boeing $200, Chevron $253, Cisco $202, Coca-Cola $196, Proctor & Gamble $227, Pfizer $217, and Verizon $211. Other companies dwarf the total assets held by activist hedge funds ($ billion): Apple $1,632, Google $782, Berkshire Hathaway $518, Facebook $521, Alibaba $481, and Bank of America $325.

on these recent figures, and assuming that all assets held by activist hedge funds are stock, hedge funds can hold about 0.6% of the capitalization of public companies in the two largest U.S. stock exchanges. Their influence is larger than this percentage would suggest, because they are not diversified investors but instead invest in concentrated minority stakes sufficient to exert influence on corporate governance. With their limited capital, they can still cover much of the market. However, they are a still tiny fraction of the ownership in public stock. Unless their assets under management grows substantially, activist hedge funds are unlikely to cause systemic macroeconomic market problems.[253]

Their aggregate size explains aspects of their broad strategies. They do not generally sponsor takeovers. They may be merger arbitrageurs as seen in *Airgas* or may recommend to managers to pursue an M&A deal, but they do not generally takeover companies directly.[254] Acquiring control require a large pool of capital, commitment to manage the firm after acquisition, and an investment return measured in possibly many years—none of which comports with hedge fund strategy. If there are minority shareholders remaining, a controlling shareholder must owe fiduciary duties.[255] Rather, hedge funds take a minority equity stake sufficient to influence corporate governance through publicity campaigns or proxy contests[256] They are in "the market for corporate influence."[257] In this way, hedge funds are different from the traditional venture capital, private equity, and leverage buyout funds, whose business models may be centered on taking a significant stake with a longer-term time horizon.[258]

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253. A single hedge fund can cause a systemic crisis in the market, as we saw in the case of Long-Term Capital Management (LTCM). *See generally* ROGER LOWENSTEIN, WHEN GENIUS FAILED: THE RISE AND FALL OF LONG-TERM CAPITAL MANAGEMENT (2001). But LTMC was a hedge fund that used complex trading and derivative strategies to take enormous trading positions in the market. This type of hedge fund is very different from hedge funds having shareholder activism as their business model.

254. Cremers, Masconale & Sepe, *supra* note 6, at 312; Sharfman, *supra* note 11, at 825. Since activists do not seek to acquire control, the poison pill is less of a deterrent to activists. Cremers, Masconale & Sepe, *supra* note 6, at 269, 318–19. *Cf.* Cremers, Masconale & Sepe, *supra* note 19, at 732 (arguing that poison pill is associated with decreased firm value).

255. Kahn v. Lynch Commc'n Sys., Inc., 638 A.2d 1110, 1113–14 (Del. 1994); Ivanhoe Partners v. Newmont Mining Corp., 535 A.2d 1334, 1344 (Del. 1987); Sinclair Oil Corp. v. Levien, 280 A.2d 717, 720 (Del. 1971). Some commentators have suggested that fiduciary duties should be imposed on activist shareholders. *See* Anabtawi & Stout, *supra* note 8.

256. *See supra* note 17 and accompanying text; Coffee & Palia, *supra* note 8, at 554–56.

257. Brian R. Cheffins & John Armour, *The Past, Present, and Future of Shareholder Activism by Hedge Funds*, 37 J. CORP. L. 51, 51–55 (2011). *See supra* note 17.

258. *See* Steven Davidoff Solomon, *Poison Pill's Relevance in the Age of Shareholder Activism*, N.Y. TIMES (Apr. 18, 2014) ("But with shareholder activism, the issue is about steering the future direction of the company, not eliminating shareholders or the company itself."); Brian R. Cheffins & John Armour, *supra* note 257, at 58–60 (distinguishing between the "market for control" with traditional acquirers and the "market for influence" with activist shareholders); William W. Bratton, *Hedge Funds*

In theory, the best utility of activist short-term shareholders is a form of a liquidity of concentrated ownership. The benefit of this function can be seen by comparing ownership structures in the U.S. and other parts of the world. Historically, public ownership of stock in the U.S. was characterized by diffuse and passive shareholders as described by Berle and Means.[259] The Berle-Means corporation was a product of past political choices in muting the power of institutional intermediaries.[260] The classic account of managerial agency cost states that the consequences of a diffuse shareholder ownership structure were shareholder passivity and rational indifference, which increase agency cost.[261] The U.S. ownership structure has historically differed from those of other parts of the world such as Japan and Germany, where concentrated shareholder ownership by financial institutions and other intermediaries is commonly seen.[262] In these models, concentrated ownership with long-term investment horizon results in substantial shareholder influence on management.[263] With the rise of institutional shareholders in the U.S., the model of atomized shareholders no longer reflects current ownership structures of many U.S. public companies.[264] This trend of concentrated ownership and shareholder activism moves the needle on the balance of power between shareholders and managers.

In this new environment, activist hedge funds can, in theory, play a niche role. Due to the short time horizons of hedge funds, their capital is highly mobile.[265] They provide concentrated ownership—a structure that more resembles the ownership structures in other countries where shareholders influence management, except that the concentrated ownership they provide

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and Governance Targets, 95 GEO. L.J. 1375, 1383 (2007) (distinguishing how private equity funds and hedge funds invest and participate in governance).

259. *See* ADOLF A. BERLE, JR. & GARDINER C. MEANS, THE MODERN CORPORATION AND PRIVATE PROPERTY (1932).

260. *See* ROE, *supra* note 236, at 21–49. *See also* Mark J. Roe, *A Political Theory of American Corporate Finance*, 91 COLUM. L. REV. 10 (1991).

261. Edward B. Rock, *Adapting to the New Shareholder-Centric Reality*, 161 U. PA. L. REV. 1907 (2013); Frank H. Easterbrook & Daniel R. Fischel, *The Proper Role of a Target's Management in Responding to a Tender Offer*, 94 HARV. L. REV. 1161 (1981). Agency cost has been central to understanding corporation law. *See* BERLE & MEANS, *supra* note 259, at 6 (noting that "the separation of ownership from control produces a condition where the interests of owner and of ultimate manager may, and often do, diverge"). *See also* Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure*, 3 J. FIN. ECON. 305 (1976).

262. *See* ROE, *supra* note 236, at 169–86. *See also* Fried, *supra* note 8, at 1566 n.36 (most companies outside the United States have controlling shareholders and the average insider ownership in U.S. companies is about 20%).

263. ROE, *supra* note 236, at 175–77, 179–82.

264. *Id.* at 6. *See supra* note 13.

265. *See* Coffee & Palia, *supra* note 8, at 574 ("The archetypal 'transient investor' is probably the hedge fund . . . .").

is temporary and transactional.[266] Their capital is mobile and their perspective is short-term. This liquidity of concentrated ownership provides an American twist on the idea of concentrated ownership seen in much of the rest of the world. Perhaps due in part to this transience, the lack of long-term commitment, the newness of the relationship, and certainly due to the confrontational nature of proxy contests, the relationship between concentrated capital and incumbent management may be less cooperative and trustful and more adversarial in the American form.

We see the liquidity of concentrated ownership in a common strategy. Since hedge funds lack aggregate size and desire to acquire corporate control, they sometimes combine forces, thus turning a small minority stake of one shareholder into something greater when other shareholders are joined. When an investment opportunity is spotted, independent hedge funds may join as a part of a loosely coordinated effort that must be careful not to skirt SEC rules on ownership reporting and short-swing profits. This tactic is called a "wolf pack,"[267] and to some it is a pejorative connoting a predatory nature.[268] But the metaphor may be an apt description of a useful role hedge funds can play in theory in the corporate landscape. It is well known that wolves hunt in teams and purposefully target the weakest, most vulnerable prey,[269] and this natural behavior strengthens the prey species by weeding out weaker individuals.[270] The wolf pack metaphor, it seems, fits the thesis that hedge funds can play a positive role in diminishing managerial agency cost.[271] They prowl the corporate landscape in search of

266. In the mid-1990s, rarely did a single intermediary own more than 1% of large companies resulting in collective action problems among many shareholders. ROE, *supra* note 236, at 6. *See id.* at 11 (noting that five to ten percent holdings were rare then). Present activists take small equity stakes, usually around five to ten percent, to exert influence on corporate governance. Cremers, Masconale & Sepe, *supra* note 6, at 319.

267. *See* Dent, *supra* note 24, at 2337 ("A 'wolf pack' is a loose association of hedge funds that employs parallel activist strategies toward a target corporation while intentionally avoiding group status under section 13(d)."); Coffee & Palia, *supra* note 8, at 562 (same).

268. *See* Strine, *supra* note 8, at 1875 ("Human investors are the least-discussed participants in our corporate governance republic, a reality made more important by the menacing valence the term 'wolf pack' takes on when the prey might be human—investor, worker, or otherwise."). *Cf.* ROBERT PRINGLE, THE MONEY TRAP: ESCAPING THE GRIP OF GLOBAL FINANCE 181 (2012) (stating financial markets are "prey" to "wolf packs").

269. Hong-an Yang et al., *Temporarily Distributed Hierarchy in Unmanned Vehicles Swarms*, *in* 2 ADVANCES IN SWARM INTELLIGENCE 513 (Ying Tan & Yuhui Shi, eds., 2016); ANNE ELIZABETH MACZULAK, BIODIVERSITY: CONSERVING ENDANGERED SPECIES 88 (2010).

270. RICK MCINTYRE, A SOCIETY OF WOLVES: NATIONAL PARKS AND THE BATTLE OVER THE WOLF 28 (1993); Kevin J. Madonna, *The Wolf in North America: Defining International Ecosystems vs. Defining International Boundaries*, 10 J. LAND USE & ENVTL. L. 305, 311 n.21 (1994).

271. *See* Sharfman, *supra* note 11, at 822. *See also* Gilson & Gordon, *supra* note 13, at 896–902 (discussing the role that activist shareholders can play in corporate governance).

weak companies to target.[272] The idea that a loose pack of minority shareholders could coalesce in transitory transactions was anticipated many years before hedge fund activism became prominent.[273] The reference to a mechanism of natural selection is a minor point that the descriptive of "wolf pack" is more than just a colorful pejorative. It substantively describes the theory of their potential utility.

There is a more substantial analogy to a fundamental principle in ecology, one that both proponents and opponents of the short-termism hypothesis would agree in principle, if not in practice. Both predator and prey do best when there is homeostasis—a stable equilibrium between the two interdependent populations, each depending on the other to maintain a healthy balance in their populations. This idea is useful in the corporate market. The aggregate size of hedge funds precludes their ownership broadly across the entire U.S. equity markets; and not many, one presumes, may think it a good idea that such activism should take hold in the entire corporate market—is the U.S. corporate market *that* inefficient? With limited capital, hedge funds bring a liquidity of concentrated ownership to only those companies that may be the weakest or have the highest agency cost. In a well-functioning capital market, the amount of capital that hedge funds can deploy should be a function of the number and quality of profit opportunities in the market for corporate influence.

Short-term shareholder activism may serve a useful function so long as the amount of liquid concentrated ownership is in homeostasis with the number of transient, transactional opportunities—a stable equilibrium between capital and opportunity. We would not want too many wolves on the prowl, so to speak; nor would we want no wolves at all in the ecosystem. Too much short-term capital chasing too few short-term profit opportunities would create systemic problems, and ultimately investors on both sides of the transaction would lose. Too little short-term capital chasing too many profit opportunities would result in opportunity cost and lower firm values, and ultimately the markets would be lesser for it. We do not know the level of transient capital required to achieve this balance. Nor can any empirical study conceivably measure this. The optimal amount of capital is ultimately a price-setting function of the capital markets in determining the supply-

272. *See* Bebchuk, Brav & Jiang, *supra* note 8, at 1117; Kahan & Rock, *supra* note 7, at 1061. Some have disputed this point. *See* Coffee & Palia, *supra* note 8, at 582 ("target firms are often more profitable than the control sample, suggesting that these targets are not poorly performing firms").

273. *See* ROE, *supra* note 236, at 245–46 ("Why don't American financial intermediaries, some of which can own some stock, go to the law's limits in stockholders? . . . *Multiple* blocks may induce intermediaries to act in a way that a *single* isolated blockholder might not. The multiple blocks may solve the weakness problem without creating a dominating block that recentralizes authority in a dominating intermediary.").

demand of this specific form of capital and its cost of capital. However, we know that given the size of the assets under management by activist hedge fund presently, this market is fairly small relative to the aggregate capitalization of U.S. public companies. This fact should give some comfort that any relative imbalances, either too much or too little capital, or relative efficacy of the theory of hedge fund utility in the actual practice of corporate governance, will not result in systemic problems at the current levels of capital.

In summary, hedge funds are not *yet* sufficiently large in the market to engender an asset bubble based on systemically harmful corporate short-termism. They are a player in the complex capital market where ultimately their utility will determine their size and cost. Activist hedge funds are not detrimental to the market in a systemic sense. Of course, they can randomly err or harm many companies in a large market, just the way they can randomly benefit companies. We can infer that if corporate short-termism is a social problem, hedge funds are not the cause of it because they do not yet have systemic scale. We can also infer that much of short-termism in the market today is either benign because it is random or does not affect intrinsic value, or beneficial because managers are making proper intertemporal choices.

CONCLUSION

Within the larger question of manager-shareholder power allocation is the question of whether short-termism and the role of short-term activists, such as hedge funds, have social utility. The question is robustly debated on theoretical and empirical grounds. The answer will ultimately hinge on clear empirical evidence or, absent a consensus, the truth of time. Scholars sharply disagree on theory, and empirical evidence is thus far inconclusive. We are not at the point of a consensus. In the context of this important ongoing debate, this article shows that the issue of short-termism cannot be painted in broad didactic brushstrokes. A short time horizon is not *per se* socially inefficient. Short-term choices and bias can be rational. The optimal strategy is often a tradeoff taking into account cost of capital, opportunity gains and costs, and time horizon. The effects of short-term decisions are not randomly or evenly distributed; specific companies, industries, or market segments may benefit more from short-termism or may be more susceptible to its costs. The intertemporal model of short-termism proves the intuition that if profitable enough, a short-term perspective can be the value maximizing strategy.

Because short-term actions in the abstract do not have a normative, efficiency-based content, only specific context determines whether a short-

term choice is benign, beneficial, or harmful. Benign or beneficial short-termism occurs when fundamental firm value is unaffected, when errors are random, or when short-term choice is rational. Short-termism is harmful at the systemic level only under the specific conditions that both the corporate market and stock market are inefficient. Short-termism is a social problem only when it creates a bubble. With these ideas in mind, short-term shareholders can perform an important function in theory, though it remains an open question whether they do so in fact. Transient, transactional capital can provide a liquidity of concentrated ownership, bringing to bear a limited supply of concentrated ownership for the purpose of actively influencing governance. As long as the supply of capital is limited relative to the market size or is rationally related to the market need for intervention, the risk of a systemic adverse bias in short-term decision-making is mitigated.