

ISSN 1045-6333

THE CONTESTABILITY
OF CORPORATE CONTROL:
A CRITIQUE OF THE SCIENTIFIC EVIDENCE
ON TAKEOVER DEFENSES

John C. Coates IV*

Discussion Paper No. 265
9/99

Harvard Law School
Cambridge, MA 02138

The Center for Law, Economics, and Business is supported by
a grant from the John M. Olin Foundation.

www.law.harvard.edu/Programs/olin_center/

*Harvard Law School.

**The Contestability of Corporate Control:
A Critique of the Scientific Evidence on Takeover Defenses**

John C. Coates IV
Harvard Law School
Cambridge, MA 02138
617/496-4420
617/495-1110 (fax)
jcoates@law.harvard.edu

Abstract

Two decades of empirical research on poison pills and other takeover defenses does not support the belief – common among legal academics – that defenses reduce firm value. Even by their own terms, such studies produced weak and inconsistent results, and have not been well designed to discriminate among information effects of midstream defense adoptions. But prior studies suffer from three additional, serious, and previously unrecognized design flaws: (1) pill studies wrongly assume that pill adoption has an effect on takeover vulnerability; (2) studies of antitakeover amendments (ATAs) focus on terms made vestigial by the pill; and (3) all studies fail to account for ways defenses interact. Recognition of these flaws helps explain the weak and mixed results of such studies, and should improve future empirical research on takeover defenses.

PRELIMINARY DRAFT

**The Contestability of Corporate Control:
A Critique of the Scientific Evidence on Takeover Defenses**

John C. Coates IV

© 1999 John C. Coates IV. All rights reserved.

Introduction

The strength of the market for corporate control in the 1990s makes an understanding of takeover defenses a matter of ongoing interest.¹ Despite widespread adoption of defenses, nearly 70 hostile takeover bids were made in 1995, well over the average annual number of bids in the 1980s, and almost 80% of the number made in 1988, the peak year for hostile activity in the 1980s.² Negotiated deals – including many deals that would not have been done but for the background threat of a hostile bid or boardroom coup – have broken records in each of the past five years, reaching an all-time high in the

¹ This is one of a series of related papers on takeover defenses in the 1990s. Other papers in the series include J. Coates, *Measuring the Domain of Mediating Hierarchy: How Contestable Are US Public Corporations?*, __ J. Corp. L. __ (forthcoming 1999) [hereinafter, “How Contestable?”]; J. Coates, *An Index of the Contestability of Corporate Control: Studying Variation in Takeover Vulnerability*, Working Paper (June 30, 1999) (describing new methodology for studying takeover defenses and other governance terms that attempts to address shortcomings of prior empirical studies of defenses) [hereinafter, “Studying Variation”]; J. Coates, *Failure in the Market for Corporate Legal Advice: Explaining Variation in Takeover Defenses in IPOs 1990-1992* (forthcoming) (applying new methodology to defenses adopted in initial public offerings in the period 1990-1992) [hereinafter, “Explaining Variation”]. In the interest of full disclosure, it should be noted that I was formerly a partner at the law firm of Wachtell, Lipton, Rosen & Katz, generally credited with inventing the best-known takeover defense (the poison pill).

² See J. Coates, *How Contestable?*, supra note 1, at __.

U.S. in 1998, even after accounting for growth in the overall economy.³ Recent research has shown that prior to IPOs a significant number of firms adopt terms making takeovers more difficult than default law,⁴ contrary to the belief – widespread among legal academics – that structural takeover defenses⁵ (such as poison pills⁶ and staggered boards⁷) reduce firm value. Yet the same research shows that defenses vary significantly, contrary to beliefs of practitioners that a full set of defenses is privately optimal for all firms.⁸

These facts pose numerous puzzles. How can the market for corporate control be so strong despite the widespread adoption of takeover defenses? On the one hand, if

³ Id. at __.

⁴ Robert Daines & Michael Klausner, Value-Maximizing Charters: An Empirical Analysis of Antitakeover Provisions in Corporate Charters at the IPO Stage, Working Paper (Jan. 13, 1997) (on file with author); L. Field, Control Considerations of Newly Public Firms: The Implementation of Antitakeover Provisions and Dual Class Shares Before the IPO, Working Paper (Feb. 19, 1999) (on file with author) (finding that 50% of industrial firms going public 1988-1992 either use dual class structures or more than one takeover defense at time of IPO). In related work, I study governance terms adopted by firms going public in the period 1990-1992. John C. Coates IV, Explaining Variation, *supra* note __.

⁵ A note on terminology: Two types of defenses may be distinguished: (1) *transactional defenses*, which are financial or operational transactions anticipating or reacting to a bid and designed to make a takeover more difficult, by raising a firm's share price, paying off the bidder, or reducing a bidder's profit; and (2) *structural defenses*, which are legal terms or mechanisms, often adopted in advance of a bid, designed to deter or impede bids without having a financial or operational effect on the target. This paper focuses on structural defenses, but for brevity refers to "defenses" as short-hand for structural defenses. One structural defense not addressed are multiple classes of voting equity: such structures are qualitatively different, in that they generally are adopted not to deter or impede bids, but to prevent them altogether, and so allow the sale of equity without loss of a control "lock." See Luigi Zingales, What Determines the Value of Corporate Votes?, __ Q. J. Econ. 1047 (1995), at 1061 (average voting block held by largest shareholder in firms with dual class capitalization is 32%, which is generally sufficient for control); Lucian A. Bebchuk, A Theory of the Evolution of Ownership Structures in Publicly Traded Companies, NBER Working Paper (July 1999) (on file with author) (same).

⁶ See Wachtell Lipton Rosen & Katz, The Share Purchase Rights Plans, reprinted in Ronald J. Gilson & Bernard S. Black, THE LAW AND FINANCE OF CORPORATE ACQUISITIONS (2d ed. 1998 Supp.) at 4-12 (setting forth terms of standard rights plan) [hereinafter "Wachtell Lipton"].

⁷ Firm with staggered boards elect a portion (usually one third) of their directors each year, with directors serving multi-year (usually three) year terms. See Delaware General Corporation Law (DGCL) § 141 (authorizing staggered boards with two or three classes having two or three-year terms).

defenses reduce firm value, why are they adopted prior to IPOs, when (assuming an efficient IPO market) their costs are borne by pre-IPO shareholders? Why do even sophisticated pre-IPO shareholders (such as venture capitalists and leveraged buyout firms) not block their adoption and so increase IPO proceeds?⁹ And why do practitioners (investment bankers as well as lawyers) generally recommend that firms adopt defenses prior to an IPO? On the other hand, if defenses increase firm value, how do they do so? Why don't all firms adopt a full set of defenses prior to an IPO? Why do institutional investors oppose proposals to adopt defenses midstream, and even incur costs to oppose and attempt to repeal defenses once adopted? And why do so many legal academics believe so strongly that defenses reduce firm value?

As a preliminary step in exploring these puzzles, this paper surveys 20 years of the “scientific evidence”¹⁰ on poison pills and other defenses to assess whether there is an empirical basis for the claim that defenses reduce firm value.¹¹ The survey reveals that,

⁸ See Michael Tognetti, *Anti-Takeover Defenses and Share Value: An Interview of the Industry*, Working Paper (Apr. 14, 1999) (on file with author) (documenting consistent and general belief among practitioners that takeover defenses are advisable generally and prior to an IPO).

⁹ See Daines & Klausner, *supra* note __.

¹⁰ The phrase “scientific evidence” is taken from a widely cited survey of empirical research on takeovers generally. Michael C. Jensen & Richard S. Ruback, *The Market for Corporate Control: The Scientific Evidence*, 11 *J. Fin. Econ.* 5 (1980). For other earlier surveys of empirical evidence on takeover defenses, see Gregg A. Jarrell, James A. Brickley & Jeffrey M. Netter, *The Market for Corporate Control: The Empirical Evidence Since 1980*, 2 *J. Econ. Persp.* 49 (1988) (surveying empirical evidence on takeovers, including studies of takeover defenses); Jeffrey G. MacIntosh, *The Poison Pill: A Noxious Nostrum for Canadian Shareholders*, 15 *Can. Bus. L.J.* 276 (1988) (surveying empirical evidence on use of poison pills in the U.S.); Roberta Romano, *A Guide to Takeovers: Theory, Evidence and Regulation*, 9 *Yale J. Reg.* 119 (1992) (surveying empirical evidence on takeovers).

¹¹ Frank Easterbrook & Daniel Fischel, *THE ECONOMIC STRUCTURE OF CORPORATE LAW* (1991) at 204; Ronald J. Gilson, *The Case Against Shark Repellent Amendments: Structural Limitations on the Enabling Concept*, 34 *Stan. L. Rev.* 775 (1982), at 804, n. 110 & 821-22; Dale Arthur Oesterle, *THE LAW OF MERGERS, ACQUISITIONS, AND REORGANIZATIONS* (1991), at 468 (“available data ... suggest [that] when a firm employs ... defenses before a ... bid is on the table, the announcement ... reduces the value of the firm's stock”); Roberta Romano, *THE GENIUS OF AMERICAN CORPORATE LAW* (1993) at 70-71; MacIntosh, *supra* note __, at 282. But see Jesse H. Choper, John C. Coffee, Jr., & Ronald J. Gilson, *CASES*

even by their own terms, such studies produced weak and inconsistent results. Worse, (1) prior studies of pills are premised on the incorrect assumption that pill adoption changes the takeover defense posture of the adopting firm; (2) studies of antitakeover charter amendments (ATAs) focus on terms rendered vestigial by the poison pill; and (3) both types of studies fail to take into account ways that pills and ATAs interact, greatly reducing their ability to reveal wealth effects of defenses. In sum, prior empirical studies of takeover defenses do not support the belief that defenses reduce firm value.

The paper proceeds as follows. Part I exhaustively surveys the most common type of empirical study of takeover defenses: “event studies” of pills and ATAs. Part II extends one prior criticism of event studies by presenting an informal model of the many signals that a particular defense adoption may send to the market, and argues that prior studies have not been well-designed to reveal the strength or content of such signals. Part III sets forth three serious, previously unrecognized flaws that afflict prior studies of takeover defenses, and argues that signal effects are the only effects reliably captured by event studies of defenses. Recognition of these flaws helps explain the weak and mixed results of such studies, and reinforces the conclusion of Parts I and II that such studies reveal little to nothing about wealth effects of defenses. Part IV surveys studies using other (non-event study) methodologies, notes that they too produce inconsistent results, and

AND MATERIALS ON CORPORATIONS (4th ed. 1995), at 907-09 (“evidence seems reasonably clear that successful resistance for the target is bad news for shareholders, but the evidence is much more ambiguous regarding the impact of specific defensive tactics,” including adoption of poison pills and other structural defenses).

begins the task of reinterpreting these studies in light of the design flaws described in Part III.¹²

¹² Two caveats are in order. This paper does not take up theoretical arguments about why might increase or decrease firm value or social welfare, or whether they are normatively desirable. For a good if now somewhat dated survey, see Roberta Romano, *A Guide to Takeovers: Theory, Evidence and Regulation*, 9 *Yale J. Reg.* 107 (1992). Nor does it present new, affirmative evidence either in support of or against takeover defenses. Thus, the only policy conclusion warranted by the paper is that policy questions on defenses remain open.

I. Event Studies By Their Own Terms Tell Us Little About Defenses

Until recently, empirical research on takeover defenses has been dominated by event studies of poison pills and midstream ATAs.¹³ It is fair to say that event studies have provided the principal evidence supporting legal academic views of the effects of defenses on shareholder wealth and social welfare.¹⁴ Frank Easterbrook and Daniel Fischel rely on such studies as the primary evidence for asserting that “*every* device giving managers the power to delay or prevent an acquisition makes shareholders worse off.”¹⁵ Roberta Romano states that “event studies of defensive tactics find significant negative returns on their adoption”¹⁶ and cites those studies to support the statement that poison pills “are most likely to defeat [takeover] bids and *therefore* to diminish shareholder wealth.”¹⁷ Most recently, Robert Daines and Michael Klausner cite event studies as the primary basis for the “conventional” academic view that takeover defenses harm shareholders.¹⁸

¹³ Another set of event studies that bears on takeover defenses are studies of state anti-takeover statutes. For a survey of such studies and a general discussion of such statutes, see Roberta Romano, *The Genius of American Corporate Law* (1993) at 60-75; see also John C. Coates IV, *State Takeover Statutes and Corporate Theory: The Revival of an Old Debate*, 64 N.Y.U. L. Rev. 806 (1989) (describing and evaluating such statutes in light of theories of the corporation). Many such statutes have effects similar or identical to ATAs, and may in fact be viewed as ATAs imposed as a matter of default law. Thus, event studies of such statutes are subject to the same criticisms made of ATAs set out in Part II; however, I do not here review such statutes in detail.

¹⁴ See notes ___-__ supra. Many financial economists have also been convinced by event studies, see, e.g., Robert Bruner, *The Poison Pill Anti-Takeover Defense: The Price of Strategic Deterrence* (May 1991), at 21 (touting event studies as evidence of wealth effects of pills); Rakesh Duggal & James A. Millar, *Institutional Investors, Antitakeover Defenses and Success of Hostile Takeover Bids*, 34 Q. Rev. Econ. & Fin. 387 (1994), at 394 (citing event study as sole basis for assertion that pills “are severe defenses that reduce takeover probability and stockholder wealth”); Paul Milgrom & John Roberts, *Economics, Organization and Management* (1992), at 182-83 (citing review of event studies as “empirical evidence” that “adopting a poison pill typically reduces the firm’s share value,” representing “simply an expropriation of the shareholders’ property”); J. Fred Weston, Kwang S. Chung & Juan A. Siu, *Mergers, Restructuring,*

Event study methodology is now well-known and generally accepted as providing potentially useful information about the wealth effects of legal and other “events” affecting stock prices.¹⁹ The relationship between a firm’s stock price and the overall stock market is estimated, the estimate is used to predict price changes during an specified interval that includes the event being studied, and differences between predicted and actual returns during the event interval are summed, producing a “cumulative abnormal return” or CAR.²⁰ Event studies are premised on the assumption that stock prices are unbiased estimates of firm value – that is, even if prices are inaccurate, they are off by an amount that averages zero in large samples. Researchers thus calculate CARs

and Corporate Control (1990), chapter 20 (concluding that poison pills harm shareholder wealth based on event studies). Some have been more careful of late, see, e.g., J. Fred Weston, Kwang S. Chung & Juan A. Siu, *Takeovers, Restructuring, and Corporate Governance* (2d ed. 1998) (favorably summarizing Robert Comment & G. William Schwert, *Poison or Placebo? Evidence on the Deterrence and Wealth Effects of Modern Antitakeover Measures*, 39 *J. Fin. Econ.* 3 (1995), as finding pills achieve some takeover deterrence but “target shareholders gain[] even after taking into account deals ... not completed because of poison pills”); but not all, see, e.g., Chamu Sundaramurthy, *Corporate Governance Within the Context of Antitakeover Provisions*, 17 *Strategic Mgt. J.* 377 (1996), at 380 (after reviewing event studies, asserts that “preponderance of empirical evidence supports the managerial entrenchment viewpoint derived from agency theory”).

¹⁵ F. Easterbrook & D. Fischel, *THE ECONOMIC STRUCTURE OF CORPORATE LAW* (1991) at 204 (emphasis in original); see also *id.*, at 196-98 (summarizing event studies listed in *id.*, at 209-211), and at 205 (citing “the absence of *any* existing [takeover defense] that increases targets’ market value” after reviewing event studies) (emphasis in original).

¹⁶ Romano, *supra* note __ at 70-71 (comparing event studies of takeover defenses with event studies of state anti-takeover statutes).

¹⁷ *Id.*, at 80 & n.58 (contrasting purportedly less detrimental effects of golden parachutes and greenmail) (emphasis added).

¹⁸ *Supra* note __, at __.

¹⁹ On event study methodology generally and as applied to legal events, see John J. Binder, *Measuring the Effects of Regulation with Stock Price Data*, 16 *Rand J. Econ.* 167 (1985); Stephen J. Brown & Jerold B. Warner, *Using Daily Stock Returns: The Case of Event Studies*, 14 *J. Fin. Econ.* 1 (1985); Eugene Fama, L. Fisher, Michael Jensen & Richard Roll, *The Adjustment of Stock Prices to New Information*, *Int’l Econ. Rev.* 1 (1969) (generally credited as initiating event study methodology); G. William Schwert, *Using Financial Data to Measure Effects of Regulation*, 24 *J.L. & Econ.* 121 (1981). A succinct and basic description of techniques for measuring abnormal returns more generally is contained in J. Fred Weston et al., *supra* note __, at 93-106. For commentators critical of the methodology generally, see note __ *infra*.

from many similar events, test the average effects for statistical significance, and state how likely it is market reactions were caused by information about the event, rather than unspecified causes (or “random chance”).

Event studies are subject to a number of potential methodological flaws,²¹ many of which have not been adequately addressed in event studies of takeover defenses. But even taken at face value, event studies of takeover defenses produced little reliable evidence (either way) on the wealth effects of takeover defenses. Within a given study, results are mixed and weak; between studies, results are inconsistent; over time, results have become less significant (both statistically and economically); and when firms are partitioned on various traits, results differ among subsamples. Even with no further analysis, event studies do not provide much if any support for theoretical (positive) arguments that such

²⁰ Different event studies use different models, and produce slightly different measures of an event’s information effects. See generally Ronald J. Gilson & Bernard S. Black, *THE LAW AND FINANCE OF CORPORATE ACQUISITIONS* (2d ed. 1994), at 200-228.

²¹ See generally Gilson & Black, *supra* note __, at 215-228. For example: (1) daily returns may not be normally distributed with constant variance, and shifts in parameters used to estimate relationship between individual stocks and market may (a) be induced by the events themselves, e.g., Sanjai Bhagat & Richard Jefferis, *Voting Power in the Proxy Process: Antitakeover Charter Amendments*, 30 *J. Fin. Econ.* 193 (1991); Ekkehart Boehmer, Jim Musumeci and Annette B. Poulsen, *Event-Study Methodology Under Conditions of Event-Induced Variance*, 30 *J. Fin. Econ.* 253 (1991), or (b) arise for unrelated reasons, e.g., Frank De Jong, Angelien Kemna, and Tevin Kloeck, *A Contribution to Event Study Methodology with an Application to the Dutch Stock Market*, 16 *J. Bus. & Fin.* 11 (1996); John Rumsey, *The Market Model and the Event Study Method: A Synthesis of Econometric Criticisms: Comment*, 5 *Int’l Rev. Fin. Anal.* 79 (1996), (2) event studies depend on knowing when new information affects market prices, yet legal or regulatory events often involve gradual, non-discrete release of information and learning over time, see Merritt B. Fox, *The Role of the Market Model in Corporate Law Analysis: A Comment on Weiss and White*, 76 *Cal. L. Rev.* 1015 (1987); (3) if events cluster, variance may be biased upwards, risking Type II errors, Brown & Warner, *supra* note __, at 232; Pamela P. Peterson, *Event Studies: A Review of Issues and Methodology*, 28 *Q. J. Bus. & Econ.* 36 (1989), and (4) pooling of prediction errors may also bias against the null hypothesis of no price reaction, risking Type I errors, see George M. Frankfurter & Helmut Schneider, *Some Further Examination of the Event Study Method of Analysis*, 13 *Res. in Fin.* 275 (1995). See also Lawrence Cunningham, *Capital Market Theory, Mandatory Disclosure, and Price Discovery* 51 *Wash. & Lee L.Rev.* 843 (1994) (arguing that chaos-theoretic models of stock price movements cast sufficient doubt on standard market model for estimating abnormal returns, and linear regression models for statistical tests, that event studies are generally unreliable); Jill E. Fisch, *Picking a Winner*, 20 *J. Corp. L.* 451 (1995) (same).

defenses harm shareholders, or for normative arguments that such defenses should be prohibited. Nor do they provide any assistance in understanding how defenses might improve firm value, or improve firm value at some firms and not at others, and so cast little light on why some but not all firms adopt defenses prior to IPOs.

A. Event Studies of Poison Pills

The most well-known and frequently cited event studies of takeover defenses take as their “event” public announcement of the adoption of a poison pill. Gregg Jarrell and Michael Ryngaert led the way with a 1986 study of 245 pills, finding that in the two days following announcement of pill adoption, stock prices of adopting companies fell on average, net of market movements, but only by an absolutely small amount not statistically different from zero.²² Faced with this unexciting result from their full sample, Jarrell & Ryngaert attempted to find stronger results by studying increasingly smaller subsamples, a pattern shared by many of the pill event studies.²³

First, they focused only on “discriminatory flip-in” pills, which block acquisitions of more than a specified threshold (10-30%) of a target’s stock.²⁴ They separated stock price reactions to 122 such pills from 118 early, less effective “flip-over” pills that only blocked bidders from engaging in back-end mergers or similar transactions following

²² Gregg Jarrell and Michael Ryngaert, Office of Chief Economist of the Securities and Exchange Commission, *The Effects of Poison Pills on the Wealth of Target Shareholders* (Oct. 23, 1986).

²³ See Ryngaert, *supra* note __; Comment & Schwert, *supra* note __.

²⁴ Since 1985, the more effective discriminatory flip-in pills have become standard. See Wachtell Lipton, *supra* note __.

acquisition of control.²⁵ Even in this subsample, the price decline remained absolutely small and not statistically different from zero. Next, they focused solely on 62 firms subject to takeover speculation at the time of pill adoption,²⁶ in order to reduce one of several possible signal effects sent by pill adoption (i.e., that target managers had private information suggesting a takeover bid was about to be made).²⁷ Again, results remained statistically equivalent to zero.

Finally, the authors decided to eliminate all pill adoptions accompanied by a “confounding event,” which they defined to be any announcement about takeover bids, other defenses, self-tenders, filings of Schedule 13D, dividend changes, sales, and even routine earnings announcements.²⁸ This technique produced results consistent with their hypothesis that pills are adopted to entrench managers: a statistically significant decline in adopting firm stock prices, net of market movements.²⁹ Even with this degree of refinement, however, the size of the decline was only -0.65%, and over 40% of the subsample showed positive price reactions, making any general conclusions about pill effects tenuous at best.³⁰ Finally (frustration would have been understandable at this point), the authors focused on those few firms (n=15) in their sample that (a) adopted discriminatory pills (b) in the face of takeover speculation (c) without confounding

²⁵ See See Ronald J. Gilson & Bernard S. Black, *supra* note __, at 747 (discussing shortcomings of pills without flip-in provisions).

²⁶ Defined by the authors as a formal or informal bid or request for sale of the firm publicly reported in the past year; a Schedule 13D filed in the past year by an investor declaring a control-oriented intent; or published takeover rumors accompanied by 10+% net-of-market return two months prior to pill adoption. *Id.* (note to table 6).

²⁷ See Part II for a full discussion of signal effects of takeover defense adoptions.

²⁸ *Id.* (note to table 7).

²⁹ See TAN __ *infra* (discussing problematic nature of this procedure).

events. Here, they found slightly stronger results (-2.21%), but given the size of this tiny final subsample it is not surprising that the results were less than compelling (statistically significant only at the 5% level). By comparison, merger premiums averaged 42% over pre-bid market prices in the 1980s,³¹ and premiums in hostile takeovers were typically larger than premiums in negotiated deals.³² Not every firm adopting a pill would receive such a premium price, but the odds should have been high for firms in their sample, which the authors had limited to only those firms subject to takeover speculation. If pills substantially impaired the likelihood that target shareholders would receive 50% premiums (as claimed by the authors), a price decline at a carefully selected group of likely targets should have been significantly greater than 2.21%.

Equally striking, nearly a third of their final subsample of companies had positive price reactions.³³ Even where an adopting firm was already the subject of a takeover speculation, even where the type of pill adopted was the stronger discriminatory flip-in, and even after the authors combed news reports looking for a reason to kick a firm out of the subsample, stock prices went up in reaction to pill adoption at 30% of adopting firms (19 of 64 firms in Ryngaert's follow-up study³⁴). If pills have or had the negative impact attributed to them by legal commentators, and if the event study methodology is well-designed to reveal that impact, investor reaction in these instances seems inexplicable.

³⁰ This point was emphasized in William J. Carney, *Controlling Management Opportunism in the Market for Corporate Control: An Agency Cost Model*, 1988 Wisc. L. Rev. 385, at 399.

³¹ Defined as the percent premium offered for a controlling equity interest (acquisitions of 51% or more of a company's outstanding shares), measured against market price 30 days prior to announcement. Mergerstat Review 1990.

³² See Jarrell, Brickley & Netter, *supra* note __, at 49; Jensen & Ruback, *supra* note __.

³³ A similar proportion of firms subject to takeover speculation excluding confounding events experienced positive price reactions in a larger, follow-up study by Ryngaert, *supra* note __ (table 3).

In sum, the results of the first serious event study of poison pills were statistically mixed and economically weak.³⁵ The results suggest that even if the sample were representative, the wealth effects of pills were neither large, nor certain, nor general.³⁶ Nevertheless, the authors felt able to conclude that “poison pills are harmful to shareholders, on net,”³⁷ a mischaracterization (or at least an exaggeration) common to the early pill studies that has been parroted ever since.³⁸ Despite economically weak and

³⁴ Id.

³⁵ Cf. MacIntosh, *supra* note __, at 284 (noting that results of early event studies of pills are “quite small” but arguing that “*any* negative price effect” shows that pills should not be adopted) (emphasis in original). In addition to the pill studies summarized in **Table 1**, three studies preceded the Jarrell & Ryngaert study: Kidder Peabody, *Impact of Adoption of Stockholder Rights Plans on Stock Price*, Private Study (1986) (cited in Jarrell & Ryngaert, *supra* note __), Office of the Chief Economist, Securities and Exchange Commission, *The Economics of Poison Pills* (Mar. 5, 1986) (cited in Jarrell & Ryngaert, *supra* note __), and Paul H. Malatesta & Ralph A. Walkling, *The Impact of Poison Pill Securities on Stockholder Wealth*, Working Paper (1985) (cited in MacIntosh, *supra* note __, at n. 26). The latter two studies were earlier versions of the Jarrell & Poulsen and Malatesta & Walkling articles cited in **Table 1**; the Kidder Peabody study was not published, relied upon such long event intervals that its results are not meaningful, and in any event produced results suggesting pills had positive, not negative effects. See Jarrell & Ryngaert, *supra* note __, at __.

³⁶ Cf. MacIntosh, *supra* note __, at 312 (“I have argued rather strenuously in this article that poison pills are, *on average*, not in the best interests of shareholders. . . . This leaves room to argue that *in particular cases*, poison pills do in fact enhance shareholder wealth.”) (emphasis in original).

³⁷ Jarrell & Ryngaert, *supra* note __, at 43. Their conclusion was also based on a study of 30 takeover battles involving pills, in which 45% of the companies remained independent, resulting in short-term price declines, and another 45% of the companies were acquired at higher prices resulting from auctions. Net, targets experienced a weighted average net-of-market return over six months of -2.0%. *Id.* at 25-28. These results, again, do not support any strong or general view for or against pills.

³⁸ See note __ *supra*. Gregg Jarrell lost no time in overstating the findings of his own study, claiming (in his 1987 study of ATAs) that his poison pill study found that “on average, 245 poison pills issued from 1981 through 1986 [had] a negative effect on stock prices of 1.7% at their announcement.” Jarrell & Poulsen, *supra* note __, at 128. In fact, the poison pill study found no statistically significant average effect, and found the -1.7% effect only with respect to 37 pills (both flip-over and flip-in) at companies that were subject to takeover speculation but were involved in no “confounding event” in announcing their pills. Jarrell & Ryngaert, *supra* note __, Table 9. See also Agrawal & Mandelker, *supra* note __, at 144 (citing Malatesta & Walkling, *supra* note __; MacIntosh, *supra* note __, at 282 (citing Malatesta & Walkling, Jarrell & Ryngaert and Ryngaert as “lend[ing] support to the managerial entrenchment explanation of poison pills”); Robert A. Prentice, *Front-End Loaded, Two-Tiered Tender Offers: An Examination of the Counterproductive Effects of a Mighty Offensive Weapon*, 39 *Case W. Res.* 389 (1989) at n.347 (citing Jarrell & Ryngaert, Ryngaert and Malatesta & Walkling studies for proposition that pill adoptions reduce firm value); Ryngaert, *supra* note __, as evidence that “takeover defenses not subject to shareholders’ approval [such as poison pills] result in large decreases in shareholders’ wealth”); Guhan Subramanian, *New Takeover Defense Mechanism: Equal Treatment as an Alternative to the Poison*

statistically non-robust results, the Jarrell & Ryngaert study attracted widespread attention³⁹ and acceptance,⁴⁰ in part no doubt because the studies were published with the imprimatur of the SEC's Office of the Chief Economist.⁴¹ The 1986 study continues to be cited as proof that takeover defenses reduce shareholder wealth.⁴²

Pill, 23 Del. J. Corp. L. 375 (1998), at n.146 (citing Jarrell & Ryngaert study as evidence that pills harm shareholders, but failing to note results reported were statistically insignificant).

³⁹ For newspaper articles heralding the Jarrell & Ryngaert study, see SEC Faults Poison Pill, New York Times (Oct. 29, 1986) (describing Jarrell & Ryngaert study); Peter C. Clafman & Richard M. Schlefer, The Fuss Over Poison Pills: A Recipe for Management Autocracy, New York Times (Dec. 14, 1986) (same); 'Poison Pills' Are Found to Decrease Stock Price, Wall Street Journal (Mar. 11, 1986) (same); Bruce Ingersoll, 'Poison Pill' Move Can Hurt Holders, SEC Report Says, Wall Street Journal (Oct. 29, 1986) (same); Peter Behr, 'Poison Pill' Defense Bodes Ill for Shareholders, SEC Study Says, Washington Post (Oct. 29, 1986) (same).

⁴⁰ Legal scholars citing the early pill studies constitute a who's who of corporate legal academia: Lucian Arye Bebchuk and Marcel Kahan, A Framework for Analyzing Legal Policy Towards Proxy Contests, 78 Calif. L. Rev. 1073 (1990) at 1116 (citing Malatesta & Walkling for proposition that pill adoptions reduce firm value); Easterbrook & Fischel, supra note __, at 204; Melvin Aron Eisenberg, Contractual Freedom In Corporate Law: Articles & Comments; The Structure Of Corporation Law, 89 Colum. L. Rev. 1461 at n.197 (1989) (citing Jarrell & Ryngaert study); Ronald J. Gilson & Reinier Kraakman, Delaware's Intermediate Standard for Defensive Tactics: Is There Substance to Proportionality Review?, 44 Bus. Law. 247 (1989), at n.59 (citing Jarrell & Ryngaert study); David D. Haddock, Jonathan R. Macey & Fred S. McChesney, Property Rights in Assets and Resistance to Tender Offers, 73 Va. L. Rev. 701 (1987), at n.110 (citing Jarrell & Ryngaert study as evidence of "wealth effects" of defensive tactics); Dale Arthur Oesterle, THE LAW OF MERGERS, ACQUISITIONS, AND REORGANIZATIONS (1991), at 467 (citing Ryngaert and Malatesta & Walkling studies); Dale Arthur Oesterle, The Negotiation Model Of Tender Offer Defenses And The Delaware Supreme Court, 72 Cornell L. Rev. 117 at n.10 (1986) (citing Jarrell & Ryngaert study); Roberta Romano, Symposium: Regulating Corporate Takeovers: The Future Of Hostile Takeovers: Legislation And Public Opinion, 57 U. Cin. L. Rev. 457 (1988) at n.113 (citing Jarrell & Ryngaert study); Steve Thel, Regulation Of Manipulation Under Section 10(b): Security Prices and The Text Of The Securities Exchange Act Of 1934, 1988 Colum. Bus. L. Rev. 359 at n.154 (same); Samuel C. Thompson, Jr., BUSINESS PLANNING FOR MERGERS AND ACQUISITIONS (1997), at 1081 (reprinting excerpt from Jarrell & Ryngaert study).

⁴¹ The Jarrell & Ryngaert study was presented to a Congressional subcommittee holding hearings on takeovers, see Corporate Takeovers (Part 2), Hearings Before the House Subcomm. on Telecommunications, Consumer Protection and Finance of the Comm. on Energy and Commerce, 99th Cong., 1st Sess. 690, 697 (1985), and within two years of the publication of the Ryngaert study, which built on the Jarrell & Ryngaert study, it had been cited 24 times in the Journal of Financial Economics alone. See G. William Schwert, The Journal of Financial Economics: A Retrospective Evaluation (1974-91), 33 J. Fin. Econ. 369 (1993) at 407 (table A1). Cf. Gerald F. Davis & Henrich R. Greve, Corporate Elite Networks and Governance Changes in the 1980s, 103 Am. J. Soc. 1 (1997), at 7 ("practices that start at the center will spread faster and further than those that start at the periphery").

⁴² See, e.g., Easterbrook & Fischel, supra note __, at 210; Matthew Garms, Shareholder By-law Amendments and the Poison Pill: The Market for Corporate Control and Economic Efficiency, 24 J. Corp. L. 433 (1999), at n.172 (citing Jarrell & Ryngaert and Malatesta & Walkling studies as "supportive of a conclusion that the adoption of poison pills has a negative effect on shareholder wealth").

Since 1986, the majority of poison pill event studies have followed Jarrell & Ryngaert in attempting to resolve the debate over pills' wealth effects. Subsequent studies have produced results that make the case against pills look even weaker. These studies and their statistically significant results are summarized in **Table 1**. As can be seen, results are sensitive to event interval, and the majority of studies show no significant price unless some attempt is made to isolate a subsample of pills, either by focusing on firms subject to takeover bids, as done by Jarrell & Ryngaert, or by focusing on some other firm characteristic, such as the number of independent directors or pills adopted in a particular year. Pooling results from full samples in all studies using two or three-day event intervals, the weighted average price reaction is +0.02%.⁴³ In other words, the net price impact of pill adoptions has been positive, albeit optically close to zero. The net results are two orders of magnitude smaller than two- or three-day price effects of secondary stock offerings (-3.0%),⁴⁴ announcements of acquisitions (abnormal returns ranging from -1.2% to -3.3%),⁴⁵ spin-offs (+3.4%),⁴⁶ deaths of inside 5+% blockholders (+3.01%),⁴⁷

⁴³ In doing this, I follow Jensen & Ruback, *supra* note __, at 12-13 (table 3 note h) (pooling results from several studies of abnormal returns associated with mergers and tender offers). As with their pooling of results, abnormal returns are weighted by samples in calculating the weighted average, and no effort has been made to adjust for overlap in the samples. If one sets statistically insignificant results to zero, the pooled result is -0.04%. For just studies that excluded "confounding events," the weighted average is -0.62%.

⁴⁴ See R. Brealey & S. Myers, *PRINCIPLES OF CORPORATE FINANCE* (4th ed. 1991), at 349 (summarizing results from three studies).

⁴⁵ Mark L. Sirower, *The Synergy Trap: How Companies Lose the Acquisition Game* (1997) at 147 (table A.1) (surveying results from 10 studies, including six using two- or three-day event intervals around merger announcements). The public policy reaction to these findings, among legal academics and more generally, has been much more muted compared to the much weaker findings on takeover defenses.

⁴⁶ Lane Daley, Vikas Mehrotra, & Ranjini Sivakkumar, *Corporate Focus and Value Creation: Evidence From Spinoffs*, 45 *J. Fin. Econ.* 257 (1997) (table 2).

⁴⁷ Myron B. Slovin & Marie E. Sushka, *Ownership Concentration, Corporate Control Activity, and Firm Value: Evidence from the Death of Inside Blockholders*, 48 *J. Fin.* 1293 (1993) (table II).

and sales of 5+% blocks of stock (+5.1%),⁴⁸ and much smaller even than effects of non-binding agreements to make relatively minor governance reforms, such as the adoption of confidential voting (+0.90%).⁴⁹

Table 1.		
Event Studies of Poison Pills		
<u>Study</u>	<u>Event, Interval, Market Index and Sample</u>	<u>Results</u>
Jarrell & Ryngaert [SEC OCE] (1986)	2-day press date event interval S&P 500 as market 245 pills adopted 1982-1986, including flip-over, flip-in and voting pills	no significant effect on full sample no significant effect on 62 pills at firms subject to takeover speculation -0.65% CAR on 179 pills ex confounding events -2.21% CAR on 15 pills at firms subject to takeover speculation ex confounding events
Jarrell & Poulsen (1986)	2-day event interval around press reports of adoption market index not given 37 pills (type not given) adopted 1979-1985	no significant effect on full sample -1.46% CAR on 32 pills ex confounding events -1.42% CAR on 25 pills at firms subject to takeover speculation -2.39% CAR on 20 pills at firms subject to takeover speculation ex confounding events
Malatesta & Walkling (1988)	2-, 10- and 38-day press date event intervals S&P 500 as market 118 pills adopted 1982-1986, including flip-over, flip-in and voting pills	-0.52% CAR over 2-day interval on full sample -0.92% CAR over 2-day interval on 113 pills ex confounding events positive CARs over other intervals

⁴⁸ Michael J. Barclay & Clifford G. Holderness, Negotiated Block Trades and Corporate Control, 46 J. Fin. 861 (1991) (table II).

⁴⁹ Deon Strickland, Kenneth W. Wiles & Marc Zenner, A Requiem for the USA: Is Small Shareholder Monitoring Effective?, 40 J. Fin. Econ. 319 (1996) (table 5).

Ryngaert (1988)	<p>2-day press date event interval</p> <p>S&P 500 as market</p> <p>380 pills adopted 1982-1986, including flip-over, flip-in and voting pills</p>	<p>no significant effect on full sample</p> <p>-0.34% CAR for 283 pills ex confounding events</p> <p>-0.38% CAR for 87 pills at firms subject to takeover speculation</p> <p>-1.51% CAR for 57 pills at firms subject to takeover speculation ex confounding events</p>
Margotta (1989)	<p>event intervals ranging from 1 to 40 days around pill adoption</p> <p>CRSP equally weighted index as market</p> <p>26 pills adopted 1985-1987, including flip-over and flip-in pills; all companies were eventually acquired in hostile takeovers</p>	<p>no significant effect over any interval</p>
Choi, Kamma & Weintrop (1989)	<p>1-, 2-, 3-, 5- and 8-day press date event intervals</p> <p>CRSP equally weighted index as market</p> <p>267 pills adopted in 1986; types of pills not identified</p>	<p>-0.48% CAR for full sample over 2-day interval</p> <p>-0.70% for subsample of 133 Delaware firms over 2-day interval</p> <p>-1.67% CAR for subsample for 120 firms ex confounding events and -0.85% for subsample of 62 Delaware firms ex confounding events over 5-day interval</p> <p>no significant effects over other intervals, or for non-Delaware firms over any interval</p>
Strong & Meyer (1990)	<p>2-day press date event intervals; 29-day event intervals pre- and post-adoption; 59- and 89-day intervals ending 30- and 90-days prior to adoption</p> <p>S&P and CRSP value-weighted indices as market</p> <p>128 pills adopted 1985-1986; types of pills not identified</p>	<p>for [] firms not experiencing control change within six months after adoption:</p> <p>no significant effects over 2-, 29-, 31-, 59-day intervals</p> <p>-2.39% CAR over 89-day pre-adoption interval</p> <p>for [] firms experiencing control change within six months after adoption:</p> <p>-2.26% CAR over 69-day pre-adoption interval</p> <p>+6.94% CAR over 29-day post-adoption interval</p>

		<p>-2.06% CAR over 2-day post-adoption interval</p> <p>+2.73% CAR over 29-day pre-adoption interval</p> <p>-3.67% CAR over 89-day pre-adoption interval</p>
John, Lang & Shih (1992)	<p>2-day press date event interval</p> <p>CRSP equally weighted index as market</p> <p>117 flip-over and flip-in pills adopted 1983-1986, ex confounding events</p>	<p>-0.60% CAR on full sample</p> <p>+0.30% CAR for subsample of firms at which insiders were net buyers prior to pill adoption</p> <p>-1.00% CAR on subsample of firms at which insiders were net sellers prior to pill adoption</p> <p>institutional ownership has no effect</p>
Brickley, Coles & Terry (1994)	<p>2-day press date event interval</p> <p>CRSP equally weighted index as market</p> <p>247 flip-over and flip-in pills adopted 1984-1986</p>	<p>no significant effect on full sample</p> <p>no significant effect on 178 pills ex confounding events</p> <p>+0.94% CAR on 54 pills adopted by firms with majority of outside directors</p> <p>-0.31% CAR on 193 pills adopted by firms without majority of outside directors</p>
Comment & Schwert (1995)	<p>3-day press date event interval</p> <p>CRSP equally weighted index as market</p> <p>1,459 flip-over and flip-in pills adopted 1984-1991</p>	<p>no significant effects on pill adoptions in 1985-1990</p> <p>-2.85% CAR for pill adoptions in 1984</p> <p>-2.09% CAR for 242 pills subject to takeover bids or speculation</p>
Datta & Iskandar-Datta (1996)	<p>2-, 3- and 30-day intervals, from -30 to -1, 0 to +1, -1 to +1 and +1 to +30, around date intent to adopt pill appears in Dow Jones News Retrieval Service</p> <p>market index not given</p> <p>91 pills adopted 1985-1989, types not given</p>	<p>no significant results over 2- and 3-day intervals</p> <p>-2.25% CAR for nine pills adopted by firms subject to takeover speculation</p>
Johnson & Meade (1996)	<p>2-day interval around date intent to adopt pill appears in Dow Jones News Retrieval</p>	<p>no significant results for full sample</p>

	<p>Service</p> <p>CARs taken directly from CRSP Excess Return File</p> <p>191 pills adopted 1983-1987, types not given</p>	<p>no significant results for subsamples of firms with and without prior ATAs</p>
<p>Mahoney, Sundaramurthy & Mahoney (1996)</p>	<p>-50 to +5 interval around earlier of proxy statement mailing date or Wall Street Journal announcement</p> <p>CRSP equal weighted index as market</p> <p>196 pills adopted 1985-1988, types not given</p>	<p>-2.86% CAR for full sample</p>
<p>CAR = cumulative average residual CRSP = Center for Research in Security Prices S&P = Standard & Poor's</p> <p>Studies: James A. Brickley, Jeffrey L. Coles & Rory L. Terry, Outside Directors and the Adoption of Poison Pills, 35 J. Fin. Econ. 371 (1994); Dosoung Choi, Sreenivas Kamma & Joseph Weintrop, The Delaware Courts, Poison Pills, and Shareholder Wealth, 5 J. L. Econ. & Org. 375 (1989); Robert Comment & G. William Schwert, Poison or Placebo? Evidence on the Deterrence and Wealth Effects of Modern Antitakeover Measures, 39 J. Fin. Econ. 3 (1995); Sudip Datta & Mai Iskandar-Datta, Takeover Defenses and Wealth Effects on Securityholders: Poison Pills of Poison Pill Adoptions, 20 J. Banking & Fin. 1231 (1996); Gregg Jarrell and Annette B. Poulsen, Shark Repellents and Poison Pills: Stockholder Protection – From the Good Guys or the Bad Guys?, 4 Midland Corp. Fin. J. 39 (1986); Gregg Jarrell and Michael Ryngaert, Office of Chief Economist of the Securities and Exchange Commission, The Effects of Poison Pills on the Wealth of Target Shareholders (Oct. 23, 1986); Dana J. Johnson & Nancy L. Meade, Shareholder Wealth Effects of Poison Pills in the Presence of Anti-Takeover Amendments, 12 J. Appl. Bus. Res. 10 (1996); Kose John, Larry Lang & F.Y. Shih, Antitakeover Measures and Insider Trading: Theory and Evidence, N.Y.U. Salomon Center Working Paper No. S-93-27 (May 1992); James M. Mahoney, Chamu Sundaramurthy & Joseph T. Mahoney, The Differential Impact on Stockholder Wealth of Various Antitakeover Provisions, 17 Manag. & Dec. Econ. 531 (1996); Paul H. Malatesta & Ralph A. Walkling, Poison Pill Securities: Stockholder Wealth, Profitability, and Ownership Structure, 20 J. Fin. Econ. 347 (1988); Donald G. Margotta, Takeover Premiums: With and Without Shareholder Rights Plans (Feb. 2, 1989) (unpublished paper on file with author); Michael Ryngaert, The Effect of Poison Pill Securities on Shareholder Wealth, 20 J. Fin. Econ. 377 (1988); John S. Strong & John R. Meyer, An Analysis of Shareholder Rights Plans, 11 Manag. & Dec. Econ. 73 (1990)</p>		

Results are also inconsistent from study to study: for example, Malatesta & Walkling's study of adoptions produced small but statistically significant negative results for their full sample,⁵⁰ in contrast to findings of no significant effects by Jarrell & Ryngaert and by Ryngaert in his larger follow-up study, despite the fact that all three studies examined pill

adoptions in identical time periods (1982-1986). Results are also inconsistent over time: earlier studies show more negative results, whereas the only studies of pill adoptions from after 1986 show no statistically significant results for their full samples⁵¹ and Comment & Schwert's recent analysis, which uses the largest sample of any the studies (n=1459), produces no statistically significant results for adoptions in any year except 1984, prior to judicial approval and widespread adoption of the pill.⁵²

More recent commentators have used event studies of pills to contrast wealth effects on different partitions of firms adopting pills based on (and so test propositions about the importance and role of) independent directors,⁵³ insider trading,⁵⁴ or institutional shareholders.⁵⁵ This shift in research focus has not followed any significant reconsideration of the event study methodology as applied to defenses, and may instead be attributable to many scholars having read the conclusion and not the details of the earlier studies (and so thought the basic research question of pill wealth effects was

⁵⁰ Paul H. Malatesta & Ralph A. Walkling, *Poison Pill Securities: Stockholder Wealth, Profitability, and Ownership Structure*, 20 *J. Fin. Econ.* 347 (1988), at ___.

⁵¹ Comment & Schwert, *supra* note __, at ___; Sudip Datta & Mai Iskandar-Datta, *Takeover Defenses and Wealth Effects on Securityholders: Poison Pills of Poison Pill Adoptions*, 20 *J. Banking & Fin.* 1231 (1996); Donald G. Margotta, *Takeover Premiums: With and Without Shareholder Rights Plans* (Feb. 2, 1989) (unpublished paper on file with author).

⁵² *Supra* note __, at ___.

⁵³ James A. Brickley, Jeffrey L. Coles & Rory L. Terry, *Outside Directors and the Adoption of Poison Pills*, 35 *J. Fin. Econ.* 371 (1994) (average stock price reaction to pill adoptions is positive when board has majority of independent directors and negative when it does not; cf. Victoria B. McWilliams & Nilanjan Sen, *Board Monitoring and Antitakeover Amendments*, 32 *J. Fin. & Quant. Anal.* 491 (1997) (same finding for ATAs).

⁵⁴ Kose John, Larry Lang & F.Y. Shih, *Antitakeover Measures and Insider Trading: Theory and Evidence*, N.Y.U. Salomon Center Working Paper No. S-93-27 (May 1992) (net insider buying prior to pill adoption correlates with positive average stock price reaction to pill adoption, and net insider selling has the opposite effect).

⁵⁵ *Id.* (institutional ownership has no effect on stock price reactions to poison pill adoptions); see also Chamu Sundaramurthy, *Corporate Governance Within the Context of Antitakeover Provisions*, 17 *Strategic Mgt. J.* 377 (1996) at 387 (reaching same conclusion in multivariate regression of institutional share ownership against incidence of pill adoption).

settled). Alternatively, scholars may have shifted research focus because the *legality* of the pill has been clearly settled in nearly all states,⁵⁶ making the policy debate less urgent or interesting, or because the number of takeover bids fell dramatically during the early 1990s,⁵⁷ or simply out of a desire to say something new. Whatever the explanation, the fact that (as **Table 1** shows) several later studies show significantly different stock price reactions – some positive, some negative – depending on firm characteristics not directly involved in the mechanism or effects of the pill itself (e.g., insider trading, independent directors) makes it even harder to draw strong or general conclusions about the wealth effects of pills from average stock price reactions across a large pool of heterogeneous firms.

Further, the general conclusion of this paper – that empirical studies of pills and other defenses do not support the belief that defenses reduce firm value by deterring bids – casts doubt on the proper interpretation of even these more recent and interesting studies. Most of these “partitioning” studies assume implicitly or explicitly that pill adoption is a marker of agency costs, or managerial entrenchment, or at the very least a decreased likelihood of bid incidence or success.⁵⁸ These assumptions are made in part based on theoretical work supporting such hypotheses, but they are also based in part on prior empirical studies – the very studies that are surveyed and critiqued in this paper. If (as argued in Parts II and III) pill adoption price reactions are largely or completely complex

⁵⁶ Eric S. Robinson, John C. Coates IV & Mitchell S. Presser, *State Takeover Statutes: A Fifty State Survey* (1989) (privately published, on file with author) (survey showing that in all states in which state courts found poison pills illegal, state legislatures had overturned the decisions).

⁵⁷ See Coates, *How Contestable?*, *supra* note 1, at __.

mixtures of different kinds of signal effects that have not yet been adequately explored, then assuming anything about the merits of pill adoption based on such studies is a mistake. Thus, recent “partitioning” studies, too, should be relied upon with care, or at least an awareness that they are built on as-yet-unproven theories about the effects and purposes of takeover defenses generally.

⁵⁸ E.g., James A. Brickley, Jeffrey L. Coles & Rory L. Terry, Outside Directors and the Adoption of Poison Pills, 35 J. Fin. Econ. 371 (1994); Kose John, Larry Lang & F.Y. Shih, Antitakeover Measures and Insider Trading: Theory and Evidence, N.Y.U. Salomon Center Working Paper No. S-93-27 (May 1992).

B. Two Previously Noted Shortcomings of Event Studies of Pills

In a number of pill studies, the authors themselves note shortcomings of event study methodology for measuring the wealth effects of pills,⁵⁹ of which two are worth highlighting. First, as with all event studies, stock price reactions to pill adoptions reflect not wealth effects but (at best) shareholder expectations about wealth effects. Yet the pill was a true innovation in corporate governance,⁶⁰ and pills in the early and mid-1980s were subject to considerable legal, financial and practical uncertainty.⁶¹ Shareholders knew, on the one hand, that takeovers usually occurred at large premiums,⁶² and pills threatened to interfere with those premiums. Precisely because pills were an innovation, however, shareholders had little direct experience with how boards and managers would use the power that pills provided them. Investors also had concerns about likely litigation about the legality of the pills and the outcome of those cases.⁶³ It is not hard to imagine that stock price reactions to early pills could simply misestimate pills' actual wealth effects.⁶⁴ This is not (necessarily) a claim that market is informationally inefficient, only that market participants are not omniscient. With the belated recognition that proxy fights offer a way of circumventing pills at many firms,⁶⁵ market participants may no longer react as negatively to them as they once did.⁶⁶

⁵⁹ In addition to the difficulties mentioned in the text, each of the three major early studies also aggregated standard flip-over and flip-in pills with voting pills, which can be expected to have a larger and permanent effect on an adopting company's legal takeover vulnerability (because they immediately affect voting rights of shareholders, and may not easily be eliminated through a proxy fight, as standard pills can be). See Jarrell & Ryngaert, *supra* note __, at 20-30 (including three such pills); Ryngaert, *supra* note __, at 382-83 (including an unspecified number of such pills); and Malatesta & Walkling, *supra* note __, at 349-55 (including three such pills). Signal effects, discussed in Part II, were noted by early researchers as being difficult if not impossible to untangle from real wealth effects. E.g., Jarrell & Ryngaert, *supra* note __, at 21 ("there is little we can do about these possible signaling difficulties"); Ryngaert, *supra* note __, at 414 (noting signal effects); Brickley, Coles & Terry, *supra* note __, at 381 (same); cf. Bruner, *supra* note __, at

Second, identifying and excluding effects of “confounding events” (or focusing solely on firms subject to takeover speculation) – as done by all of the early pill studies in order to show or enhance negative price effects⁶⁷ – is a dubious econometric technique. An initial strike against such procedures are that they are ad hoc. They fly in the face of the well-accepted techniques of doing event studies, which generally work from the premise that, but for risk and mean market returns (which are eliminated through the market model event study method), average abnormal price movements during appropriately specified event periods at a large sample of firms will reflect investors’ reaction to the events, so that searching for “confounding events” or artificially constructing subsamples to exclude

17-18 (discussing complexity of pill effects but suggesting without explanation that event studies can resolve issues). Finally, as Ryngaert notes, pill adoptions may well be anticipated in many instances by the market, particularly as pill adoption became generally more common and essentially routine in the context of an actual takeover bid. Ryngaert, *supra* note __, at 398-400; see also Gilson & Black, *supra* note __, at 216-17 (event studies are difficult to interpret if information is either anticipated or released gradually).

⁶⁰ E.g., Bruner, *supra* note __, at 1 (“the poison pill is arguably the most significant corporate financial innovation of the 1980s”).

⁶¹ One commentator suggested (hyperbolically) that “an important deterrent effect of a poison pill is that is almost impossible for any raider to understand how it will work.” David R. King, quoted in W. Matthewson, *Shop Talk*, *Wall Street Journal* (Apr. 21, 1988), at B3, quoted in Bruner, *supra* note __, at 5.

⁶² See Mergerstat 1990, *supra* note __.

⁶³ See Robinson et al., *supra* note __ (surveying poison pill litigation); Bruner, *supra* note __, at 2 (“virtually all major hostile tender offers of the late 1980s involved litigation about the poison pill”).

⁶⁴ Comment & Schwert, *supra* note __, at __, reach a similar conclusion. See generally Gilson & Black, *supra* note __, at 220 (event studies are difficult to interpret if investors misestimate event being studied).

⁶⁵ See Coates, *How Contestable?*, *supra* note __.

⁶⁶ It is interesting to contrast the apparent decline in negative stock price reactions from the mid-1980s with the increasingly large number of anti-pill votes cast by institutional shareholders over the same time period. Compare Georgeson & Co., *Corporate Governance 1998: Annual Wrap-Up* (showing steadily increasing percentages of votes in favor of poison pill redemption proposals since 1987) with Comment & Schwert, *supra* note __, at __ (showing decline in negative price reactions after 1984). This may suggest that institutional investors are exhibiting different preferences in their voting and investment behavior, or that institutions are targeting their negative pill votes at particular institutions rather than at the pill itself, or that institutions have different interests than shareholders in general. See also TAN __ *infra* (discussion of potential agency problems at institutional investors and divergent interests between institutional and other investors).

⁶⁷ See Jarrell & Ryngaert, *supra* note __, at 30; Malatesta & Walkling, *supra* note __, at 360 n. 14; Ryngaert, *supra* note __, at 414.

signal effects is neither necessary nor typical.⁶⁸ One can (and the authors did) develop plausible theoretical rationalizations for such procedures: confounding events may not be unbiased “noise” on average if they are strategically generated by managers to mask or reduce negative stock price reactions to the event being studied (pill adoption); and the absence of takeover speculation or bids at the time of pill adoption may bias the results if adoption in their absence sends a one-directional signal suggesting an impending bid, which is then reduced by focusing only on firms where such a signal would be weak. Neither procedure is thus indefensible in principle. With respect to confounding events, however, no independent, prior theory or evidence existed to justify such procedures at the time of the initial pill studies.⁶⁹ Nor is it clear to what degree strategic behavior designed to produce “noise” surrounded pill adoption then, or surrounds it now. Without some sense of how often such strategic behavior occurs, any procedure to correct for it will necessarily be speculative.⁷⁰ With respect to takeover speculation, as discussed in Part II, pill adoptions do not send one-directional signals, so the theoretical justification for focusing only on firms subject to takeover speculation is weak.⁷¹ Thus, their use in the context of the early event studies suffers from precisely the problems that led Popper

⁶⁸ See sources cited in note __ supra.

⁶⁹ Even in the presence of some degree of bias in error terms (caused for example by strategic generation of confounding events), large samples can produce useful results without requiring such subjective procedures, and this may be an explanation for different findings of early studies (which used smaller samples) and the very large study (n=1459) by Comment & Schwert, supra note __.

⁷⁰ MacIntosh, supra note __, at n.28, in reviewing pill event studies, states that exclusion of confounding events is designed to “ensure that imputation of causation is reliable” so that it was “important to eliminate from the sample any cases where detected share price movements may be attributable to causes other than the poison pill.” Normally, however, event studies accomplish this task by estimating non-event price movements with a regression of returns for the firm against a market index during some baseline period that excludes the event, and then adjusting actual event period returns by applying the parameters derived from this estimation. See sources cited in note __ supra. Only if there is some reason to expect that returns during the event interval are biased by some observable action would further procedures be justified.

⁷¹ See TAN __ infra.

to attack ad hoc research methods as an “immunizing strategem” for rendering an underlying theory unfalsifiable.⁷²

In addition, such procedures involve time-intensive and subjective tasks: drawing up criteria for excluding firms based on confounding events or the absence of takeover speculation, searching news reports or other databanks, and categorizing all (and only) those firms based on such criteria.⁷³ The subjectivity of these tasks reduces the reliability of such efforts in the hands of any one researcher, yet both time-intensiveness and subjectivity make replication and verification of a given study by other researchers difficult and unlikely. Results of studies based on such procedures are thus inherently less scientific, and raise troublesome methodological issues that undermine a study’s persuasive power when presented to a neutral or hostile audience, even if they may (perversely) enhance a study’s persuasive power when presented to an audience already inclined for theoretical or ideological reasons to expect the results that such a procedure produces.⁷⁴

⁷² Karl Popper, *The Unended Quest* (1976), at 42-44.

⁷³ See note ___ supra.

⁷⁴ The canonical study on the “polarizing” effect that evidence that is ambiguous or in need of interpretation can have on those with relevant prior beliefs is Charles G. Lord, Lee Ross and Mark R. Lepper, *Biased Assimilation and Attitude Polarization: The Effects of Prior Theories on Subsequently Considered Evidence*, 37 *J. Person. & Soc. Psych.* 2098, 2099 (1979) (people who hold strong opinions on complex social issues are likely to accept “confirming” evidence at face value while subjecting “disconfirming” evidence to critical evaluation; exposing contending factions in a dispute to identical and relevant empirical evidence may increase polarization). For brief surveys of the psychology literature, see Matthew Rabin, *Psychology and Economics*, 36 *J. Econ. Lit.* 11, 26-29 (1998); Lee Ross & Craig A. Anderson, *Shortcomings in the Attribution Process: On the Origins and Maintenance of Erroneous Social Assessments*, in *JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES* (eds. Daniel Kahneman, Paul Slovic & Amos Tversky, 1982), at 129-60.

In the original Jarrell & Ryngaert study, for example, the authors excluded only firms making public announcements of various sorts, and they did not attempt to exclude other potentially confounding events that might reasonably have firm- or industry-specific effects not captured by a benchmark relationship between the adopting company's stock price and a market index.⁷⁵ In fact, selection of confounding events in both Jarrell & Ryngaert and in Ryngaert's follow-up study include events that are out of the control of firm managers, and thus should not bias price reactions to pill adoptions. Worse, confounding events seem to be excluded if they increase prices but not if they decrease prices (and thus to bias results of the studies downward). Thus, for example, Ryngaert includes "debt upgrades" as a confounding event (but not debt downgrades), and announcements of new holdings by third-party investors, which would often indicate that a bid or even an auction was impending (but not dispositions by existing blockholders, which might send negative signals to the market).⁷⁶ The authors may well have been sincere in their effort to be objective in trying to "clean" (their word) their samples, but

⁷⁵ See Jarrell & Ryngaert, *supra* note __, at 30. Examples of other plausible candidates for exclusion include news reports about financial or regulatory developments affecting a pending takeover; earnings, sales, dividend or other announcements by industry peers of the adopting company; or earnings, sales, dividend or other announcements by a bidder for the adopting company. Jarrell & Ryngaert also excluded filings by third parties of Schedules 13D against the adopting company, even though there is no theoretical reason to believe that such filings would occur systematically more frequently in event windows than in clean periods used to control for market movements. Cf. Malatesta & Walkling, *supra* note __, at 360 n. 14 (excluding only confounding events reflected in the adopting company's press release relating to the pill itself); Ryngaert, *supra* note __, at 414 (table 14) (defining confounding event to include news story "that could significantly affect stock returns," and listing nonexclusive list of events relating to the adopting company).

⁷⁶ Ryngaert, at 414 (table 14). In addition, management always has a stronger incentive to disclose good than bad news at times other than required periodic reporting events, so the overall effect of an otherwise neutral procedure for excluding confounding events may be to downwardly bias normal stock returns. See Michael Kinney & Robert Trezevant, *The Use of Special Items to Manage Earnings and Perceptions*, *J. Fin. Statement Analysis*, Fall 1997, at 45-48. The effect is noted in the context of an ATA event study by Beni Lauterbach, Ileen B. Matlitz & Joseph Vu, *Takeover Threats, Antitakeover Amendments and Stock Price Reaction*, 12 *Manag. & Dec. Econ.* 499 (1991), at 502 ("If information is released in a random manner, half of the [confounding] events should be favorable and half unfavorable. In our sample, however, most of the confounding events are favorable to the firm....").

the effort seems to have been seriously influenced by a prior conviction that pills reduce firm value on balance.

C. Event Studies of ATAs

Parallel to event studies of pills are event studies of midstream antitakeover charter amendments (ATAs), often called “shark repellents.” Studies have focused on four types of ATAs: (1) fair price provisions, (2) supermajority vote requirements (with or without exceptions for board-approved transactions, or “board outs”), (3) staggered boards, and (4) “blank check” authorizations of preferred stock.⁷⁷ All such ATAs are perceived as being intended or likely to make takeovers – or at least two-tier or creeping takeovers – more difficult. All but one of these studies focused on board-sponsored ATAs that presumptively made takeovers harder; the latest study focused on shareholder-sponsored proposals designed to make takeovers easier.⁷⁸ These studies and their statistically significant findings are summarized in **Table 2**.

⁷⁷ Two studies have also examined ATAs eliminating or limiting the right of shareholders (5) to act by written consent in lieu of a meeting, (6) to remove directors without cause, or (7) to call a special meeting; but in both such ATAs were lumped in with other ATAs without explanation. McWilliams, *supra* note __, at 1637 (lumping the amendments in with “blank check” authorizations); Bhagat & Jefferis, *supra* note __, at 197 and 202 (lumping the amendments with staggered board amendments). Finally, one study examined (8) anti-greenmail ATAs. Bhagat & Jefferis, *supra* note __, at 198. This study also examined the “bundling” of multiple proposals, including the use of reincorporation votes as a way of “hiding” other sorts of ATAs. *Id.* (It might noted in passing that their claim that reincorporation votes “hide” other amendment proposals is inconsistent with semi-strong market efficiency, since all amendments must be disclosed in the proxy statement relating to the reincorporation, and the authors of the study do not claim that proxy statements for the amendments they study were misleading in any way.)

⁷⁸ [Karpoff, Malatesta & Walking, *supra* note __.]

Table 2.		
<u>Event Studies of Charter Amendments</u>		
<u>Study</u>	<u>Event, Interval, Market Index and Sample</u>	<u>Results</u>
DeAngelo & Rice (1983)	<p>2- day intervals examined independently and cumulatively from –40 to +40 days around proxy mailing date</p> <p>CRSP equally weighted index as market</p> <p>100 staggered board and supermajority amendments adopted 1971-1979</p>	no significant effects
Linn & McConnell (1983)	<p>varying intervals from board approval date, to proxy statement mailing date and from mailing date to shareholder meeting date</p> <p>388 firms adopting 475 amendments 1960-1980</p>	<p>+1.43% CAR for 307 firms over period from mailing date through date before shareholder meeting date</p> <p>+1.48% CAR for 172 firms from – 90 to –1 day before board approval date</p> <p>no significant effects for 170 firms from board approval date through day before mailing date</p> <p>+0.86% CAR for 437 firms in 90 days following shareholder meeting date</p> <p>-3.63% CAR for 49 firms that <i>removed</i> previously enacted amendments</p>
Jarrell, Ryngaert & Poulsen [SEC OCE] (1984)	<p>43-day intervals examined cumulatively from –40 to +2 days around proxy mailing date, as well as 51- and 61-day intervals examined cumulatively from – 40 to +10 and –40 to +20 for OTC firms around proxy mailing date</p> <p>market index not disclosed</p> <p>131 fair price amendments for listed firms; 87 fair price and supermajority amendments for listed firms; 40 fair price provisions for OTC firms; all adopted 1980-1983</p>	<p>no significant effects for fair price amendments for listed firms or OTC firms over 43-day intervals</p> <p>–3.09% CAR for combination fair price/supermajority proposals for listed firms</p> <p>-3.38% and –4.92% CAR for fair price provisions for OTC firms over 51- and 61-day intervals</p>
Jarrell & Poulsen (1986)	31-day interval from –20 to +10 around proxy statement “signing” dates	<p>-2.27% CAR for full sample</p> <p>no significant effects for fair price,</p>

	<p>market index not disclosed</p> <p>551 fair price, supermajority, blank check preferred and staggered board amendments adopted 1979-1985</p>	<p>supermajority (no board out), staggered board or blank check preferred amendments</p> <p>-4.92% CAR for 48 supermajority (with board out) amendments</p>
Jarrell & Poulsen (1987)	<p>3-, 7-, 21-, 31-, and 62-day intervals from -1 to +1, -5 to +1, -10 to +10 and -20 to +10 around proxy statement "signing" dates</p> <p>S&P 500 as market index</p> <p>649 fair price, supermajority, staggered board and blank check amendments proposed 1979-1985</p>	<p>no significant effects over 3-, 7-, 21- or 62-day intervals for full sample</p> <p>-1.25% CAR over 31-day interval for full sample</p> <p>no significant effects for fair price amendments, or for any amendment at listed firms, over any interval</p> <p>no significant effects for supermajority (with or without "board out"), staggered board or blank check amendments over 3- or 7- or 62-day intervals</p> <p>-2.27% CAR for supermajority with board out over 31-day interval</p>
Brickley, Lease & Smith (1988)	<p>11-day interval from -5 to +5 around proxy statement mailing date</p> <p>CRSP equally weighted index as market</p> <p>133 firms adopting fair price, supermajority, blank check preferred, staggered board and other amendments proposed in 1984</p>	<p>no significant results for full sample</p> <p>no significant results for firm ex confounding events</p>
Eckbo (1990)	<p>2-day event interval around</p> <p>32 anti-greenmail provisions adopted 1984-1985</p>	<p>no significant results for full sample</p>
Agrawal & Mandelker (1990)	<p>2-, 3-, 12-, 22- and 42-day intervals from -1 to 0, -1 to +1, -10 to +1, -20 to +1 and -40 to +1 around proxy statement mailing date</p> <p>NYSE and AMEX value weighted index from CRSP as market</p> <p>372 fair price, supermajority, staggered board and blank check amendments proposed 1979-1985</p>	<p>no significant effects over 2-, 3- or 12-day intervals</p> <p>-1.81% CAR over 22-day and -2.6% CAR over 42-day interval</p> <p>CARs range from 1.6% to 7.3% in third quartile and -1.5% to -10.6% in first quartile over all intervals</p> <p>no significant effects over 2-day interval for three portfolios of firms ranked by institutional ownership, or for firms with high or average institutional ownership over any interval</p>

		<p>–3.2% CAR over 22-day and –6.4% CAR over 42-day intervals for firms with lowest institutional ownership</p> <p>controlling for institutional ownership, no significant effect of staggered board or fair price amendments over any interval, but significant effect of supermajority vote amendments on CARs</p>
McWilliams (1990)	<p>2- and 40-day interval around earlier of proxy statement mailing date or announcement in <i>Wall Street Journal</i>; also examined is interval between mailing and later of meeting or published report of meeting</p> <p>CRSP equally weighted index as market</p> <p>763 fair price, supermajority, staggered board and other amendments proposed at 325 firms 1980-1984</p>	<p>no significant effects over 2-day interval for full sample</p> <p>+1.77% CAR over post-mailing interval for full sample</p> <p>+0.49% CAR over 2-day interval for firms with ≤10% insider ownership (board, CEO, or both)</p> <p>no significant effects over any interval for firms with >10% insider ownership</p>
Lauterbach, Malitz & Vu (1991)	<p>2-day interval around proxy statement “signing” date, and 20 day intervals from –20 to –1 and +1 to +20 days before and after signing date</p> <p>Equally weighted index NYSE and Amex firms as market index</p> <p>383 staggered board, supermajority and fair price provisions adopted 1979-1985</p>	<p>no significant effects over 2- and 20-day pre-event intervals for</p> <p>– full sample</p> <p>– 304 firms ex “confounding events</p> <p>– 231 firms not subject to prior speculation</p> <p>– 46 firms subject to post-adoption takeover speculation or bids</p> <p>– 27 firms subject to prior takeover speculation</p> <p>over 20-day post-event interval:</p> <p>+1.2% CAR for full sample</p> <p>+0.81% CAR for subsample of 304 firms ex “confounding events”</p> <p>+5.1% CAR for subsample of 37 firms adopting fair price provisions subject to post-adoption takeover speculation or bids</p>
Bhagat & Jefferis (1991)	<p>2-, 3-, 31- and 41-day interval around proxy statement mailing date (excluding 3-day event interval in calculating 41-day interval)</p>	<p>no significant effects over any interval using standard event study methodology</p> <p>difference in CARs of –2.09% over 3-day</p>

	<p>S&P 500 index as market (CRSP equally weighted index produced statistically indistinguishable results)</p> <p>197 fair price, supermajority, anti-greenmail, blank check, or other amendments adopted 1984-1985</p> <p>also uses a two-stage instrumental variables estimator to eliminate effects of anticipated amendment proposals</p>	<p>interval between firms proposing amendments and sample of firms not proposing amendments matched by total equity value, three-digit SIC and proximate proxy mailing date</p> <p>two-stage instrumental estimation shows CAR of approximately -1.0% over 2- and 3-day intervals, but no significant results over 31-day interval</p>
Mahoney & Mahoney (1993)	<p>61-day interval around proxy statement mailing date; returns for full period given and graphed</p> <p>CRSP equally weighted index as market</p> <p>409 firms adopting supermajority and staggered board amendments 1974-1988</p>	<p>no significant effects over 2- or 3-day intervals</p> <p>-1.6% CAR over 61-day interval</p> <p>no significant effects for subsample of 93 amendments adopted 1974-1979</p> <p>-1.9% CAR over 61-day interval for subsample of 316 amendments adopted 1980-1988</p>
Malezadeh & McWilliams (1994)	<p>2-day interval around proxy statement mailing date</p> <p>CRSP equal weighted index as market</p> <p>fair price, staggered board or supermajority amendments proposed at 63 firms 1980-1984</p>	<p>no significant effect for full sample</p> <p>no significant effect on subsamples of firms with Tobin's $q \leq 1$ or > 1</p>
Mahoney, Sundaramurthy & Mahoney (1996)	<p>-50 to $+5$ interval around earlier of proxy statement mailing date or Wall Street Journal announcement</p> <p>CRSP equal weighted index as market</p> <p>290 anti-greenmail, staggered board, elimination of cumulative voting, fair price, and supermajority provisions adopted by 381 firms 1985-1988</p>	<p>-2.76% CAR for full sample</p> <p>-5.25% CAR for elimination of cumulative voting</p> <p>-3.22% CAR for fair price provisions over 56-day event window, but no significant results over shorter windows (see note 6 of study)</p> <p>no significant effects for subsamples of 33 anti-greenmail provisions, 106 staggered board provisions, or 20 supermajority provisions</p>
McWilliams & Sen (1997)	<p>2-day interval surrounding proxy statement date</p> <p>CRSP value-weighted index as market</p> <p>fair price, staggered board or supermajority amendments proposed at</p>	<p>no significant effect for subsamples of 186 firms with majority independent outside directors or 235 firms with majority independent or affiliated outside directors</p> <p>-1.58% CAR for subsample of 30 firms</p>

	265 firms 1980-1990	<p>with majority inside directors</p> <p>–0.72% CAR for subsample of 79 firms with majority inside or affiliated outside directors</p> <p>no significant effects on subsamples of firms with and without CEO/chairman split</p>
<p>CAR = cumulative average residual CRSP = Center for Research in Security Prices NYSE = New York Stock Exchange AMEX = American Stock Exchange OTC = over the counter (i.e., not listed on a stock exchange)</p> <p>Studies: Anup Agrawal & Gershon N. Mandelker, Large Shareholders and the Monitoring of Managers: The Case of Antitakeover Charter Amendments, 25 J. Fin. & Quant. Anal. 143 (1990); Sanjai Bhagat & Richard H. Jefferis, Voting Power in the Proxy Process: The Case of Antitakeover Amendments, 30 J. Fin. Econ. 193 (1991); James A. Brickley, Ronald C. Lease & Clifford W. Smith, Jr., Ownership Structure and Voting on Antitakeover Amendments, 20 J. Fin. Econ. 267 (1988); Harry DeAngelo & Edward M. Rice, Antitakeover Charter Amendments and Shareholder Wealth, 11 J. Fin. Econ. 329 (1983); Gregg Jarrell and Annette B. Poulsen, Shark Repellents and Poison Pills: Stockholder Protection – From the Good Guys or the Bad Guys?, 4 Midland Corp. Fin. J. 39 (1986); Gregg A. Jarrell & Annette B. Poulsen, Shark Repellents and Stock Prices: The Effects of Antitakeover Amendments Since 1980, 19 J. Fin. Econ. 127 (1987); Gregg A. Jarrell, Michael Rynngaert & Annette B. Poulsen, Securities and Exchange Commission Office of the Chief Economist, Shark Repellants: The Role and Impact of Antitakeover Charter Amendments (Sep. 7, 1984; Scott C. Linn & John J. McConnell, An Empirical Investigation of the Impact of “Antitakeover” Amendments on Common Stock Prices, 11 J. Fin. Econ. 361 (1983); Beni Lauterbach, Ileen B. Matlitz & Joseph Vu, Takeover Threats, Antitakeover Amendments and Stock Price Reaction, 12 Manag. & Dec. Econ. 499 (1991); James M. Mahoney, Chamu Sundaramurthy & Joseph T. Mahoney, The Differential Impact on Stockholder Wealth of Various Antitakeover Provisions, 17 Manag. & Dec. Econ. 531 (1996); James M. Mahoney & Joseph T. Mahoney, An Empirical Investigation of the Effect of Corporate Charter Antitakeover Amendments on Stockholder Wealth, 14 Str. Mgt. J. 17 (1993); Victoria B. McWilliams, Managerial Share Ownership and the Stock Price Effects of Antitakeover Amendment Proposals, 45 J. Fin. 1627 (1990); Victoria B. McWilliams & Nilanjan Sen, Board Monitoring and Antitakeover Amendments, 32 J. Fin. & Quant. Anal. 491 (1997); Ali R. Malezadeh & Victoria B. McWilliams, Managerial Efficiency and Share Ownership: The Market Reaction to Takeover Defenses, 11 J. Appl. Bus. Res. 48 (1994)</p>		

As can be seen from **Table 2**, the results of ATA studies are even less conclusive than pill studies.⁷⁹ Some studies show positive stock price reactions, some negative. Mixed or

⁷⁹ See Agrawal & Mandelker, *supra* note __, at 145 (characterizing results of prior studies as “ambiguous”); Bhagat & Jefferis, *supra* note __, at 193 (characterizing evidence from prior studies as “weak”); Borokhovich et al., *supra* note __, at 1495 (characterizing evidence from prior studies as “inconclusive”); Jarrell & Poulsen, *supra* note __, at 128 (characterizing results of prior studies as “inconclusive”); Victoria McWilliams, Are Antitakeover Charter Amendments Good News or Bad News for Managers and Shareholders?, *J. App. Bus. Res.* 1 (1994) (reviewing studies, characterizing them as “inconclusive”); cf. J. Fred Weston, Kwang S. Chung, & Juan A. Siu, Takeovers, Restructuring and

insignificant results predominate, particularly over 2- and 3-day intervals around relevant event dates.⁸⁰ Even in studies showing negative results, positive stock price reactions are observed in 40-50% of the sample,⁸¹ and results are not robust to choice of event interval, ATA type or firm-specific characteristics such as insider ownership, institutional ownership, or stock exchange listing.⁸²

One further qualification should be noted about studies of ATAs (as well as pills).⁸³

There are sound theoretical reasons why the wealth effects of midstream changes may

Corporate Governance (2d ed. 1998), at 423-24 (reviewing event studies and concurring in characterization of ATAs as “nonevents”).

⁸⁰ The possibilities of either pre-event-date leakage of information, on the one hand, and slow impoundment of information into market prices or delayed resolution of uncertainty regarding the effects of likely voting outcome of amendment proposals, on the other hand, may make the longer pre- and post-event intervals interesting and potentially informative, but the odds that confounding events occur during extended periods obviously increase, and the models used to determine abnormal returns become less reliable over longer periods. See Bhagat & Jefferis, *supra* note __, at 203 (“longer-return window contains significant noise”); Gilson & Black, *supra* note __, at 222 (discussing relationship between market models and long event intervals). In any event, longer event intervals have not produced significantly or consistently different results, as reflected in **Table 2**.

⁸¹ E.g., Jarrell & Poulsen, *supra* note __, at 142 (table 2) and 145 (tables 3 and 4).

⁸² See **Table 2**. Mahoney & Mahoney, *supra* note __, at 27, argue that negative stock price reactions to ATAs increased during the 1980s, whether because shareholders learned the true effects of such amendments, because institutional share ownership increased over that time, or because later amendments were proposed by managers more inclined to harm shareholders than earlier amendments. While not implausible, given the mobilization of institutional shareholders in the late 1980s, see note __ *infra*, Mahoney & Mahoney base their finding solely on finding different effects after partitioning their sample of supermajority and staggered board amendments into pre- and post-1980 subsamples. They do not use hazard models to examine effects over time, examine other temporal subsamples, show that institutional ownership was increasing in their sample over time, or reconcile their findings with those of McWilliams (1990), who found no similar negative reactions in the post-1980 era. Nor, finally, do they note the interrelationship between pills and ATAs discussed at TAN __ *supra* and TAN __ *infra*.

⁸³ In addition, unlike pills, ATAs require shareholder approval before they take effect, making choice of an “event” date for studying ATAs problematic. The goal in choosing an event date is to isolate the moment when stock price movements can be attributed to the event being studied. Shareholder approval for ATAs was nearly certain during the early and mid-1980s. See Brickley, Lease & Smith, *supra* note __, at __; Bhagat & Jefferis, *supra* note __, at 200; DeAngelo & Rice, *supra* note __, at 345. In those conditions, the most appropriate event date would be public announcement that the board of the company intends to propose the amendment. See Bhagat & Jefferis, *supra* note __, at 200; DeAngelo & Rice, *supra* note __, at 345. Among the choices for such a date are (1) board approval, (2) filing of preliminary proxy material with the SEC, (3) date of definitive proxy material and (4) mailing date. Bhagat & Jefferis, *supra* note __, at 200-01; Sanjai Bhagat, The Effect of Pre-emptive Right Amendments on Shareholder Wealth, 12 J. Fin. Econ. 289 (1983) (discussing choice of event dates for ATAs); Bhagat, Brickley & Lease, *supra*

differ significantly from the wealth effects of charter and bylaw provisions adopted by a firm when it is still closely held, prior to an initial public offering. Assuming competitive capital markets, rational behavior by investors, and symmetric information (or sufficiently low costs of investigating a firm's governance terms), wealth effects of terms in place at the time a shareholder commits capital will be reflected in the stock price, so that any effects (positive or negative) will generally be internalized by pre-IPO shareholders. On the other hand, midstream changes not anticipated at the time shareholders commit their capital to the firm may effect a transfer of value from shareholders to control persons (whether managers or control shareholders).⁸⁴ Since poison pill adoptions are typically not subject to a shareholder vote, they may be of this type. Even midstream changes that require a shareholder vote are at least theoretically subject to greater manipulation by firm managers: agenda control, bundling, rational apathy, and free-riding all may undermine the ability of the shareholder franchise to

note __, at __; DeAngelo & Rice, *supra* note __, at 345; Linn & McConnell, *supra* note __, at __. Newspapers such as the *Wall Street Journal* often fail to report ATA proposals, and when they do often report them long after shareholders have received proxy materials describing the meetings. DeAngelo & Rice, *supra* note __, at 345-46; see also McWilliams, *supra* note __, at 1631 (119 proposals reported in *Wall Street Journal* only on or after the date of the shareholder meeting, three prior to proxy statement mailing, and 42 between mailing and meeting). When shareholder approval is significantly uncertain, as it has been for many (but not all) charter proposals since the mid-1980s, the most appropriate event date would be public announcement (or report) that the proposal has been approved by shareholders, or perhaps some earlier announcement or report that shareholders are likely to approve the ATA. When shareholder approval is highly correlated with the recommendation of a third party proxy vote recommendation service, such as currently the case with recommendations from Institutional Shareholder Services on corporate governance proposals, the most appropriate event date would be public announcement (or report) of that recommendation. In general, event studies of ATAs have used proxy statement mailing dates, reflecting the shareholder environment of the early and mid-1980s; the only study of ATAs after 1985, Mahoney & Mahoney, *supra* note, nevertheless ends in [1989].

⁸⁴ Every midstream change is in a sense implicit at the time of an IPO: only if control persons retain flexibility to adopt pills or propose ATAs subject to less than unanimous shareholder approval can they effect midstream changes in a way that may surprise shareholders. For most firms, it will normally maximize firm value for control persons to retain some flexibility of this kind, given the likelihood that the firm and its environment will change unforeseeably at some point in the indefinite future. The differences between terms adopted prior to and after an IPO – the extent of incomplete contracting induced by

constrain opportunistic midstream changes even where they reduce firm value.⁸⁵ Early critics of ATAs pointed to these problems as a way of explaining why ATAs might be adopted even if they result in lower share prices.⁸⁶ Thus, even if event studies of pills and ATAs were to show a uniform and strong negative price effect (which they do not), this would not be convincing evidence that defenses reduce firm value at all firms, but only at firms adopting them midstream.⁸⁷

uncertainty, and the extent of investor surprise when a midstream change is made – are thus not categorical, but matters of degree.

⁸⁵ See generally Lucian A. Bebchuk, *Limiting Contractual Freedom in Corporate Law: The Desirable Constraints on Charter Amendments*, 102 Harv. L. Rev. 1820, 1823-25 (1989) (arguing for substantial limits on midstream changes in governance structures and identifying issues that define those limits); Jeffrey N. Gordon, *The Mandatory Structure of Corporate Law*, 89 Colum. L. Rev. 1549, 1573-80 (1989) (discussing risk of opportunistic charter amendments). But see Roberta Romano, *Answering the Wrong Question: The Tenuous Case for Mandatory Corporate Laws*, 89 Colum. L. Rev. 1599 (1989) (disputing that risks of opportunistic charter amendments are serious).

⁸⁶ See, e.g., Jarrell, Ryngaert & Poulsen, *supra* note __, at __.

⁸⁷ Even terms adopted prior to an IPO may not maximize social welfare if such terms create externalities. See Lucian A. Bebchuk & Luigi Zingales, *Corporate Ownership Structures: Private Versus Social Optimality*, Working Paper (1995) (arguing that the capacity for governance terms to enable a control shareholder to extract a greater portion of the surplus in the event of a subsequent control sale may create a divergence between social and private optimality even in the initial charter).

D. Summary: Event Studies of Pills and ATAs

As with event studies of pills, it seems impossible to draw any strong and general conclusions about the wealth effects of takeover defenses from average stock price reactions to midstream ATAs. Even if taken at face value, traditional event studies provide uncertain evidence at best about the positive or normative role that takeover defenses play in corporate law and finance. The most comprehensive and persuasive of the event studies, that of Comment & Schwert, squarely rejects claims that pills have had economically significant effects on the market for corporate control: “evidence on how stock prices change with poison pill adoptions does not suggest an economically meaningful degree of [takeover] deterrence.”⁸⁸ Studies of ATAs are even weaker.

Yet prior studies of takeover defenses are less compelling than the foregoing may suggest. Four additional problems make any use of event studies even more dubious. One problem (signal effects) has been previously recognized, but its full implications have not been developed, which Part II attempts to do. The remaining three problems, set out in Part III, have not previously been recognized, and reduce the value of prior event studies to the vicinity of zero.

⁸⁸ Comment & Schwert, *supra* note ___, at 18.

II. Signal Effects of Defenses Are More Complex Than Has Been Recognized

In addition to the two shortcomings of pill studies discussed above, it has been long recognized that adoption or proposal of a defense may send signals to the market reflecting private information in the hands of managers of the adopting company. Each type of signal may have complicated price effects, depending on the circumstances of the particular takeover defense adoption, and these signal price effects may swamp any genuine (expectations of) wealth effects directly related to the defenses themselves. Market participants will ask the obvious question: why is this company adopting or proposing the defense at this time? Only where a bid is currently pending will the answer to this question be self-evident, and even then, adoption can send a number of mixed signals. Although the securities laws constrain the ability of managers to hide true motives for adopting or proposing a defense, constraints are sufficiently loose, and enforcement sufficiently difficult in the case of hidden motivations, that any number of plausible motives may be inferred regardless of what reasons the company formally announces for proposing or adopting a defense. Several plausible reasons for why a company would adopt or propose a defense at a given point in time will give rise to different inferences about private information in the hands of managers, with consequent mixed price effects.

Before signal types and expected price effects caused by defense adoptions are discussed, the point should be made that an adopting company need not simply “signal” but may affirmatively announce anything it wants when it adopts or proposes a defense.

Inferences drawn by the market will be affected not only by the adoption or proposal, but also by statements the company makes (discounted for credibility). In addition, the market may draw inferences from statements *not* made if similar statements are frequently made by *other* companies adopting or proposing similar defenses.

In particular, an adopting company often has a choice of whether to state (in the press release or SEC filings announcing the defense adoption) that the company is or is not aware of facts suggesting an impending bid. (Such a choice is obviously not available if the company is the subject of a public, pending bid.) Safe securities law advice would suggest (although the law does not clearly require) a statement be made, if true, along the lines of “the company is not aware of any takeover interest or bid” (a “no known bid” statement). Such a statement would be advisable to prevent even the possibility of a lawsuit on the ground that the adoption or proposal of a defense and the omission of such a statement were intended to create the impression that managers *did* have information about a possible bid.⁸⁹ As discussed below, such a statement might also be made to reduce the market impact that proposal or adoption might otherwise have *absent* such a statement, given the frequency with which such statements are made. (Comment & Schwert find that approximately 55% of firms adopting pills make such statements.⁹⁰)

⁸⁹ As a general matter, purchasers of stock may sue under Rule 10b-5 for statements *or omissions*, provided scienter and other elements of the cause of action can be established.

⁹⁰ Supra note __, at __.

For purposes of analysis, four plausible motivations for adoption of a pill⁹¹ can be identified: (1) a bid is pending or expected (sending a *bid signal*); (2) managers want to be prepared to (and/or want potential bidders to think they will) resist a bid (sending a *resistance signal*), either for the benefit or at the expense of shareholders; (3) managers believe stock prices are about to fall (sending a *price change signal*), or (4) managers are following the herd, or advice of advisors who lack private information about the firm.

For a given pill adoption, however, several motivations may be at work, market participants will often be unable to determine whether one or all of them are true, and (as discussed below) each signal may be complicated by other factors. Net price effects from signals sent by pill adoptions will thus vary depending on beliefs of market participants about the likelihood of the various motivations for pill adoption being true for a given firm, as well as the nature and quality of private information inferred from the various motivations. Each type of motivation is worth separate discussion.

⁹¹ A similar analysis might in theory apply to proposals of structural defenses other than pills, such as proposals for shareholders to approve a staggered board. Because structural defenses other than pills have become increasingly rare in the 1990s, see note __ infra, the following discussion is confined to pills. For a discussion of multiple signal effects in the context of ATAs, see Lauterbach, Matlitz & Vu, supra note __ at 508 (finding evidence suggesting that ATAs are “means by which management conveys information about future performance as well as the higher probability of a takeover”).

A. Bid Signals

Target company managers often – even usually, perhaps – possess private information about a bid prior to publication of the bid. In 1991, for example, Square D became aware of the increased likelihood that Schneider would make a hostile bid as a result of Schneider’s refusal to sign a customary standstill agreement during negotiations about a possible joint venture between the two companies.⁹² Managers realize that the failure of friendly merger negotiations – which need not generally be disclosed absent a disclosure trigger – may result in a hostile bid.⁹³ As early as January 1995, for example, Lotus Development was aware that IBM was keenly interested in a negotiated acquisition, and thus knew months before IBM’s actual bid that a bid from IBM was more likely than was common knowledge.⁹⁴ Target managers will still have highly imperfect information about the likelihood of an impending bid – so imperfect that they would generally be well-advised not make voluntary disclosures to that effect. Nevertheless, they will often have better information than the market in advance of the bid, and it is that information that may motivate adoption of a pill.⁹⁵ Even in the case of a pending bid, managers may learn things about the pending bid (for example, its legality, or its likelihood of being financed), or the possibility of competing ("white knight") bids or defensive transactions, prior to the market.

⁹² Square D Schedule 14D-9.

⁹³ See Basic v. Levinson.

⁹⁴ J. Fred Weston et al., *supra* note __, at 170; Lotus Development Schedule 14D-9.

In most instances, an inference that pill adoption was triggered by an expected bid will have positive price effects. Nearly all hostile takeover bids are at a premium to pre-bid market prices.⁹⁶ However, the size of the effects – and the strength of the signal – will be affected by the presence or absence of a pending bid or prior takeover speculation about the adopting company. In addition, price effects will be determined by the presence or absence of a “no known bid” statement.

In instances where a bid is pending, pill adoption may suggest not only an intent to resist the bid (discussed more below), but also some fact about the initial bid, or the target’s alternatives. Pill adoption may suggest that negotiations between the bidder (or a white knight) and the target have broken down, or that target managers are beginning to worry that no white knights will emerge before the initial bid could close.⁹⁷ In any event pill adoption is “tantamount to a disclosure ... that a deal has yet to be struck.”⁹⁸ Any of these signals would generally be bad news for target shareholders, and would not solely or necessarily signal an intent by target managers to use the pill to defeat the bid at all costs. These possibilities cast additional doubt on efforts in early pill studies⁹⁹ to find the wealth effects of a pill adoption, separate from signal effects, by isolating subsamples where firms were already subject to bids, on the theory no bid signals are sent when such firms adopt pills. Alternatively, adoption may simply suggest that target managers are

⁹⁵ For reasons discussed later, see TAN *infra*, it is not clear that managers should adopt a pill in advance of an actual bid solely because such is imminent; nevertheless, many managers may well do so, or do so partly for that reason.

⁹⁶ See Mergerstat 1990, *supra* note ____.

⁹⁷ Ryngaert makes a similar suggestion, *supra* note ____, at 390. See also Andrei Shleifer & Robert W. Vishny, Greenmail, White Knights and Shareholders’ Interest, 17 *Bell J. Econ.* 293 (1986) (discussing possible signals).

⁹⁸ Comment & Schwert, *supra* note ____, at 19.

providing for the contingency that a deal will not be struck, in which case adoption would be neutral for target share prices.

In the *absence* of a pending bid or prior takeover speculation, a “no known bid” statement obviously weakens the strength of the first type of signal, but such a signal may not disappear altogether: adoption may still suggest that managers have private information about increasing takeover risk generally, or industry- or firm-specific factors that make a bid for the adopting firm more likely. For example, in rapidly consolidating industries, managers sometimes come into possession of soft but valuable private information about strategies of other firms in the industry, which may significantly affect the likelihood that takeover bids will be made in the industry generally or for the first firm in particular. Alternatively, managers may be using a pill to attract a bidder, or to create the impression that a bid is impending in order to attract a better price in a negotiated merger (which would also typically be at a premium).

In the *presence* of prior takeover speculation (but no pending bid), a “no known bid” statement will greatly weaken or even eliminate a signal of the first type (since existing speculation known to the adopting company would be viewed as creating a disclosure obligation), and further will let the air out of prior speculation. Adoption of a pill without a “no known bid” statement in the presence of prior speculation, on the other hand, may confirm prior speculation, strengthening the first type of signal considerably.

⁹⁹ See Malatesta & Walkling, *supra* note ___; Ryngaert, *supra* note ___.

B. Resistance Signals

Pill adoption may also suggest that managers are more likely to resist a bid should one emerge in the future. This inference may be based on a general belief that companies that have adopted pills prior to the emergence of a bid in fact resist more frequently than companies that have not (although, interestingly, there is no evidence of this presented in any of the studies surveyed in this paper). Alternatively, a particular pill adoption may be intended by particular managers to send that signal to one or more potential bidders or to shareholder activists who might seek to stimulate a bid.

The price effect of a signal of future takeover resistance is ambiguous in the abstract for the same reason that the wealth effects of pills are uncertain in theory¹⁰⁰: (1) resistance can defeat or deter high-premium value-enhancing bids, but (2) it can also stimulate auctions or otherwise result in higher prices by reducing or eliminating the “pressure to tender” (i.e., the coordination problem faced by dispersed target shareholders), by creating alternatives and enhancing the target’s bargaining power or independent share value, or simply by blocking bids that are at a premium to market prices but below true firm value. Thus, the price effect of a signal of future resistance will depend on which of these two effects predominates, an issue that remains unclear.

The price effect of a takeover resistance signal for a given company, however, will depend not on what market participants believe about the abstract theoretical and policy

¹⁰⁰ See Romano, *supra* note ____.

question of resistance in general as it does on their beliefs about the managers of the particular company adopting the pill. Prior to pill adoption, market participants will have formed some belief about whether particular managers are “good” or “bad,” or, put less crudely, about their degree of shareholder-orientation. For example: what are these particular managers’ reputations, values, and interests? have they taken value-destroying actions in the past? how much stock do they own, and how does its value compare to their cash compensation or other private benefits of control? what are their risk preferences and negotiating abilities? how well can they manage a crisis? Pill adoption for a given firm will send not neutral or average but positive or negative price signals depending on those prior beliefs.¹⁰¹ Whatever the average or net effect of takeover resistance, it is clear that resistance can have positive effects for shareholders in some circumstances. Thus, if managers are believed to be shareholder-oriented, takeover resistance will be more likely to be beneficial to shareholders, and vice versa.¹⁰²

Anticipating the discussion in Part III.A below, it should be noted that these price effects need not represent direct effects of the pill itself, or even of resistance enabled by the adoption of the pill at a particular point in time. Rather, these effects are based on the fact that target managers have considerable flexibility to take actions to defeat a takeover

¹⁰¹ Of course, market participants may also revise their beliefs about managers’ degree of shareholder-orientation, depending on their views about the true (as opposed to signaling) effects of pills: if pills are generally regarded as negative, adoption will cause a downward revision in those beliefs, with the result that the ex post market view of the likely effects of future takeover resistance may be more negative than prior to pill adoption; if pills are generally regarded as positive for shareholder value, adoption will cause an upward revision in market views of managers’ degree of shareholder-orientation, and if pills are generally regarded as neutral, then pill adoption will have no effects on market views of managers’ shareholder-orientation.

bid (sometimes to the detriment of shareholders) whether or not the target company has previously adopted a pill. Examples of discretionary defenses range from litigation to adoption of severance or other employee benefits, to transactional defenses, such as white knight sales (in which target managers can favor a bidder even if the white knight bid provides lower value than the initial bid); stock sales to a “white squire” investor, such as a new employee stock ownership plan; self-tenders or leveraged recapitalizations; spin-offs; and crown jewel asset sales. Regardless of the structural defenses of a given target firm prior to the emergence of a bid, a (new) inference about the managers' willingness and intent to use such tactics to resist a takeover – for good or for ill of shareholders – will have price effects. Thus, to the extent pill adoption gives rise to such inferences, pill adoption will also have such price effects.

As with bid signals, takeover resistance signals will vary with context. Most notably, the strength of these different signals will also vary depending on market participants' estimates of the likelihood of a takeover bid (after being updated based on bid signals from the pill). Thus, takeover resistance signals (positive or negative) can be expected to be strong in the case of pill adoptions in the face of an actual bid, weak in the case of adoptions absent either a bid or prior takeover speculation, and moderate in the case of adoptions with prior takeover speculation but no pending bid. In addition, takeover resistance signals will be constrained by other factors affecting managers' ability to resist: among other things, the presence of structural takeover defenses, internal

¹⁰² Cf. Brickley, Coles & Terry, *supra* note __, at __ (stock price reactions to pill adoptions depend on number of outside directors, which is often taken to correlate with the degree to which managers are shareholder-oriented).

monitoring mechanisms (independent directors, large shareholders, or insider ownership), high levels of institutional ownership or ownership concentration, fiduciary duties and relevant case law, target financial resources, the number of available white knights, and antitrust law.

C. Price Change Signals

Pill adoption may also suggest that managers are worried not about a possible bid (or trying to credibly signal bid resistance) but about future stock price declines resulting from causes unrelated to takeovers. Given some other catalyst (such as an impending bid or the advice of lawyers), adoption of a pill may also be motivated in part by managers' belief that current stock prices are below firm value (even without an impending price decline).¹⁰³ Only if the stock market were strong-form efficient could value and price never diverge. To the degree that price falls below value, value is observable by managers and verifiable over some time frame LT , but value is not verifiable over some time frame $ST < LT$, managers could be concerned that (a) an impending price decline or price mismatch could induce a bid that, if successful, would result in less value for shareholders than if the bid were unsuccessful, yet (b) managers would be unlikely to be able to convince shareholders of this should a bid emerge.

¹⁰³ Robert F. Bruner has suggested that pill adoption could signal that managers believe the firm is worth more than its current trading price, see *The Poison Pill Anti-Takeover Defense: The Price of Strategic Deterrence* (May 1991), at 3, but it is unclear why managers with such a belief would adopt a pill absent either an impending bid, a further impending stock price decline, or another pill adoption motive, such as following the herd.

As with impending bids and resistance, the price effect of this type of signal is ambiguous. The price effect depends upon whether managers are worried about a true value *and* price decline (obviously a negative for current stock prices) or a price decline not related to a true value decline (which should be neutral) or a pre-existing mismatch between price and value (which should be positive). The degree to which market participants might credit a value/price mismatch (whether pre-existing or impending) would depend in large part on the credibility of managers, but it might also depend on the degree of uncertainty about the true value of the firm, with more uncertainty making such mismatches more likely.

D. Non-Signals

In addition to the foregoing bid- or resistance-related motivations for pill adoption, many pills are adopted either because it has become normal to do so, or because adoption has been recommended by lawyers or bankers or other professionals who need not have any private information relevant to the adopting company's stock price. Neither motive would have any price effect, if inferred as the primary or sole cause of pill adoption. (Evidence supporting the hypothesis that pills are adopted because of such effects is discussed in Part IV below.)

E. Summary of Signal Effects

In sum, signals sent by the adoption of a poison pill can be expected to be quite complicated and to vary widely with the circumstances and particulars of the firm adopting the pill. Depending on the circumstances, price effects of these signals can be expected to range from strongly positive to strongly negative, as reflected in **Table 3**.

The direction and strength of the net price effects of a particular pill adoption will depend primarily on market participants’ beliefs about the motivation of the managers adopting the pill.

<u>Table 3.</u>					
<u>Signaling Effects of Poison Pill Adoption</u>					
<u>Inferred Motivation For Pill</u>	<u>Direction And Strength Of Price Effect</u>				
Bid signal	Pending Bid	Prior Speculation, No Bid		No Bid or Speculation	
		“No Known Bid” Statement	Silence	“No Known Bid” Statement	Silence
	NEUTRAL OR NEGATIVE		STRONGLY POSITIVE	WEAKLY POSITIVE	POSITIVE
Resistance signal	“Bad” Management			“Good” Management	
	Pending Bid	Prior Speculation, No Bid	No Bid or Speculation	Prior Speculation, No Bid	Pending Bid
	STRONGLY NEGATIVE		NEUTRAL	STRONGLY POSITIVE	

Price Change signal	<i>Impending Price Drop</i>		<i>Pre-existing Mismatch</i>
	<i>Value Will Also Fall</i>	<i>Value Will Not Fall</i>	
	NEGATIVE	NEUTRAL	POSITIVE
Follow the herd/ Professional advice	NEUTRAL		

But they will also depend on the presence or absence of prior takeover speculation or pending takeover bids at the time of adoption, the beliefs of market participants about the abilities and shareholder-orientation of company managers, and the degree of uncertainty associated with the true value of the firm. Thus, contrary to early assessments of the information or signaling effects of pills, even a clear negative average price reaction cannot be interpreted as reliable evidence of a “lowering of investors' expectations of cash flows resulting from deterrence.”¹⁰⁴

Because none of the studies has been designed to tease apart the effects of possible signals, it remains impossible to make general claims about what the market is inferring from pill adoptions on the basis of studies to date. As a result, re-interpreting event studies in light of possible signal effects is not simply a matter of treating price reactions as understated, as several commentators have done.¹⁰⁵ Rather, one must simply conclude that the number and multidirectional possibilities of adoption signals make interpreting

¹⁰⁴ Bruner, supra note __, at 18.

¹⁰⁵ E.g., MacIntosh, supra note __, at 286-87.

event studies difficult, and make any strong conclusions about the wealth effects of defense adoptions indefensible.

III. Three New Design Flaws of Events Studies

Event studies are even less informative than is apparent from the foregoing survey. Not only do event studies suffer from previously identified problems – the difficulty of the market to predict true effects of innovations, the problematic nature of procedures to exclude “confounding events,” and the large number and multidirectional nature of possible signals sent by defense adoption or proposal – but these studies also suffer from three serious, previously unnoticed design flaws, which render them even more problematic for positive research than traditional critiques might suggest, and of nearly no use for normative analysis. One of these flaws afflicts pill studies, one afflicts ATA studies, and one afflicts both.

The flaw afflicting pill studies is that (as explained below) a pill adoption rarely has any real effect on the takeover defense posture of the firm adopting a pill. Thus, the only effects that nearly all pill adoptions have are signal effects. The flaw afflicting ATA studies is that the most commonly studied ATAs (fair price provisions and supermajority requirements) are virtually without effect for firms that have adopted or have the ability to adopt a pill.¹⁰⁶ Some ATAs continue to have real bite on takeover battles, but these

¹⁰⁶ To be fair, the fact that ATA studies use data that predates the pill is not a “flaw,” per se, and is not even a shortcoming if one is interested in the historical effect of ATAs. But if one is interested in the wealth effects of ATAs in today’s legal environment, then studying ATAs from prior to 1986 is flawed.

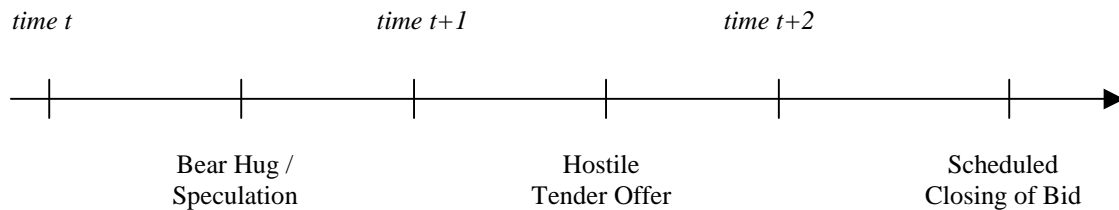
have largely been lumped together with ATAs that no longer have an impact. Thus, whatever conclusions one might draw from ATA studies summarized earlier, such studies are no longer relevant in assessing the effects of ATAs in the era of the pill. The flaw afflicting both pill and ATA studies is a generalization of the flaw afflicting ATA studies: neither pills nor even those ATAs that continue to have a real impact on takeovers can be assessed by studying them in isolation, because their interaction has more impact than the impact of either pills or any given ATA on its own.

A. Pill Adoptions Rarely Have Any Effect; Pill Potential Is All That Matters

In their thoughtful and comprehensive study of pills, Comment & Schwert summarize the theoretical framework that underlies all of the defense event studies:

The wealth effect of a pill adoption is a combination of [a] a stock price decline [from] the expected present value of future takeover premiums forgone due to deterrence, offset by [b] the expected present value of any increase in premiums due to a gain in bargaining power versus bidders. In addition, prices can change due to [c] a revelation of management's private information¹⁰⁷

Three possible wealth effects are thus identified for poison pills (which all apply to takeover defenses more generally): (a) a deterrence effect, (b) a bargaining power effect and (c) a signaling effect. In fact, when it comes to price effects that surface in an event study (as opposed to wealth effects), signals are nearly the whole story. The reason is simple: the decision to adopt – or not adopt – a pill at time t is completely and almost instantaneously reversible at times $t+1$ and $t+2$.



A company that declines to adopt a pill at time t can always adopt one at time $t+1$ or $t+2$; likewise, a firm adopting a pill at time t can eliminate (redeem) it at time $t+1$ or $t+2$. For firms that are large and sophisticated, the reversal (adoption or redemption) can occur in a single business day: the only legal action necessary for either step is a board meeting and approval; lawyers can keep necessary documents at the ready; and directors can meet by conference call on several hours notice. Even for less sophisticated firms, takeover bids are subject to sufficient delay under both the Williams Act and the Hart-Scott-Rodino Antitrust Improvements Act that a target firm will rarely if ever be prejudiced by failing to adopt a pill in advance.¹⁰⁸

No additional deterrence is achieved by virtue of the pill being adopted at time t or $t+1$, except to the extent that adoption sends signals about management's readiness and intention to resist a takeover. No additional bargaining power is created by virtue of a pill being adopted at time t or $t+1$, again except to the extent of signals sent by the adoption. Thus, signaling effects aside, the adoption of a pill at t does not change the takeover vulnerability of the adopting firm.

¹⁰⁷ Supra note __, at __.

To be clear, the point is not that pills have no effects on bids. Rather, it is that pill *adoption* by particular firms rarely has (non-signal) effects on bids, because of the possibility of later adoption. Thus, it is the *potential* for the pill that achieves the great bulk of the pill's deterrent effect (to the extent it has one). Another way of putting the point is that once the Delaware Supreme Court made it clear in *Moran v. Household Int'l*¹⁰⁹ that pills were legitimate to adopt, *all* Delaware firms (except those few with other governance terms that would impede pill adoption) have had a "shadow pill" in place, witting or not, and takeovers of such firms have thus been restrained by a set of "shadow restrictions" (the expectation of a pill's adoption and subsequent effects) on transfer of control to a hostile bidder. Whether or not the potential for pills has had an impact on bids remains open, precisely because the point being made here has not been reflected in studies of defenses.¹¹⁰

¹⁰⁸ Comment & Schwert make this point, *supra* note __ at __, but do not fully realize its import for interpreting event studies.

¹⁰⁹ 490 A.2d 1059 (Del. Ch.), *aff'd*, 500 A.2d 1346 (Del. 1985).

¹¹⁰ Both Ryngaert, *supra* note __, and Malatesta & Walkling, *supra* note __, did attempt to measure price reactions to Delaware court decisions upholding the *Household* decision. Malatesta & Walkling find no significant reaction for Household itself (the firm in the *Moran v. Household*) following either the Chancery Court or Delaware Supreme Court decisions in *Household*, nor did they find a significant reaction for firms with pills involved in other takeover fights at the time the decisions were announced. *Id.*, at 364 (table 4). They did find a weak (-1.95%) abnormal price reaction at six firms involved in takeover fights with flip-over pills (the type upheld in *Household*). Similarly, Ryngaert, *supra* note __, at n.35, cites an unpublished study in which he found a weak (1-2%) negative abnormal price reaction at firms rumored to be takeover targets upon announcement of the Delaware Supreme Court decisions in *Unocal Corp. v. Mesa Petroleum Co.*, 493 A.2d 946 (Del. 1985), and *Household*. See also Sreenivas Kamma, Joseph Weintrop and Peggy Weir, *Investors' Perceptions of the Delaware Supreme Court Decision in Unocal v. Mesa*, 20 J. Fin. Econ. 419 (1988) (finding -2.4% CAR for 14 Delaware firms subject to takeover bids at time of decision).

One explanation for these weak results is simply that even the potential for pills is not important. But another, perhaps more plausible explanation, is that although it is true that the courts in *Moran v. Household* upheld the adoption of a (flip-over) pill, they did so by deferring any decision about how pills could be "used" by targets (i.e., whether fiduciary duties might ever require target directors to redeem a pill in the face of a bid), and only upheld the adoption *per se*. But as noted above, adoption itself has no significant deterrent effect, even for firms involved in actual fights, until the moment a bid is nearing completion. See also *Stahl v. Apple Bancorp, Inc.*, Fed. Sec. L. Rep. (CCH) ¶95,412 (Del. Ch. Aug. 9, 1990) (use not adoption is critical factor in deciding pill's legality; holding that use of pill to block revocable proxies would be illegal, but use of pill to block irrevocable proxies or voting agreements was

The only limits to the ability of companies to defer pill adoption are (a) a charter provision or other governance term that legally prevents pill adoption (something rarely occurring¹¹¹), or (b) the impending closing of an actual bid (that is, adoptions at time $t+2$ ¹¹²). But few of the pill event studies focus on pill adoptions by firms that were

legal). Thus, contrary to the assertions of Malatesta & Walkling, *supra* note __, at 364, considerable legal uncertainty remained following *Moran v. Household* about the legality of the pill in operation. Likewise, the *Unocal* case had ambiguous implications for target resistance: on the one hand, the discriminatory self-tender used by the target to fend off T. Boone Pickens in that case was upheld, and the court declined to adopt a strict standard against such tactics; on the other hand, it also declined to apply the high degree of deference traditionally accorded board decisions under the business judgment rule, and instead announced a new judicial standard that provided courts with an “intermediate” role in reviewing such tactics. (The type of self-tender used in *Unocal* was later made illegal by the modification of rule 13e-4 in 1986 by the Securities and Exchange Commission.)

In fact, no Delaware court has ever squarely addressed either the question of whether a discriminatory flip-in pill, now standard, is legal to adopt (although the reasoning in *Household* does not distinguish between types of pills) or the question of whether a target board can “just say no” and use a pill to block a hostile tender offer without doing more (although it is widely considered to be highly likely that Delaware courts would, on a good record, uphold such a defense). E.g., Jeffrey Gordon, *Corporations, Markets and the Courts*, 91 *Colum. L. Rev.* 1931, 1944-45 (1991); Lyman Johnson & David Millon, *The Case Beyond Time*, 45 *Bus. Law.* 2105 (1990); *see also Moore v. Wallace Computer*. In other words, there has never been a precise moment in the development of Delaware law that could be isolated as the “event” that resolved the legality of the standard pill in its full operation. Whatever one’s view of the clarity or merits of how these holdings have played out in the past 15 years, investors were right to not react strongly one way or the other at the time they were announced. *See* Gilson & Black, *supra* note __, at 783 (discussing uncertainty surrounding “just say no” defense and suggesting it might not be upheld). *Cf.* Lucian A. Bebchuk & Alan Ferrell, *Federalism and Takeover Law: The Race to Protect Managers from Takeovers*, 99 *Colum. L.Rev.* __ (forthcoming 1999) (argues that Delaware law is indeterminate); Ehud Kamar, *A Regulatory Competition Theory of Indeterminacy in Corporate Law*, 98 *Colum. L. Rev.* 1908 (1998) (argues that Delaware develops indeterminate law to preserve advantage in market for corporate charters) *with* Choi et al., *supra* note __ (asserting without support that “the market considers Delaware courts to be more consistent and predictable than courts in other states” as basis for hypothesizing that pill adoption price reactions should be stronger for Delaware firms than non-Delaware firms).

¹¹¹ See Daines & Klausner, *supra* note __; Field, *supra* note __; Coates, *Explaining Variation*, *supra* note __.

¹¹² Even at time $t+2$ the decision to adopt a pill will be undertaken if and only if doing so will increase the ability of the company to pursue some other alternative besides simply “just saying no.” Divide bid costs into two categories: (A) bid costs incurred to launch the bid and win it in the shortest time possible under the Williams Act, assuming the target does not adopt a pill (type A costs); and (B) bid costs incurred in order to run a proxy fight to remove a pill (type B costs). Now divide bids into two categories: (A) bids in which a bidder will acquire the target only if it can do so by incurring type A costs (i.e., by launching a tender offer or street sweep) (type A bids); and (B) bids in which the bidder is willing to expend both type A and B costs (type B bids). Type B bids will not be started unless bid costs – type A and B – are less than the bid’s expected value (from winning or a toehold). Bidders anticipate a target will adopt a pill at time $t+2$ if that will defeat a bid, and bidders usually have some but less than full information about transactional defenses available to a target. Adoption at time $t+2$ will usually have a real effect only

subject to actual takeover bids, and none of them distinguish between pills adopted by firms subject to “bear hugs” (informal and nonbinding merger proposals) and firms that were subject to actual hostile tender offers. Nor did any of the studies focus on pills adopted by firms about to be taken over (when pill adoption has become necessary to prevent the takeover) or those that were in the early stages of the bid process under the securities or antitrust laws. Moreover, most firms adopt pills well in advance of any actual or impending bid, and almost none wait until the last possible moment to adopt a pill.¹¹³ Thus, the one subset of firms for which pill adoption would have a real impact on bid outcome (firms that wait until it is almost too late) is in all likelihood uselessly small for empirical studies.

As a result, a firm that has adopted a pill is in nearly the same takeover posture as a firm that has not yet adopted a pill.¹¹⁴ Either the firm is subject to a bid (in which case the pill will send a strong resistance signal) or it is not (in which case the pill may send a bid signal, as well as a resistance signal). In either case, however, the adoption of a pill cannot be expected to generate any significant price reactions related to the pill itself. Any price reaction to pill adoptions, then reflects one thing, and one thing only: inferences about private information in the hands of managers of adopting companies.

if it enables a transactional defense. The upshot is the mere potential of a pill generally deters type A bids, and pills will only be adopted in response to type B bids in a subset of contests. Thus, even adoptions at time $t+2$ will not provide an unbiased estimate of the wealth effects of a potential pill.

¹¹³ Roughly 10% of Datta & Iskandar-Datta’s sample was subject to *either* takeover speculation or a bid at the time of adoption, compared to 17% in Comment & Schwert’s sample and 20% of Ryngaert’s sample. Even fewer firms adopt pills in the face of an actual bid.

This analysis is supported by Strong & Meyer's study, which finds both that (a) stock price reactions to pills are small and tightly distributed near zero but that (b) subsequent to the adoption of the pill firms show dramatically different cumulative abnormal returns, which Strong & Meyer interpret as showing that

an important consideration is the extent of investor uncertainty about whether the board's predominant motivation is maintenance of control [so that] small announcement effects may be translated into larger price effects once a corroborating signal is produced (that is, a signal that enables investors to revise their Bayesian priors about the extent to which the board is control motivated).¹¹⁵

This analysis is also supported by Datta & Iskandar-Datta, who find that whereas firms adopting pills experience significant negative reactions in their bond prices, such firms do not experience such effects in their stock prices, and that the negative reaction in bond prices is systematically related to post-adoption increases in leverage by adopting firms. Datta & Iskandar-Datta interpret these findings to support a signaling hypothesis: since pills [they argue] do not effectively deter bids, adopting firms are also likely to pursue other transactions that increase leverage as a way of bolstering their defense, and pill adoption serves primarily as a signal of the impending leverage (which may help shareholders, but hurt bondholders).¹¹⁶

¹¹⁴ Targets in several of the hostile bids during the 1990s did not have poison pills until after a hostile bidder emerged, and yet each was able to adopt a pill and prevent the bidders from acquiring the target without going through a proxy contest.

¹¹⁵ Strong & Meyer, *supra* note __, at 82. They further caution that their analysis does not claim that "valuation effects in the six months after pill adoption should be ascribed to the [pill] rather than the subsequent [signaling] actions." *Id.*

¹¹⁶ *Supra* note __, at 1248-49.

Although event studies of midstream ATAs do not suffer from the same flaw,¹¹⁷ event studies of ATAs reveal price effects that are weaker and more inconsistent than those revealed by pill studies. If pills have solely or predominantly signal effects, and if there is no reason to think that signal effects of pill adoptions are significantly stronger than those of ATAs, then it is highly likely that whatever wealth effects are revealed by ATA studies are obscured by the signaling effects as well.

B. (Most) ATAs Have Not Been Important for a Decade

If poison pill studies suffer from the failure of researchers to realize that pill adoptions do not directly affect structural takeover vulnerability, ATA studies suffer because research has focused on types of ATAs that are simply no longer important. The types of ATAs at the center of the event studies – supermajority requirements and fair price provisions¹¹⁸ – are no longer important in actual takeover fights, if they ever were.¹¹⁹ At most, such defenses impair (without eliminating) the ability of bidders to use a two-tiered takeover

¹¹⁷ Since ATAs require shareholder approval, they generally cannot be adopted in response to a bid, but must be adopted in advance of a given bid. Thus, they are not fully reversible, as pills are, and adoption (or proposal) are more likely to reflect real wealth effects than pill adoptions.

¹¹⁸ Agrawal & Mandelker, *supra* note __, at 148 (table 1) (studying primarily fair price ATAs, aggregating such ATAs with staggered board, blank check preferred authorization, and supermajority ATAs); Bhagat & Jefferis, *supra* note __, at 197 (table 1) (studying primarily fair price and supermajority ATAs); Field, *supra* note __ (studying primarily supermajority, fair price and non-constituency provisions); Jarrell, Ryngaert & Poulsen, *supra* note __ at 14 (table 1) (studying solely fair price and supermajority ATAs); Malezadeh & McWilliams, *supra* note __, at 53 (aggregating fair price, supermajority and staggered board ATAs); McWilliams, *supra* note __, at 1630 (table I & III) (aggregating fair price, supermajority, staggered board, blank check authorization and other ATAs); DeAngelo & Rice, *supra* note __, at 348 (aggregating supermajority and staggered board ATAs, and studying supermajority but not staggered board ATAs separately); Jarrell & Poulsen, *supra* note __, at 138 (studying primarily fair price and supermajority ATAs).

¹¹⁹ It is unclear whether these ATAs ever accomplished their intended results. See Gilson, *supra* note __, at __ (explaining why such provisions were unlikely to deter takeover bids). Arthur Fleischer quotes

tactic to create a prisoner's dilemma and pressure target shareholders to tender.¹²⁰ Yet two-tiered bids may be impaired more effectively by state takeover statutes and poison pills.

In fact, pills completely dominate fair price provisions and supermajority requirements in their effects on bids. Poison pills effectively prevent hostile takeovers or any other acquisition of more than a low threshold of stock (often as low as 5% or 10%) unless the bidder is able to negotiate a deal with the target board or willing and able to wage a proxy fight to replace the board, which then can redeem the pill.¹²¹ Fair price provisions require a bidder, upon acquiring a large number of target shares (usually higher, and almost never lower, than pill thresholds), to pay a "fair price" in any back-end merger; typically the fair price is set by formula and at least equal to the highest price paid by the bidder in the first stage of the acquisition.¹²² Supermajority requirements typically establish a level of shareholder approval for mergers, asset sales or other transactions that would accompany a takeover.¹²³

To see why pills dominate fair price and supermajority provisions, imagine first that a bidder is unwilling or unable to win a proxy fight for the target. In that case, a pill will

Joseph Flom, widely viewed as a top takeover lawyer, as saying that ATAs of these sorts are a "total waste of time." A. Fleischer, *Tender Offers: Defenses, Responses, and Planning* (1981), at 7 n.23.

¹²⁰ On two-tier takeovers and the pressure to tender, see generally L. Bebchuk, *Towards Undistorted Choice and Equal Treatment in Corporate Takeovers*, 98 *Harv. L. Rev.* 1695 (1985) (describing two-tier bids and the pressure to tender); *Two-Tier Tender Offer Pricing*, Exchange Act Rel. No. 21,079 [1984 Tr. Binder] Fed. Sec. L. Rep. (CCH) ¶ 83,637 (June 231, 1984); Michael Bradley, *Interfirm Tender Offers and the Market for Corporate Control*, 53 *J. Bus.* 345, 349-56 (1980) (explaining the 'prisoner's dilemma' facing shareholders in tender offers).

¹²¹ See Coates, *How Contestable?*, at ___.

¹²² See Jarrell & Poulsen, *supra* note ___, at ___ (describing fair price ATAs).

completely block the bidder from acquiring more than a small toehold, regardless whether the bidder is willing to pay a premium price to all shareholders (in which case the fair price provision would have little or no effect), and regardless of the fact that a supermajority of shareholders would like to accept the bidder's offer. Thus, absent a proxy fight, a pill will deter any bid a supermajority or fair price provision would deter.

Now imagine a bidder is willing and able to win a proxy fight for the target (and so would be able to eliminate a pill and complete a tender offer). First note that the necessity for the proxy fight to eliminate the pill defeats any pressure-to-tender that a two-tier bid might otherwise create, thus accomplishing the main deterrent effect of both fair price and supermajority provisions,¹²⁴ or, put otherwise, a bidder willing and able to win a proxy fight must be uninterested in the coercive aspects of two-tier bids. Thus, the pill on its own will deter any bid that fair price or supermajority provisions would deter.¹²⁵ Now imagine the bidder has won the proxy fight. Fair price provisions almost never apply to one-step mergers between the target and a person not in control of more

¹²³ Id. at __ (describing supermajority provisions).

¹²⁴ The only exception would be in the nearly unheard-of circumstance that a bidder is willing to make a two-tier bid with a blended value sufficiently high to attract a sufficient number of shareholders to support a proxy fight to replace the target board and then redeem the pill, but the same bidder for some reason is unable or unwilling to make a similar one-step bid with the same (blended) total value. Even bidders that need to finance part of their bid with debt but do not have access to bank or bond financing need not use the two-tier structure, however, since they can also propose an economically equivalent one-step merger in which all shareholders receive equal amounts of cash and debt securities, which would be permitted by most fair price provisions.

¹²⁵ The opposite is not true. That is, pills probably deter some bids that fair price or supermajority provisions would not deter. That is because pills impose the additional delay and cost of a proxy fight on a bidder, whereas fair price and supermajority provisions simply make it difficult or impossible for two-tier bids to succeed. It is for this reason that many theorists, consumed with the idea that the only efficiency objection to hostile takeovers is structural coercion, object to poison pills. See, e.g., Marc I. Steinberg, *Nightmare on Main Street: The Paramount Picture Horror Show*, 16 *Del. J. Corp. L.* 1, 3 (1991); Ronald Gilson, *Just Say No to Whom?*, 25 *Wake Forest L. Rev.* 121 (1990); Robert A. Prentice & John H.

than the specified threshold of stock ownership, or even to two-step transactions, if the first step is approved by the target board. Thus, a bidder that has won a proxy fight may avoid a fair price provision by having the newly elected target board approve its offer. Supermajority provisions also usually have “board outs,”¹²⁶ and in any event can be avoided by a victorious bidder because, once in control of the target’s board, the bidder may simply remove the pill and offer all shareholders a single premium price, which will normally attract a supermajority of tenders or votes.¹²⁷ In sum, supermajority and fair price provisions have become vestigial since judicial approval and widespread adoption of the pill in the mid- and late 1980s.¹²⁸ This claim is supported by data from IRRC on

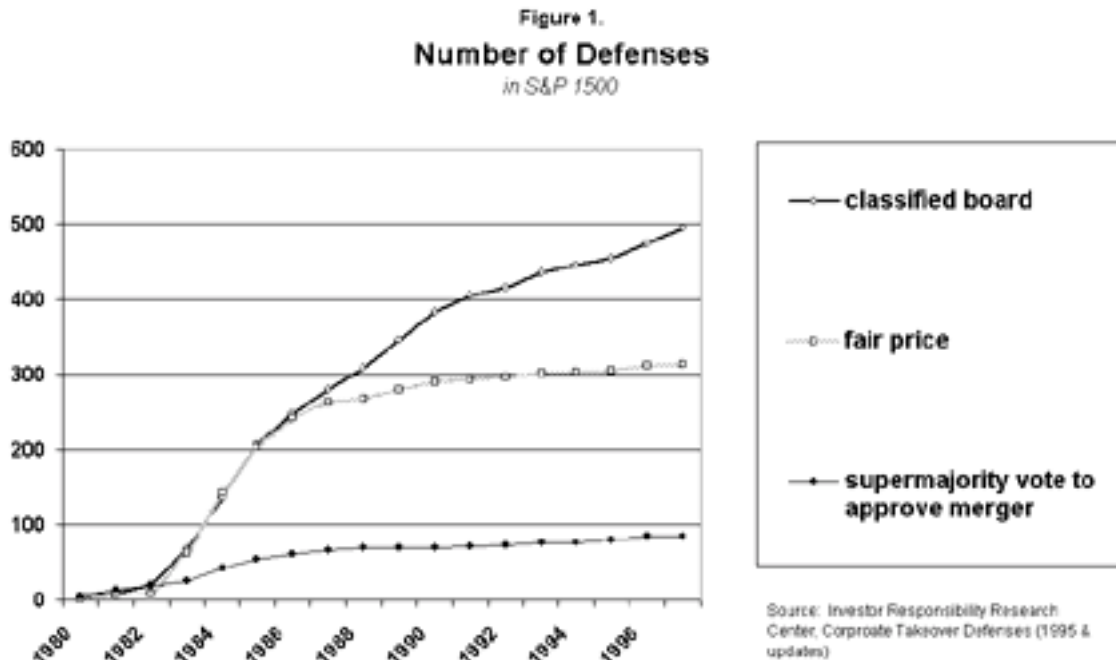
Langmore, *Hostile Tender Offers and the ‘Nancy Reagan Defense’: May Target Boards ‘Just Say No’? Should They Be Allowed To?*, 15 Del. J. Corp. L. 377 (1990).

¹²⁶ See Gilson, *supra* note __, at 785 (quoting from such provisions and stating that supermajority ATAs “usually include exceptions to ... permit transactions favored by management”). Although these “board outs” are often restricted to directors not affiliated with an “acquiring person,” the latter term is generally defined to include only holders of a large block of stock, so that while “board outs” will not be available when the bidder has been able to succeed with a first-step tender offer, they will be available to a bidder who has been prevented by a pill from accumulating a block of stock but has nevertheless been successful in a proxy fight. Cf. Victoria McWilliams, *Are Antitakeover Charter Amendments Good News or Bad News for Managers and Shareholders?*, J. App. Bus. Res. 1 (1994) at 4 (reviewing research on charter ATAs, stating that “board outs” are generally not available to bidders).

¹²⁷ For this reason, it is common for friendly tender offers to be conditioned on the bidder receiving at least 90% of the target’s shares, so that the bidder can effect a fast short-form back-end merger, rather than going through a lengthy proxy filing, review and mailing process necessary to complete a long-form back-end merger. See DGCL §§ 251 (long-form requirements) & 253 (short-form requirements, available to parent/subsidiary mergers where parent owns at least 90% of subsidiary’s stock).

¹²⁸ The same point can be made about pills and most state takeover laws. In particular, control share statutes, fair price statutes and business combination statutes all function more or less like fair price or supermajority provisions, in that they impose constraints on takeovers unless either (a) a supermajority of shareholders approve the bid or (b) the target board approves the initial acquisition of ownership by the bidder above some threshold amount (which is usually lower than the triggers in standard pills). But since the pill prevents takeovers without a proxy fight anyway, bidders are generally able to avoid the effects of these types of statutes by first winning a proxy fight and then causing the newly elected target board to exempt their own acquisition from these statutes. The only state takeover laws that might have some effect beyond the pill are those in Pennsylvania (which imposes some constraints on proxy fights). In addition, “other constituency” statutes might have an impact on some takeover fights, by increasing the likelihood that target directors will be able to defend transactional defenses (spin-offs, white knight sales, etc.) against fiduciary duty lawsuits brought by the bidder or target shareholders. But to date, at least, these statutes have had little impact on the conduct or outcomes of takeover fights, despite the wide number of states in which they have been adopted. In addition, since a minority of large public companies are incorporated either in Pennsylvania or states with other constituency statutes, such statutes will be relevant in a minority

the number of firms adopting these types of takeover defenses in the post-pill era, as reflected on **Figure 1**.¹²⁹ Firms have largely ceased to adopt such defenses in the 1990s; staggered boards, by comparison, have continued to spread at large firms.



Even when event studies examined governance terms that do matter to takeover defense – staggered boards, blank check preferred stock authorization, limitation or elimination of shareholder governance rights provided by default law¹³⁰ – such terms were never studied in isolation, or as part of an integrated and informative system of terms, but were always aggregated in ways that make the studies impossible to use for analysis of any particular

of takeover fights. Other state laws – particularly those setting default rules for the conduct and duration of proxy fights – are addressed in Part IV below.

¹²⁹ IRRC's database includes all firms in the S&P 1500 plus approximately 500 additional firms that meet various other criteria or such as large size or stock exchange listing. Interview with Virginia Rosenbaum, IRRC (July 12, 1999).

¹³⁰ For a discussion of why such terms matter when fair price and supermajority provisions do not matter, see Coates, *Studying Contestability*, *supra* note 1.

term. Blank check preferred stock authorizations, for example, can be expected to have very different effects than staggered board amendments, since the former can and traditionally were used solely to provide managers with financing speed and flexibility, which in general would have clear positive value for the firm, whereas the latter has no effect on financing flexibility. Yet most studies have lumped such ATAs together.¹³¹ Thus, even though both terms may have some antitakeover effect, they are likely to produce significantly different price reactions upon adoption, which will mask the effects of either on its own.

A second reason why event studies of ATAs are irrelevant today is that such amendments are increasingly rare, mainly because such amendments require shareholder approval.¹³² As the institutional shareholder community organized in the late 1980s,¹³³ such approvals became increasingly difficult (if not impossible) to obtain. As reflected in **Table 4**, the numbers of new fair price and staggered board proposals has remained low during the 1990s; new supermajority requirements are not shown because an average of only one per year was adopted in the 1990s. (Pills, of course, do not require shareholder approval.)

¹³¹ E.g., Agrawal & Mandelker, *supra* note __, at 148 (table 1) (studying primarily fair price provisions, aggregating such provisions with staggered board, blank check preferred authorization, and supermajority provisions); DeAngelo & Rice, *supra* note __, at 353 (lumping staggered board ATAs with supermajority ATAs, and studying supermajority ATAs but not staggered board ATAs separately); Field, *supra* note __ (studying primarily fair price, supermajority and non-shareholder constituency provisions) (table 7); Malezadeh & McWilliams, *supra* note __, at 53 (lumping staggered board ATAs with fair price and supermajority ATAs).

¹³² See DGCL § 242.

¹³³ See Gerald F. Davis & Tracy A. Thompson, A Social Movement Perspective on Corporate Control, 39 *Adm. Sci. Q.* 141 (1994).

Table 4.													
Number of New ATAs Adopted (#)													
<i>Year</i>	86	87	88	89	90	91	92	93	94	95	96	97	98
Staggered Boards	38	20	6	11	11	3	3	5	2	2	7	2	na
Ban Shareholder Action by Written Consent	22	18	16	24	24	7	12	12	10	14	19	7	na
Limit Shareholder Ability to Call Special Meetings	25	28	15	13	13	10	10	8	10	12	19	9	na
Votes in Favor of Shareholder-Initiated Proposals to Eliminate ATAs (%)													
<i>Year</i>	86	87	88	89	90	91	92	93	94	95	96	97	98
Remove Staggered Board	na	na	na	22	25	na	32	32	27	39	42	44	47

Sources: Investor Responsibility Research Center, Corporate Governance Bulletin (data on shareholder-initiated proposals) and Corporate Takeover Defenses (1998) (all other data)

na = not available

As a result, managers have largely stopped proposing such charter amendments.

Management proposals to stagger the board of directors plunged from 88 in 1986, to 26 in 1988, to 9 in 1998.¹³⁴ Thus, to the extent that event studies of midstream amendments tell us anything useful (and for reasons given above, it is doubtful how much they tell us is useful), they tell us things about defenses that are no longer of much importance in the real world of takeovers.

C. Pills and ATAs Interact and Cannot Studied Separately

Studies of takeover defenses (both pills and ATAs) suffer from a third, potentially even more significant flaw.¹³⁵ The simple point is that defenses interact. One term can dramatically impact the effect of another term. A full discussion of the ways in which governance terms interact is beyond the scope of this paper,¹³⁶ but a short example, focusing on what are probably the two most important structural defenses (pills and staggered boards), should illustrate the point.

Suppose firm A has adopted a pill, and firm B has not. Further, suppose firm A has a staggered board, and firm B does not. Initially note the way in which the pill and the

¹³⁴ Investor Responsibility Research Center, Corporate Governance Bulletin.

¹³⁵ A few of the studies reviewed in Part I attempt to examine interactions between takeover defenses, but none arrived at useful results, in large part because the studies reflect no theory about ways in which defenses could interact, and why. For example, Jarrell & Ryngaert, *supra* note __, at 30, Ryngaert, *supra* note __, at __, and Choi et al., *supra* note __, at __, find no correlation between price reactions of pill adoptions by companies with and without various charter provisions (e.g., staggered boards, fair price provisions, etc.). Sundaramurthy, *supra* note __, at __, and Sundaramurthy, Rechner & Wang, *supra* note __, at 792, include prior adoption of selected terms as control variables in studying the incidence of subsequent midstream ATAs, and find significant negative relationships between terms, suggesting some terms can substitute for others; Sundaramurthy & Rechner, *supra* note __, however, fail to find such an effect in their study of fair price ATAs. In contrast, Davis, *supra* note __, finds that pills are more likely to be adopted by firms that had already adopted an ATA, *supra* note __, at 608, and Dana J. Johnson & Nancy L. Meade, Shareholder Wealth Effects of Poison Pills in the Presence of Anti-Takeover Amendments, 12 J. Appl. Bus. Res. 10 (1996), at 16, partitions firms adopting pills and, after controlling for prior price runup, insider and institutional holdings, finds those with prior fair price ATAs experience statistically significant *positive* CARs (albeit absolutely small CARs of 0.08%), which is contrary to a simple substitution hypothesis. Other than rudimentary speculation, no study considers how terms might interact, and none are designed to capture the effects of interactions among terms. More recently, the possibility of term interaction is explicitly recognized by Danielson & Karpoff, *supra* note __, who examine correlation coefficients and attempt to find patterns among various governance terms affecting takeovers. Again, however, they reach few conclusions. See *id.*, at 367-68 (sketching various conjectures about term patterns).

¹³⁶ I take up the question of term interactions in a separate paper. See Coates, Studying Variation, *supra* note 1.

staggered board interact. Without the pill, the presence or absence of a staggered board is largely irrelevant, because a tender offer or open-market accumulations of stock will allow a bidder to acquire control of the target in approximately one month, the minimum time necessary to clear antitrust review and (for tender offers, comply with the Williams Act). Even though the target board can, in theory, refuse to resign after the control acquisition has occurred, they will almost never do so, for reasons ably discussed by Ron Gilson over 15 years ago.¹³⁷ Indeed, it was largely for this reason that the pill was invented.

With the pill, the staggered board – if it cannot be evaded (about which more in a moment) – becomes a far more effective defense than the pill alone. That is because a pill can always be removed by the target board; thus a bidder always has the option of removing the target board in a proxy fight. If a target's directors are all up for election each year, the pill can be removed in no more, and often much less, than a year from the bid's initiation. If the target has a staggered board, by contrast, the pill is protected from such circumvention for at least, and often much more, than one year. For firms with pills, in other words, effective staggered boards change a *maximum* time required to take over the target to the *minimum* time required.

All this is old hat. Nearly all studies of poison pills and ATAs have assumed that firm A, with its pill and its staggered board, is less vulnerable to takeover than firm B: pill studies assume the pill makes the firm less vulnerable, and ATA studies assume the

¹³⁷ See Gilson, *supra* note ___, at ___ (discussing ineffectiveness of staggered board absent a pill).

staggered board makes the firm less vulnerable. But suppose that firm A permits shareholders to remove directors without cause, and firm B does not, and that neither firm has a provision that prohibits the adoption of pills or a provision that would allow shareholders to act by written consent or call a special meeting. Now the legal takeover vulnerability of both firms is *identical*.

To see this, recall that (absent a prohibition on pills) firm B can adopt a pill at any time. Thus, the presence of a pill at firm A, and the absence of a pill at firm B, are irrelevant to bid outcomes (and thus, signal effects aside, bid incidence). Likewise, given the ability of shareholders to remove directors without cause at firm A, its staggered board is ineffective. Shareholders at both firms are in a position to mobilize (or be mobilized by a bidder) and replace the entire board at the next annual meeting. At firm B, directors are normally up for election at the next annual meeting; at firm A, shareholders (or a bidder) can remove all directors, and fill the resulting vacancies. Thus, on both counts, traditional studies would misgauge the relative takeover vulnerability of firms A and B: traditional studies assume that pills and staggered boards affect takeover vulnerability, when often they do not. As I show elsewhere, these interactions are common, and have significant effects on nearly a third of public firms sampled.¹³⁸

¹³⁸ See Coates, *supra* note ___, at ___.

D. Summary: Previously Unrecognized Problems with Event Studies of Defenses

To sum up, traditional studies have, implicitly, both overestimated and underestimated the potential effects of various types of defenses. Signal effects aside, pill *adoptions*, studied with such intensity to such little effect, have nearly no importance to the takeover vulnerability of a target firm (although the *potential* for a pill can be quite important). Of the ATAs studied to date, supermajority requirements and fair price provisions are largely irrelevant in the post-pill era. Firms that have both the *potential* for a pill and *effective* staggered boards are far more resistant to takeover than firms that have adopted pills but not ineffective staggered boards, and staggered boards can be rendered ineffective in several ways, making a study of interactions a prerequisite for better evidence on defenses. With all this understood, the principal mysteries about event studies of takeover defenses may be how researchers managed to find any results, or why anyone took those results seriously.

IV. Other Methodologies and Results

In addition to event studies, a number of other empirical methodologies have been brought to bear on pills and ATAs of the types described above. Chief among them are multivariate regressions of bid incidence, bid outcome (including premiums paid), and adopting firm characteristics (including ownership, board, financial and performance variables, before, at and after defense adoption). While these methodologies are often

individually more interesting than event studies, in both hypotheses tested and results found, they suffer from some of the same problems as event studies of defenses, making any overall conclusions about defenses problematic. In particular, they focus on out-of-date charter amendments, fail to focus on important governance terms, and fail to study various terms in a systematic way. In addition, these studies (with few exceptions) return conflicting and partial information about the causes and consequences of defenses. The remainder of this paper is a brief review of these studies, intended to complete the literature survey, demonstrate that little of the existing empirical literature on takeover defenses is particularly helpful in reaching normative or theoretical conclusions regarding takeover defenses, and sketch an agenda for future research.

A. Pills and Takeover Premiums

1. Pill Premium Studies

Georgeson & Co. has over the years conducted a number of studies of the relationship between pills and takeover premiums. Its first study,¹³⁹ published at the height of public policy debate over takeovers and defenses, was controversial,¹⁴⁰ but its principal substantive finding (firms with pills obtain receive larger than average takeover premiums) has held up over time. Georgeson examined all completed hostile takeovers

¹³⁹ See Georgeson & Company Inc., Poison Pill Impact Study (Mar. 31, 1988) [“Study I”]; see also Georgeson & Company Inc., Poison Pill Impact Study II (Oct. 31, 1988) [“Study II”].

¹⁴⁰ In part, controversy arose because Georgeson & Co. was assisted in the study by Martin Lipton, generally credited with having invented the poison pill, see Jarrell & Ryngaert, *supra* note __, at 1 n.1. J.E. Heard, Poison Pill Study Lambasted, 16 Pensions and Investment Age 34 (April 18, 1988), at 34, cited in

of U.S. firms valued over \$100 million in 1986 and 1987¹⁴¹ and finds that after adjusting for overall market movements, firms with pills (n=27) were acquired at premiums averaging 53% higher than stock prices six months prior to the initial takeover bid, while firms without pills (n=21) were acquired at premiums of 32% over the same period.¹⁴² Georgeson emphasized that, unlike event studies, its study measured actual economic effects, rather than “only investor perceptions of pills,” which as Georgeson noted¹⁴³ were relatively new during the period reflected in early event studies.

Donald Margotta redid Georgeon’s initial study to respond to criticisms that the six-month period used to determine takeover premiums was overlong and arbitrary.¹⁴⁴ He examined market-adjusted returns for samples of firms with and without pills around initial bid, final bid and pill adoption event dates, and finds that firms with pills outperformed the market by 56% over the 120 trading days prior to final bids, compared

Robert F. Bruner, *supra* note __, at 21. In addition, some participants doubted the Georgeson results because Georgeson “usually serv[es] defenders in takeover battles.” Bruner, *supra* note __, at 19.

¹⁴¹ Georgeson cut off its study on October 19, 1987, on which the stock market fell dramatically.

¹⁴² These results were consistent with those of Jarrell & Ryngaert, *supra* note __, who found that target firms with pills received increased bids of approximately 14% in bidding contests attributable to pills, but that firms with pills that were not eventually acquired showed a greater loss of 17%.

¹⁴³ See Georgeson & Company Inc., Study II, *supra* note __, at 1 (preface).

¹⁴⁴ Donald G. Margotta, *Takeover Premiums: With and Without Shareholder Rights Plans* (Feb. 2, 1989) (unpublished paper on file with author). Amusingly, some critics of the Georgeson’s six-month, pre-adoption study periods have approvingly cited studies using a similar study period but reaching different conclusions. E.g., Bruner, *supra* note __, at 20 n.4 & 21 (criticizing Georgeson for using six-month pre-adoption study period) and 23-24 (favorably summarizing Strong & Meyer, *supra* note __, and noting that its only statistically significant negative results were obtained from three-month pre-announcement event intervals). Margotta also responded to other criticisms of Georgeson’s first study, by describing and attempting to reconcile the early pill event studies with the premium study results. *Id.*, at 3-7. Other criticisms of Georgeon’s first study apply to both Margotta’s study and to Georgeson’s second study. Among other things, these studies did not attempt to correct for “confounding events,” see TAN __ *supra*, nor did they assess (one way or another) whether companies with pills were well managed, and so potentially more undervalued than pills without pills, thus overstating premiums attributable to pills. See Bruner, *supra* note __, at n.4 (summarizing critiques). Early event studies also suffer from the latter problem, and as noted earlier, see TAN __ *supra*, studies in which “confounding events” are eliminated are vulnerable to the charge of subjectivity and selection bias.

to 41% for paired firms without pills, and that firms with pills begin to outperform firms without pills (as well as the market) starting roughly 40 days prior to the final bid.¹⁴⁵ Margotta also finds that firms with pills outperformed the market during the entire period beginning 120 days prior to initial bids, while firms without pills underperformed the market over that entire period, suggesting that pill adoptions have significant signaling effects.¹⁴⁶ Finally, Margotta found that even after initial bids, stock prices of firms with pills rose 11%, while prices of firms without pills rose only 2%, suggesting that pills give target boards bargaining power to negotiate with bidders.¹⁴⁷

In 1995, J.P. Morgan & Co. updated and confirmed the basic findings of these earlier studies.¹⁴⁸ They examined all acquisitions over \$500 million of a majority interest of U.S. companies from 1988 to 1995 (n=245) and find that premiums paid to firms with pills were 51.4% over market price five days prior to the initial offer, whereas firms without pills received only an average premium of only 35.5%. Similar results were found when J.P. Morgan examined various partitions, including hostile and friendly offers, deals under and over \$1 billion, deals involving cash, stock or mixed consideration, and deals in 1988, 1989, 1994 and 1995. In all cases, firms with pills received significantly higher premiums than firms without pills. A 1997 update of this study reached identical

¹⁴⁵ Id. (graph 1).

¹⁴⁶ Id., at 6-7 & graph 2. Margotta also found firms adopting pills received premium bids 42% over prices six months prior to initial bids, compared to 23% for non-adopting firms, but initial bid premiums over prices five trading days prior to the bid were approximately the same (26%) for firms with and without pills. Id., at 7. This last result may indicate that initial bid premiums are not adjusted to account for pre-bid run-up caused by signals.

¹⁴⁷ Id. at 7.

¹⁴⁸ J.P. Morgan & Co., *Poison Pills and Acquisition Premiums* (Dec. 18, 1995) (unpublished study on file with author).

conclusions for all transactions (n=300) in which a majority interest of a U.S. public firm was purchased from 1993 through June 1997.¹⁴⁹

Similar results were found in a 1997 Georgeson-sponsored study by Jamil Aboumeri.¹⁵⁰ He looked at 319 completed acquisitions over \$250 million of a majority interest of U.S. companies from 1992 to 1996. Of acquired companies, firms (n=105) with a pill in place at least six months prior to the initial bid leading to the acquisition received an average premium of 37% over market prices one week prior to announcement of the first bid, net of change in the S&P 500 index over the same period, while firms without pills received a premium of only 29%. Aboumeri noted several ways in which acquired firms with pills differed from those without: they were larger (based on market capitalization), had lower price-to-book ratios and were more frequently acquired in hostile rather than friendly deals. Aboumeri noted that premiums also varied with size and hostility: higher premiums are paid for smaller firms and in hostile deals. Still, after controlling for all three factors, Aboumeri finds that firms with pills received statistically significant higher premiums on average than firms without pills. The premium gap between firms with and without pills was also economically significant: Aboumeri's model predicts that firms with pills received a total of \$13 billion (32%) more in premiums than they would have without (an average of \$123 million per firm).

¹⁴⁹ See Kenneth A. Bertsch, Poison Pills, Investor Responsibility Research Center, Corporate Governance Series 1998 Background Report E (Jun. 25, 1998), at 21 (summarizing update).

¹⁵⁰ The study can be found on Georgeson & Co. Inc.'s web page (<http://georgeson.com>), and is summarized in Poison Pills and Shareholder Value 1992-96, 68 Aspen Law and Business Corporation No. 24 (Dec. 15, 1997) (also on file with author).

Comment & Schwert's 1994 study confirms these findings, showing that pills are significantly associated with higher premiums,¹⁵¹ both conditional on completed acquisitions and unconditionally (treating periods in which companies were not acquired as resulting in zero premiums). Premiums are 16% higher for acquired companies with pills, which translates into a 1.4% expected higher premium for all firms with pills, net of any deterrent effect.¹⁵² In fact, as the authors note, their model understates actual pill effects, since their model controls for – and shows an independent increase in premiums of 11% due to – auctions, which may be caused or increased by pills.¹⁵³

Finally, Cotter, Shivdasani & Zenner recently finds that firms with independent boards receive higher premiums in both initial and final bids, and that while such firms are equally likely to resist a bid as firms without independent boards, share price reactions to target resistance are higher for firms with independent boards.¹⁵⁴ They interpret these findings as evidence that well-functioning independent boards can use pills to increase bid premiums.¹⁵⁵

¹⁵¹ Premiums are defined as CARs during the period from 20 trading days before the initial bid to five trading days after the final bid (using the CRSP value-weighted NYSE/Amex index as the market). *Id.* (table 4). The authors also look at hostile deals separately, but find no significantly different results.

¹⁵² *Id.*, at 30.

¹⁵³ *Id.*, at 30. In their second-stage model, they control for several firm-specific accounting and stock market performance variables, the presence of state takeover laws and the year in which the transaction took place, and for completed acquisitions, they control for auctions, cash bids, and the use of the tender offer mechanism. *Id.*

¹⁵⁴ Do Independent Directors Enhance Target Shareholder Wealth During Tender Offers?, 43 *J. Fin. Econ.* 195 (1997).

¹⁵⁵ *Id.* Their findings are also consistent with the event study finding of Brickley, Coles & Terry, *supra* note __, that stock price reactions to pill adoptions vary with board independence.

2. *Pill Premium Studies Suffer from the Same Flaws as Event Studies*

Notwithstanding the consistency and impressiveness of these results, studies showing that pills and deal premiums are correlated are a classic example of correlation not proving causation. None of the studies offers any explanation of the mechanism by which pills cause higher premiums. In fact, pills cannot have such an effect, except in rare instances. Nearly all bidders will assume that a target of a hostile bid will adopt a pill once the bid is launched, assuming that resistance may be useful in attracting alternative bidders or imposing delay for the target to develop a transactional defense. But if bidders presume that all targets will adopt pills, then the prior adoption of a pill has no causal connection to premiums offered in the hostile bid. As with the event studies, none of the pill premium studies attempts to separate pills that are adopted specifically to enhance the target's bargaining power from those that were previously adopted but had no direct role in the takeover fight.

This point is most clearly seen in the studies of negotiated (non-hostile) deals, which also show a correlation between pills and higher premiums. Even if some purportedly friendly deals are in fact quasi-hostile, the vast majority of friendly deals are not. The fact that pills correlate with higher premiums is not persuasive evidence –lacking any description of a causal mechanism – that pills cause those higher premiums. And the fact that such a correlation exists for friendly deals (albeit slightly less strong) suggests that the pill/premium correlation arises from some source other than the real effects of a pill.

Thus, the correlation between bid premiums and pills is largely if not entirely caused by something else, something not included in the regressions used to produce these results. Any number of possibilities exist: firms may adopt pills because of concerns that stock prices do not match firm value, or because stock prices of such firms are more volatile than stock prices generally; such firms may be harder to value without private information gained through due diligence, and so may attract higher premiums (which are of course measured against pre-bid market prices). Perhaps managers of firms that adopt pills are in industry sectors that have more competitors, or in consolidating sectors where deal activity is already quite high for other reasons, and in either instance bid premiums might be higher than average for the same reasons (competition or consolidation creating more auctions). Or perhaps such firms are more apt to adopt “best practices” (one version of “following the herd”) and adopt pills because 50+% of the Fortune 500 has done so, and such firms are more apt to adapt best practices elsewhere in their management and operations, including negotiation strategies, resulting in higher premiums. Or perhaps firms that adopt pills do so for reasons traditionally attributed to managers – entrenchment and agency costs – causing a stock price decline that is reversed by hostile bids, resulting in high premiums, whereas firms that do not adopt pills are already so well managed that any premiums paid in hostile or friendly bids are only based on operational synergies and not on the elimination of such agency costs. Whatever the effective cause of higher premiums, the presence or absence of pills is not likely to be the answer, any more than the wealth effects of pills is the explanation for price reactions to their adoptions.

B. Pills, Bid Outcomes and Bid Deterrence

Critics of early studies of pills' effects on takeover premiums rightly pointed out that such studies do not account for the possibility that pills deter or defeat bids, and thus prevent shareholders at those firms from obtaining takeover premiums, offsetting gains that pills produce at acquired firms.¹⁵⁶ Georgeson thus did a second study in 1988 that compared the long-term stock performance of 100 randomly selected firms that adopted pills 1984-1987 and a matched sample of firms without pills closest in size in the same industry classification.¹⁵⁷ Firms with pills outperformed matched firms without pills over the study's 18-month period by about 10% on average. As in Georgeson's first study, takeover premiums were significantly higher for firms with than without pills; so too for premiums in leveraged buyouts; and the numbers of takeovers and buyouts of firms with and without pills were not significantly different. For firms not acquired, stock performance of firms with and without pills was not significantly different.

With respect to direct evidence of bid deterrence, early studies were mixed, and more recent studies have consistently found that pills do not a meaningful deterrent effect on bids.¹⁵⁸ On the one hand, Malatesta & Walkling's early study notes that the 15%

¹⁵⁶ See Patrick S. McGurn, *Poison Pills*, Investor Responsibility Research Center, Corporate Governance Service, 1996 Background Report C (Jan. 1, 16, 1996), at 17-18 (summarizing critiques). The most prominent critique was sponsored by the United Shareholders Association, which was founded by T. Boone Pickens, of Georgeson's Study I. Authors of the critique included Jarrell, Ryngaert, Kenneth Lehn, Michael Jensen, Richard Ruback and John Pound. *Id.*; see also Bruner, *supra* note __, at 19-20.

¹⁵⁷ Georgeson & Co. Inc., Study II.

¹⁵⁸ For reasons discussed in Part III *supra*, the failure of researchers to find reliable evidence that pills deter bids should not be surprising.

subsequent bid rate for firms with pills in the year following adoption was significantly higher than for companies overall (5%),¹⁵⁹ suggesting that firms with pills were more frequently the target of takeover bids, although the correlation obviously did not prove causation. On the other hand, Ryngaert finds that the percentage of firms subject to takeover speculation at the time of pill adoption fell sharply during the 1980s, as pills became more widespread, from 100% in 1982 and 1983, to 41% in 1985, to 18% in 1986. Further, Ryngaert's comparison of two unrelated samples suggested that firms with pills were able to defeat bids more often than firms without pills during this period.¹⁶⁰

However, Ambrose & Megginson find no relationship between the presence of pills (or supermajority or fair price provisions) and the likelihood that a firm will be the subject of a takeover bid during the period 1981 to 1986.¹⁶¹ Likewise, Comment & Schwert's extensive 1994 study, which was principally designed to uncover evidence of deterrence,

¹⁵⁹ Supra note __, at 347 & 367.

¹⁶⁰ A sample of 29 firms with pills remained independent 31% of the time in the period 1982-1986, whereas an unrelated sample of 76 firms without pills remained independent only 16% in the period 1981-1984, suggesting that pills help defeat takeovers. Ryngaert, supra note __, at 406-08; see also Jarrell & Ryngaert, supra note __ (finding that 46% of firms with pills and 64% of firms with discriminatory pills remain independent); Austin, Tender Offer Update: 1978-1979, *Mergers & Acquisitions*, Summer 1980, at 13, 16 (table 4) (targets of tender offers from 1956 through June 30, 1979 remained independent 20% of the time); Arthur Fleischer, Business Judgment Rule Protects Takeover Targets, *Legal Times Wash.*, Apr. 14, 1980, at 15 (reporting Goldman Sachs study of 69 tender offers between 1976 and 1979 finding 19% of targets remained independent). Ryngaert also found that bids for firms with pills resulted in auctions less frequently (52%) than bids for firms without pills (69%). This reinforces the general conclusion of subsequent studies that pills do not deter bids on average, since one way pills might deter bids is by causing auctions and raising prices bidders expect to have to pay to win. On the other hand, the auction differential may be meaningless if pill adoptions occur in precisely those settings where target firms are less likely (for other reasons) to attract third-party bidders to an auction, yet (as argued in Part III) do little to achieve auctions.

¹⁶¹ Brent W. Ambrose & William L. Megginson, The Role of Asset Structure, Ownership Structure and Takeover Defenses in Determining Acquisition Likelihood, 27 *J. Fin. & Quant. Anal.* 575 (1992), at 582 (table 3). See TAN __ infra for a brief description of this study.

finds little evidence that pills deter bids.¹⁶² The absence of evidence showing deterrence remained true even after the authors controlled for the fact that pill adoption continues to be endogenous to takeover likelihood, and so are adopted when takeovers unusually likely, which might mask a deterrent effect.¹⁶³ They use a two-stage model to distinguish between “predictable” and “surprise” pills (i.e., pills not predicted by a first-stage model regressing adoptions on variables likely to predict managers’ choice of whether and when to adopt a pill¹⁶⁴). As noted above, the net effect on premiums paid to all firms in their sample, regardless whether they are acquired during the study period, was +1.4%,¹⁶⁵ suggesting that the well-documented positive effect of pills on premiums conditional on acquisition is stronger than any possible deterrent effect of pills (although as noted above, the pill is not likely to be the effective cause of those higher premiums). Brickley, Coles & Terry find that board independence has no significant effect on bid failure rate at companies with pills, but that bids for firms with pills and independent boards do result in

¹⁶² One way to reconcile the earlier studies’ findings on deterrence with the later studies nonfindings is that earlier studies examined bid outcomes at a time when bidders had not yet fully appreciated what pills were or how they would affect bid outcomes, whereas later studies have examined bids made largely after pills have been understood by bidders, so that bid outcomes are endogenous in part to the existence of pills. While plausible, this argument still confronts Comment & Schwert’s more general finding of a lack of deterrence, as well as the general, continued robustness of the market for corporate control in the poison-pill era. Thus, another way to reconcile earlier and later studies is simply to note the later studies have much larger sample sizes, and remember that statistical significance at the 5% level will still produce false results one time in 20.

¹⁶³ “The logic is that pills that are a surprise (to researchers) are most likely to have been adopted when management has information about a pending takeover attempt.” *Id.*

¹⁶⁴ For this first-stage model, Comment & Schwert examine coverage by state takeover laws (business combination and control share), average abnormal returns over four years (using CRSP value-weighted index as market and parameters are estimated in the year before the measurement period), four-year average sales growth, and four-year average of net working capital divided by total assets (a measure of liquidity). *Id.* (tables 1 & 3). They also attempted to control for the fact that pills were an innovation, so that later adoptions may be more predictable simply because of mimicry, and so also include yearly dummies for 1986-1991.

¹⁶⁵ See TAN __ supra.

auctions significantly more frequently than for firms with pills without independent boards.¹⁶⁶

More recently, Aboumeri finds that announced takeover bids were no less likely to be completed when the target had a pill.¹⁶⁷ Between 1992 and 1996, bids were withdrawn only 10% of the time for targets with pills, compared to 11% of the time for targets without pills, a statistically insignificant difference. A regression controlling for premium, target size (market capitalization) and price-to-book ratio showed bid defeat rates were not significantly different in the presence of a pill.¹⁶⁸ Finally, Aboumeri compared the 65% of firms in the S&P 500 and 42% of firms in the S&P 400 that had pills in December 1993 to see if the presence of the pill had an effect on acquisitions. Again, firms with pills were acquired more frequently (7.7%) than firms without pills (5.6%) during the period 1994 to 1996.

Finally, Bethel, Liebeskind & Opler find no relationship between activist and strategic block purchases and the presence of pills or other structural defenses (aggregating them all and setting a dummy variable equal to one if any were present).¹⁶⁹ The authors interpret their findings as showing that financial block investors were willing to invest in

¹⁶⁶ Supra note __, at 386-87. Their findings on these points are robust to controls for firm size, insider ownership, firm profitability, leverage, industry institutional ownership by type, year of adoption, type of pill, chairman/CEO split, R&D expenditures, market-to-book ratios and prior takeover activity or speculation. *Id.*, at 388.

¹⁶⁷ Supra note __, at 3.

¹⁶⁸ If Aboumeri is right in this part of his analysis – pills don't defeat or deter takeovers – it is hard to see how pills could have the causal role that Aboumeri attributes to them in increasing bid premiums. See TAN __ supra.

¹⁶⁹ Jennifer E. Bethel, Julia Porter Liebeskind & Tim Opler, Block Share Purchases and Corporate Performance, 53 *J. Fin.* 605 (1998), at 617.

firms whose ownership or legal structures made takeovers difficult,¹⁷⁰ but their findings can be interpreted with equal or greater plausibility as showing that the presence or absence of *any* structural defense does not deter activist investors intent on stimulating a bid because (on average) *any* defense does not affect a firm’s takeover vulnerability.¹⁷¹

In sum, the scientific evidence to date provides no evidence that pills deter bids. This (non)finding is hard to reconcile, on the surface, with the strong claims that academics have made, based on the pill event studies, that pills reduce firm value by deterring bids. Once the weak and inconsistent nature of the event studies is taken into account, one may be tempted to err in the opposite direction: absent any good evidence from either event studies or examinations of bid incidence and outcomes, it seems likely that pills simply have no effect. In fact, however, this conclusion would be premature, for reasons sketched in Part III.C: pills and other governance terms interact in ways that none of the deterrence studies have adequately considered. It may well be that pills do not have any strong deterrent effect on *average*, but in combination with the right set of additional governance terms – a staggered board, a prohibition on board removal or board “packing,” and a prohibition on early shareholder action – a pill may well have a serious deterrent effect.¹⁷² None of the studies of pills to date have considered such interactions in trying to measure pill deterrence.

¹⁷⁰ Id. at 617.

¹⁷¹ See Part III.C *supra*.

¹⁷² I discuss this possibility at greater length in Studying Variation, *supra* note ____.

C. Characteristics of Firms Adopting Pills

A final empirical method of analyzing pills are studies looking for correlations between pill adoptions and cross-sectional characteristics of adopting firms. Among the characteristics that have been examined are ownership (insider and institutional), board independence and other board characteristics, pre-adoption performance, and firm size. If the analysis in Part III and Part IV.A are correct – that pills have not been shown to have a causal role in causing adoption price declines or increasing bid premiums – then this method of analysis should tell us no more about pills than event studies.¹⁷³ Oddly, however, such studies might be valuable, not in studying pills but as a way of trying to uncover the background cause of both pill adoptions and higher bid premiums. Firm characteristics that predict pills do not predict anything about the pill's effects (and thus pills themselves), but they may have a role to play in explaining higher bid premiums. Alternatively, they may provide insight into the signals that pill adoptions send.

Unfortunately, pill adoptions have (with one exception) not consistently correlated with firm characteristics from study to study. Results that are significant in one study show a surprising degree of inconsistency with results in other studies. The one exception -- membership of adopting firm directors in networks of interlocking directorships -- says more about the way information and technology spread through the corporate world than

¹⁷³ Only one very recent study (by Morris Danielson & Jonathan Karpoff) has attempted to do what the analysis in Part III would call for: study pills along with other takeover defenses *and* other firm characteristics, to see if different combinations can be explained in some plausible way. For reasons discussed in Coates, *Studying Variation*, the Danielson & Karpoff approach (simply looking for

it does about the pill itself. Together, these weak and mixed results reinforce the only fair inference to be drawn from pill event studies – that pills have uncertain economic significance. These studies are now briefly reviewed.

1. Ownership

Early studies found that pill adoption was more common at firms with higher levels of institutional ownership and lower levels of insider ownership,¹⁷⁴ findings confirmed in a recent study by Danielson & Karpoff of governance terms and ownership structure at a sample of 513 firms, including most of the S&P 500 in 1989.¹⁷⁵ Danielson & Karpoff explain this finding as indicating that firms with such an ownership profile are more vulnerable to takeover, and so more likely to adopt a pill. Danielson & Karpoff, Davis, and Davis & Greve also find a negative relationship between outsider blockholders and pill adoption in the 1980s.¹⁷⁶

correlations in unmotivated multiple regressions of terms and other firm characteristics) does not seem promising.

¹⁷⁴ See Gerald F. Davis, Agents without Principles? The Spread of the Poison Pill Takeover Defense Through the Intercorporate Network, 36 Admin. Sci. Q. 583 (1991), at 604 (table 2); Paul Mallette & Karen L. Fowler, Effects of Board Composition and Stock Ownership on the Adoption of Poison Pills, 35 Acad. Mgt. J. 1010, 1025 (table 3) (1992) (comparison of 226 industrial firms having pills with 447 industrial firms lacking pills; logit regression to predict pills based on leverage, return on equity, net sales, independent directors, chair/CEO split, independent director tenure, CEO tenure, and ownership of insiders, independent directors and institutions); Jarrell & Ryngaert, supra note __, at 36 & table 11 (asserting that 5% insider ownership at firms with pills was “below normal”); Danielson & Karpoff, supra note __, at 366-67 (firms with pills have low managerial ownership); Malatesta & Walkling, supra note __, at 369 (insiders own an average of 9% at firms with pills in their sample, which is significantly lower than insider ownership at firms in the same industry, even after controlling for size).

¹⁷⁵ On the Uses of Corporate Governance Provisions, 4 J. Corp. Fin. 347 (1998), at 366 (table 8) & 367.

¹⁷⁶ Davis, supra note __, at 604 (table 2) & 597 (variable labeled "ownership concentration" defined as 5+% blockholdings); Gerald F. Davis & Henrich R. Greve, Corporate Elite Networks and Governance

On the other hand, Downen, Johnson & Jensen find no relationship between insider ownership and pill adoption. Using a Cox model to predict pill adoption 1984-1988, and controlling for prior adoption of ATAs, firm size, and market-to-book ratio, Sundaramurthy finds pill adoption is not affected by institutional ownership,¹⁷⁷ a finding inconsistent with prior studies.¹⁷⁸ He also finds that pill adoption had a curvilinear relationship with insider ownership: negative when inside ownership is less than 30%, positive when it is higher. The latter finding follows a growing body of studies finding a curvilinear relationship between ownership structure and firm value in general (although the precise inflection points estimated in those studies differ significantly).¹⁷⁹ Finally,

Changes in the 1980s, 103 *Adm. J. Soc.* 1 (1997), at 24-25 (table 2) (same); Danielson & Karpoff, *supra* note __, at 366.

¹⁷⁷ Specifically, the author examined supermajority requirements, elimination of cumulative voting, fair price provisions, staggered boards, and voting stock that provides different voting rights depending on shareholder characteristics, such as duration and level of ownership. *Supra* note __.

¹⁷⁸ See Davis, *supra* note __, at __; Jarrell & Ryngaert, *supra* note __, at 36 & table 11 (institutional holdings of 45% at firms with pill in the studied sample were “above normal”); Mallette & Fowler, *supra* note __, at __. Sundaramurthy argues that the relationship between institutional ownership and poison pill adoption found in prior studies, which has been interpreted as indicating that such firms perceive themselves to be more vulnerable to hostile bids, is misleading, insofar as prior studies failed to control for prior adoption of ATAs. Sundaramurthy notes that ATAs require shareholder approval, but does not explain how this could “confound the effects of institutional investors.” In addition, Sundaramurthy’s study does not reveal any significant correlation between prior ATA adoption and subsequent pill adoption. Still, his study does suggest that institutional share ownership may have multiple, competing effects on the proclivity of managers to adopt pills, so that while univariate comparisons may suggest a relationship, no clear relationship will show up in multivariate regressions with appropriate controls.

¹⁷⁹ See, e.g., Michael J. Barclay & Clifford G. Holderness, Private Benefits From Control of Public Corporations, 25 *J. Fin. Econ.* 371 (1989) (finding that 5+% blocks trade at premiums to market prices for post-trade minority shares, and that such premiums increase at a statistically insignificant rate from 5-25%, and increase significantly an increasing rate for 25-50% blocks); John J. McConnell & Henri Servaes, Additional Evidence on Equity Ownership and Corporate Value, 27 *J. Fin. Econ.* 595 (1990) (Tobin’s q increases as insider ownership reaches 40-50%, then slopes downward); R. Morck, A. Shleifer & R.W. Vishny, Management Ownership and Market Valuation: An Empirical Analysis, 20 *J. Fin. Econ.* 293 (1988) (Tobin’s q increases as board ownership increases from 0 to 5%, decreases from 5 to 25%, and then rises slightly thereafter); K.H. Wruck, Equity Ownership Concentration and Firm Value: Evidence from Private Equity Financing, 23 *J. Fin. Econ.* 3 (1989) (firm value tends to increase when six largest shareholders own <5% or >25% upon announcement of private equity stock placements, and to decrease when they own 5-25%); but see Harold Demsetz & Kenneth Lehn, The Structure of Corporate Ownership: Causes and Consequences, 93 *J. Pol. Econ.* 1155 (1985) (finding no significant correlation between different measures of ownership concentration and accounting profit rate); McWilliams & Sen, *supra* note __, at 501 (finding no curvilinear relationship between inside ownership and stock price reactions to ATA adoptions). For theory on ownership structure and firm value, cf. Rene Stulz, *Managerial Control of*

while Ryngaert failed to find any significant difference in stock price reactions related to insider ownership, McWilliams (1990) finds reactions to be negatively related to inside ownership.¹⁸⁰

2. *Board and Management Characteristics*

Danielson & Karpoff's recent study finds that firms with pills have a higher proportion of independent directors, a finding that is inconsistent with most earlier studies, which find that pill adoption was not affected by board characteristics such as independence.¹⁸¹

Sundaramurthy also failed to find any significant relationship between pill adoption and board independence, or between pill adoption and other board characteristics, including whether there was a chairman/CEO split.¹⁸² The latter negative finding, in turn, is inconsistent with Mallette & Fowler, who do find that chairman/CEO splits make pill adoption less likely.¹⁸³

Voting Rights, Financing Policies and the Market for Corporate Control, 20 J. Fin. Econ. 25 (1988) (predicting that at absolutely low levels of insider ownership, hostile takeover probability is sufficiently large that higher levels of insider ownership increase target's share of takeover gains, but beyond a certain point, as insider ownership rises towards 50%, takeover probability falls to zero, eventually dominating premium effect) with Harold Demsetz, The Structure of Ownership and the Theory of the Firm, 26 J. L. & Econ. 375 (1983) (arguing that ownership structure is endogenous to industry, incentive and other variables, and should not correlate with profitability or firm value).

¹⁸⁰ Ryngaert, supra note __, at 396-97 & table 7; McWilliams, supra note __, at 1635-40.

¹⁸¹ See Davis, supra note __, at 604 (table 2); Mallette & Fowler, supra note __, at 1025 (table 3).

But see Charman Loh, The Influence of Outsider Directors on the Adoption of Poison Pills, 33 Q. J. Bus. & Econ. 3 (1994) (sample of 178 firms adopting pills 1983-1986 are more likely than sample matched by total assets and board size to have majority of independent directors). Cf. Brickley, Coles & Terry, supra note __, at 386-87 (board independence has significant effect on on stock price effects at pill adoption, but board independence has no significant effect on bid failure rate at companies with pills).

¹⁸² Supra note __ (table 4). Other board characteristics examined by Sundaramurthy were stock ownership of independent directors and the presence of a board with average tenure greater than that of the CEO (suggested to be a measure of the boards' loyalty to the CEO). *Id.*

3. *Performance, Financial and Asset Characteristics*

Malatesta & Walkling find that firms adopting pills in the mid-1980s had on average lower accounting profitability ratios than industry averages over the year prior to pill adoption, but not significantly different ratios over the full three-year period prior to adoption, and operating margins were not significantly different over the one-year prior period.¹⁸⁴ Strong & Meyer matched firms adopting pills with non-adopting firms in the same industry and find significantly lower price/earnings ratios and significantly higher extraordinary items and tax loss carryforwards. They also find that, as compared with year prior to the year in which pills are adopted, firms have lower stock prices and rising trading volume. Together, these findings might support a hypothesis that managers of weakly performing firms adopt pills to deter bids, but could also support a hypothesis that managers of such firms were adopting pills in response to a price/value mismatch.

On the other hand, Mallette & Fowler find that return on equity is not a significant predictor of pill adoptions.¹⁸⁵ and neither Downen, Johnson & Jensen nor Davis & Greve find a significant relationship between price/book ratios and pill adoptions in the 1980s.¹⁸⁶ Likewise, Comment & Schwert note that while the relationship between pill adoption and high liquidity and experiencing negative sales growth are statistically significant, they are

¹⁸³ Supra note __, at 1025 (table 3) (variable called “leadership structure”).

¹⁸⁴ Supra note __, at 350.

¹⁸⁵ Supra note __, at 1025 (table 3).

¹⁸⁶ Richard J. Downen, James M. Johnson & Gerald R. Jensen, *Poison Pills and Corporate Governance*, 4 *Appl. Fin. Econ.* 305 (1994) at 311 (table 3). Gerald F. Davis & Henrich R. Greve, *Corporate Elite Networks and Governance Changes in the 1980s*, 103 *Adm. J. Soc.* 1 (1997), at 24-25 (table 2). Downen, Johnson & Jensen find a significant univariate relationship, but it disappears in a multivariate regression. Supra this note, at 310-11.

economically weak.¹⁸⁷ Whatever the relationship between pill adoptions and firm performance, the relationship is neither strong nor consistent.

Turning to financial characteristics, Mallette & Fowler are unable to find a relationship between leverage and pill adoptions. However, Strong & Meyer find that firms with rising debt/equity ratios are more likely to adopt pills, and Downen, Johnson & Jensen find that firms with higher debt/equity ratios are more likely to do so. These results may be surprising if one believes that a primary motivation for bids is to impose higher levels of debt and force distribution of free cash flow, as argued by Jensen,¹⁸⁸ or that firms without defenses “keep capital structure closer to that which maximizes shareholder wealth so that the potential gain to mounting a bid is also low.”¹⁸⁹ The results are not puzzling, however, when it is recognized that pill adoption per se does not meaningfully change a firm’s takeover vulnerability. Adoptions by firms with high or increasing leverage may be better interpreted simply as a signal that managers are interested in maximizing shareholder value by using the pill to increase the firm’s bargaining power in the event of a bid, or alternatively, as a signal that managers anticipate a price decline (whether real or from a price/value mismatch) and want to signal that they will defend against any bids prompted by the decline.

¹⁸⁷ Supra note __, at 27-28.

¹⁸⁸ Michael C. Jensen, *The Eclipse of the Public Corporation*, 67 *Harv. Bus. Rev.* 61 (1989).

¹⁸⁹ Gerald T. Garvey & Gordon Hanka, *The Management of Corporate Capital Structure: Theory and Evidence*, Working Paper (1999) (on file with author) (presenting model in which firms protected from takeovers by anti-takeover laws are less likely to increase leverage, and finding firms covered by state takeover statutes acted consistently with the model, but also finding the “puzzle” that firms eventually covered by such statutes had previously had more leverage than other firms); see also W. Novaes & Luigi

Downen, Johnson & Jensen find that firms are more likely than other firms to adopt pills if they have a higher ratio of property, plant and equipment to total assets, or a higher ratio of research and development expenditures to total assets; the latter relationship was intensified by the effect of firm size (smaller firms with higher R&D were even more likely to adopt pills). They interpret the first finding as showing that firms with assets that are easily sold or converted to other uses are more likely to be takeover targets, and so more likely to adopt takeover defenses, and they interpret greater R&D intensity as causing managers to be more "concern[ed] with the long-run future of the firm," and so more willing to "protect innovative activity from outsiders."¹⁹⁰ The findings are more plausibly interpreted as signals about manager willingness to defend against bids at such firms, or about manager concerns about a value/price mismatch.

4. *Network Membership and Centrality*

Davis's study of pill adoptions in the Fortune 500 during the 1980s finds that adoption was more likely when the adopting firm had more board interlocks with other boards of Fortune 500 companies ("centrality" in a general business network), as well as when the adopting firm had more "ties" to firms that had previously adopted pills (membership in a network composed specifically of firms that had adopted pills).¹⁹¹ Davis interprets these findings as demonstrating network effects, in which social and other relationships

Zingales, Capital Structure Choice When Managers Are in Control: Entrenchment Versus Efficiency, NBER Working Paper No. 5384 (1995) (same) (on file with author).

¹⁹⁰ Supra note __, at 311.

¹⁹¹ Supra note __, at 604 (table 2) and 607-08. Similar findings are reported in a more recent study looking at pills and golden parachutes. Davis & Greve, supra note __, at 24-25 (table 2). Significantly

between firms enable faster learning. Davis finds little evidence of adoption based on "mimicry" by firms within a single industry, suggesting that pill adoptions may not be motivated either by industry-based network effects or by perceived industry-specific takeover threats.¹⁹² Despite the general positive correlation between network centrality and pill adoption, Davis also find that pill adoptions were *lower* than average at those firms with the *largest* number of interlocks with other Fortune 500 firms (which also happen to be the very largest firms: e.g., AT&T, IBM and GE).

These results are even more striking in light of the points made in Part II and Part III. The plausibility of the network account is enhanced by the recognition that pill adoption per se is not significant to takeover defense, and that pill adoption can send multiple, conflicting signals about managers' goals. Lacking clear *direct* effects, pill adoption patterns (and particularly their rapid and widespread adoption in the late 1980s) cannot easily be explained as the product of a cost/benefit calculus by managers at different firms within a simple principal/agent model. Although the network and agency models are not necessarily incompatible, Davis struggles to find evidence supporting the agency cost model, and only produces what he characterizes as "mixed" results.

The precise configuration of the networks, and the relationships between adoptions to achieve "real" (i.e., signal) effects and adoptions caused by network membership, are not

greater pill adoptions by firms with board interlocks prior-adopting firms are also found in Loh, supra note ___, at 7 (tables 2 & 3).

¹⁹² Davis & Greve, supra note ___, at 23, find a significant correlation between prior pill adoptions by Fortune 500 firms in the same one-digit SIC code, but not between firms in the same two-digit SIC code.

obvious. For example, as Davis notes, the very largest firms are less likely to be subject to a bid, given bidder resources constraints. However, this finding should not be interpreted as a basis for saying that such firms have less need of a pill for defense purposes. Rather, all it shows is that such firms have less need of adopting a pill in order to signal takeover resistance to potential bidders. Thus, the failure of very large, most-connected firms to adopt pills says nothing about the pill's efficacy, or about benefits of network membership, but only that the very largest firms may be sufficiently sensitive to shareholder interests as to refrain from taking any action that might send a signal that managers would oppose a hostile bid if it were the bid were in shareholders' interests.¹⁹³

5. *Firm Size*

Both Aboumeri and Comment & Schwert find that larger firms are more likely to have pills than are smaller firms.¹⁹⁴ By contrast, Malatesta & Walkling's early study of pills finds that firms adopting pills were not generally larger than industry averages,¹⁹⁵ Davis (1991) and Mallette & Fowler find that smaller firms were more likely to adopt pills,¹⁹⁶ and Sundaramurthy finds firm size had no significant effect on early pill adoptions.¹⁹⁷

Given the breadth of the one-digit SIC codes, the importance or best interpretation of this finding is unclear.

¹⁹³ On the other hand, given their network centrality and high status, why did the very largest firms' failure to adopt pills not deter smaller (though still large) firms from doing so? One possible answer is that firms are not only members of board networks, but also lawyer networks. The effects of the latter networks may counteract or even dominate the former for a given legal choice, particularly when the choice is complex or judgmental. I explore the effects of legal networks in *Explaining Variation*, supra note ____.

¹⁹⁴ Aboumeri, supra note __, at __; Comment & Schwert, at 27-28.

¹⁹⁵ Supra note __, at __.

¹⁹⁶ Davis, supra note __, at 603; Mallette & Fowler, supra note __, at 1025 (table 3) (size based on net sales).

¹⁹⁷ Supra note __, at __.

In Sundaramurthy's study, the nonresult on size may be caused by multicollinearity between insider stock ownership and firm size (which tend to be inversely related). Differences among the other studies may reflect the difference between early pill-adopting firms and later ones, or the "network" effect identified by Davis,¹⁹⁸ which may be more pronounced at larger firms since they are more likely to have more contacts with other adopting firms, up to a certain point, where managers are less concerned about sending signals to potential bidders than about sending signals to their existing shareholders. Alternatively, firm size may have different effects depending on other firm characteristics, such as relative R&D intensity: Downen, Johnson & Jensen, find that smaller firms are more likely to adopt pills if they also have high levels of R&D expenditures relative to total assets. Finally, the odds of a takeover bid are not likely to be monotonic in firm size: the smallest firms are less likely to generate large synergies necessary to make a hostile bid profitable; and the very largest firms are less vulnerable to takeover bids, all else equal, because of financing constraints facing bidders.

¹⁹⁸ Supra note __, at 607. But note that Davis found no size effect. See note __ supra.

D. ATAs, Bid Outcomes and Deterrence

As with pills, ATAs have not been shown to deter bids. This is not necessarily because studies looking for deterrence are out of date, as Part III.B argues is the case with ATA event studies, because all deterrence studies examined ATAs adopted prior to the widespread adoption of the pill. Thus, the failure of researchers to find consistent evidence of deterrence must either be because ATAs simply were not effective deterrents even in the pre-pill era,¹⁹⁹ or because even in the pre-pill era interactions of the sort briefly discussed in Part III.C, have impaired the ability of such studies to find evidence of deterrence.

Ambrose & Megginson estimate a logit model using cross-sectional data on a sample of 117 exchange-listed firms in the period 1981-1986 and a time-matched sample of 214 exchange-listed firms.²⁰⁰ Their model includes variables for whether each firm has a staggered board, fair price provision, dual class capitalization, blank check authorization, or poison pill. They find no evidence of deterrence.²⁰¹ Blank check authorization – the only type of antitakeover charter provision that has a business rationale unrelated to takeovers (enabling rapid issuances of stock for financing purposes) – is the only type of provision significantly negatively correlated with takeover incidence in their study.

¹⁹⁹ See note ___ supra. [Flom quote.]

²⁰⁰ Brent W. Ambrose & Williams L. Megginson, The Role of Asset Structure, Ownership Structure, and Takeover Defenses in Determining Acquisition Likelihood, 27 J. Fin. & Quant. Anal. 575 (1992).

²⁰¹ See also Keown, MacDonald & Pinkerton, An Empirical Examination of the Informational Effect of Antitakeover Amendments, Working Paper (1986) (firms that adopt ATAs and do not experience bids in two subsequent years experience negative abnormal returns over that period, suggesting that the market expects a *greater* likelihood of bids following ATA adoption), cited in Agrawal & Mandelker, supra note ___, at 158.

Bhagat & Jefferis examine 344 firms that adopted staggered board provisions, poison pills and fair price amendments in the period 1984-1985, and find little evidence that such terms reduce takeover activity in the two years following adoption.²⁰² Comment & Schwert – in addition to finding little evidence that pills deter takeover bids – find that coverage by control share and business combination laws, which are similar in effect to supermajority and fair price charter provisions, actually appear to increase takeover probabilities slightly, holding other factors constant (including the year in which takeover activity is measured, the presence of poison pills, size and various accounting and market performance variables).²⁰³

The only study of ATAs purporting to find evidence of takeover deterrence is by John Pound.²⁰⁴ He compared bid incidence and outcomes of 100 NYSE firms that had adopted supermajority requirements for mergers and staggered board amendments (as a package) in the period 1973-1979 and the hostile tender offer experience of a time-matched sample

²⁰² Sanjai Bhagat & Richard H. Jefferis, Voting Power in the Proxy Process: The Case of Antitakeover Amendments, 30 J. Fin. Econ. 193 (1991).

²⁰³ Comment & Schwert, supra note __, at 29.

²⁰⁴ Kenneth A. Borokhovich, Kelly R. Brunarski & Robert Parrino, CEO Contracting and Antitakeover Amendments, 52 J. Fin. 1495 (1997) report at 1502 that six bids were launched of the firms their sample of 129 firms that adopted ATAs 1978-1987 during the three years after ATA adoption, compared to 17 bids for a sample of firms matched by total assets and four-digit asset size, a statistically significant difference. But as they note, while they control for firm size and industry, these results do “not necessarily indicate that ATAs themselves are effective deterrents.” Field, supra note __, examines 1,019 industrial firms that went public 1988-1992, and finds that firms with anti-takeover provisions are significantly less likely to be acquired in friendly acquisitions in the five years following the IPO, but does not present evidence of *hostile* bid deterrence, which is not surprising given that insiders of IPO firms tend to own control blocks following the IPO, that few hostile bids were made in the early 1990s, and that hostile bids are a small fraction of overall deal activity.

of 100 NYSE firms that did not adopt either type of amendment.²⁰⁵ From adoption through 1984 (averaging eight years), he finds bid frequency is 28% for adopting firms and 38% for nonadopting firms.²⁰⁶ Because Pound was studying hostile tender offers in the pre-pill era, the causal connection between the amendments in his study and lower bid frequency is unclear. In a tender offer for a target without a pill, a bidder acquires stock without the need for a proxy fight to secure control of the board, and without the need for a merger. It is possible that the amendments might have interfered with back-end mergers designed to eliminate shareholders after a first-step tender offer was completed, but Pound also reports that firms with these amendments experienced a *higher*-than-average frequency of partial or two-tier bids, suggesting that the relationship between ATAs and bid incidence is not attributable to deterrence of two-tier bids.²⁰⁷ Without more, and especially in light of later studies of more recent amendments, Pound's study is unconvincing evidence of deterrence.²⁰⁸ If takeover defenses deter hostile bids, it remains unproven.

²⁰⁵ John Pound, *The Effects of Antitakeover Amendments on Takeover Activity: Some Direct Evidence*, 30 J. L. & Econ. 353 (1987).

²⁰⁶ *Id.* (table 1).

²⁰⁷ *Id.* (table 3). In addition, it is rare for directors (even on a staggered board) to remain in office once a bidder has acquired majority ownership. See Coates, *Studying Contestability*, *supra* note __; Gilson, *supra* note __, at __; P. Davey, *Defenses Against Unnegotiated Cash Tender Offers*, Conference Board Rep. No. 726 (1977) (“directors hostile to the new owners of a company on whose board they serve would resign immediately following a successful tender offer”). Likewise, once majority control is obtained, standard supermajority merger requirements would not prevent a majority shareholder from buying sufficient shares directly from the firm to obtain the needed supermajority vote. In other words, ATAs do little to deter bidders genuinely determined to pursue two-tier bids.

²⁰⁸ Pound did not control for many factors likely to affect bid incidence, such as firm growth, industry and age. Even Pound's attempt to control for size was, as he acknowledges, “rough.” *Id.* at 320. His argument that ATA adoption will occur in industries experiencing high takeover activity, so that a control for industry would be counterproductive, is unconvincing. Takeover activity across industries varies over time, so ATAs could be adopted when activity is high, creating the (spurious) impression that they have deterred bids in later periods, when bid activity in that industry has fallen off, and activity in other industries has increased. Such controls are critical when, as discussed in the text, no clear causal mechanism exists between dependent and independent variables. See also note __ *supra* (Borokhovich et al).

E. Characteristics of Firms Adopting ATAs

As with pill studies, a number of ATA studies look for relationships between ATA adoption and other firm characteristics, such as ownership, board structure, operating performance and firm size. With one exception (Danielson & Karpoff's study of anti-takeover provisions in 1989), such studies examine ATAs in the pre-pill era, and most solely or primarily examine fair price and supermajority provisions. Thus, generally speaking, findings from these studies do not bear on the current effects of antitakeover provisions. Nevertheless, the relationships between ownership structure, board structure, and governance structure are of independent interest (even abstracted from direct effects of such provisions), as is the historical development of the market for corporate control. The results of these studies are briefly reviewed, together with evidence from the Investor Responsibility Research Center on ATAs and governance provisions in the 1990s.

1. Ownership

Institutions. Brickley, Lease & Smith's study of 201 ATA votes in 1984 finds that firms with higher institutional ownership encountered higher negative votes on antitakeover charter amendments, results intensified when institutions are partitioned into "pressure-sensitive" and "pressure-insensitive."²⁰⁹ Sundaramurthy's study of mid-1980s charter

²⁰⁹ James A. Brickley, Ronald C. Lease & Clifford W. Smith, Jr., Ownership Structure and Voting on Antitakeover Amendments, 20 J. Fin. Econ. 267 (1988), at 272 (table 1) & 277-78 (table 2). The authors divide ATAs using event study methodology into those having positive and those having negative price

amendments, described above,²¹⁰ finds higher levels of institutional ownership decreased the rate of charter amendment adoption.²¹¹ Bhagat & Jefferis find that adopting firms have higher levels of institutional ownership than a matched sample of nonadopting firms,²¹² but institutional ownership falls from significance in multivariate regressions.²¹³ Jarrell & Poulsen (1987) find a positive correlation between institutional ownership and fair price amendments, which they interpret as evidence that such amendments are beneficial,²¹⁴ but in an earlier study the same authors find that the average stockholdings of institutions in firms adopting any of various amendments (including fair price amendments) are below average.²¹⁵ In a more recent study (but still focusing on pre-pill-era ATAs), Sundaramurthy & Rechner recently find a negative correlation between institutional owners and fair price amendments, which they suggest shows that institutional investors actually prefer two-tier bids, since institutions are more likely to

effects upon announcement, and find that institutions are more active and vote more negatively when stock price reactions to proposals are negative, but as noted in **Table 2** supra, do not find significant price reactions to ATAs overall, or to particular types of amendments, even after attempting to exclude amendments with confounding events. Further, 95% of the ATAs in their sample were approved by the requisite vote, so that the significance of these differential voting results is unclear. Finally, they are unable to reject the hypothesis that voting results are unaffected by the particular type of charter amendment, other than proposals to add a class of preferred stock. *Id.*, at 272-73.

²¹⁰ Sundaramurthy, supra note __ (table 4).

²¹¹ Firms that had previously adopted ATAs were (not surprisingly) less likely to adopt additional ATAs in the same time period. Sundaramurthy, supra note __ (table 4). A later study, Chamu Sundaramurthy, Paula Rechner & Weiren Wang, *Governance Antecedents of Board Entrenchment: The Case of Classified Board Provisions*, 22 *J. Mgt.* 783 (1996), at 793, found similar negative effects between institutional ownership and staggered board ATAs. Agrawal & Mandelker, supra note __, at 152, however, found no correlation between institutional ownership and firms adopting ATAs.

²¹² Supra note __, at 208.

²¹³ Supra note __, at 214.

²¹⁴ Jarrell & Poulsen, supra note __, at __. Agrawal & Mandelker, supra note __, at __, also found a positive correlation between institutional ownership and stock price reactions, as did Lauterbach, Matlitz & Vu, supra note __ at 505-09 for 27 firms subject to prior takeover speculation over 20-day pre-event and two-day event intervals, but the latter study also found a negative correlation for the same sample over a 20-day post-event interval, and no correlation over any interval for 231 firms subject to no takeover speculation and for 46 firms that become subject to post-event takeover speculation or bids.

²¹⁵ Jarrell & Poulsen (1986), supra note __, at 45. In this earlier study, the authors did show that institutional holdings were higher at firms adopting fair price ATAs than at firms adopting other types of

know about and be able to tender into the first-step tender offer.²¹⁶ Duggal & Millar (using Brickley, Lease & Smith’s categorization of institutions) find that “pressure-indeterminate” institutions increase the likelihood that a firm will adopt a pill or non-fair price ATA rather than a fair price or cash pay-out ATA (and find no significant relationship between defense type and other types of institutions).²¹⁷ Borokhovich, Brunarski & Parrino (1997) find no difference in the holdings of outside blockholders at firms that adopt ATAs compared to a control sample matched by size and industry.

Interpreting this mix of results is difficult. Selection bias will skew relationships between ownership and amendments because amendments require shareholder approval: failure to obtain approval imposes reputational costs on managers, so managers will decline to propose amendments not likely to be approved (evidence supporting this claim is discussed below). Likewise, shareholders can be expected to anticipate likely voting patterns by other shareholders, which may in turn cause them to alter their votes (or decline to vote at all). Brickley, Lease & Smith, for example, find that over 95% of mid-1980s amendments were approved, usually by wide margins, making “no” votes largely symbolic and of uncertain meaning. Consistent with a lack of relationship between institutional ownership and takeover defenses more generally, Danielson & Karpoff study all antitakeover provisions (ATPs) (not just ATAs) at S&P 500 companies in 1989: they

ATAs, but institutional holdings at adopting firms is still only 29%, nearly the same as for adopting firms overall, and (as the authors note) “below average” for all public firms. *Id.*

²¹⁶ Chamu Sundaramurthy & Paula Rechner, *Conflicting Shareholder Interests: An Empirical Analysis of Fair Price Provisions*, 36 *Bus. & Soc.* 73 (1997), at 77 & 82.

²¹⁷ Duggal & Millar, *supra* note __, at 396 (table 4). The authors do not describe the ATAs they examined, nor do they carefully explain their methodology for dividing defenses into “wealth-enhancing,” “wealth-neutral” and “wealth-increasing,” which they then use in their model, so their results should be viewed skeptically.

find no relationship between institutional ownership and the presence of antitakeover charter provisions.²¹⁸

Still, as reflected in **Table 4**, the rise of institutional investor activism has paralleled, and has contributed to, a decrease in the number of new ATAs adopted.²¹⁹ Starting in the late 1980s, institutional shareholders began (and they continue) to actively oppose ATAs and poison pills by making shareholder proposals to eliminate such defenses.²²⁰ The dramatic fall-off during the 1990s strongly supports the view that as institutions have organized and taken a more aggressive role in corporate governance, their opposition to ATAs has become predictable, which has led in turn to the general decline of such amendments.²²¹ Some amendments continue to be adopted, however, and it is not clear whether managers have correctly anticipated institutional opposition, or are simply averse to the risk of such opposition.

Whether institutional shareholder opposition, if general, would tell us anything about the value effects of ATAs (as Jarrell & Poulsen (1987) argue) is less certain. The absence of strong deterrence evidence, as well as the analysis reflected in Part III.C, suggests that value effects of any one ATA – without considering their impact on a firm’s full set of

²¹⁸ Supra note __, at __. See also Agrawal & Mandelker, supra note __, at 152 (same finding for ATAs adopted in period 1979-1985).

²¹⁹ Part of the decline in new ATA adoptions may be attributable to their widespread adoption by large public companies; however, at least a third of the companies tracked by IRRC do not have staggered boards, and over two-thirds lack fair price provisions or supermajority vote requirements. See IRRC, Corporate Takeover Defenses 1995 & 1997.

²²⁰ See **Table 4**; see also John M. Bizjak & Christopher J. Marquette, Are Shareholder Proposals All Bark and No Bite? Evidence from Shareholder Resolutions to Rescind Poison Pills, 33 J. Fin. & Quant. Anal. 499 (1998) (analyzing increase in poison pill redemption proposals by institutional shareholders).

governance terms – will be weak at best. Institutional investors suffer from their own agency problems: various authors have hypothesized ways in which these problems can cause institutional investors to take less aggressive stands against takeover defenses,²²² but agency problems can also plausibly cause institutions to be more aggressive than firm wealth maximization would dictate.²²³ Individuals at these institutions may have found a profitable role for themselves opposing such amendments without regard to whether they have good evidence showing that amendments are value-destroying or value-enhancing, and such a role could be expected to persist as long as a plausible (if non-falsifiable) story can be told about ATAs destroying value, and strong evidence does not exist either way. In addition, as Sundaramurthy & Rechner argue, institutional shareholders do not always have the same interests as other shareholders.²²⁴

Insiders. Borokhovich, Brunarski & Parrino find that CEO ownership is significantly lower at adopting firms than a matched sample, but most other studies have failed to find a direct and significant correlation between insider ownership defined more broadly and

²²¹ On the rise of institutional shareholders and their organization around takeover defenses, see generally Davis & Thompson, *supra* note __.

²²² E.g., Bernard S. Black, Shareholder Activism and Corporate Governance in the United States, in *The New Palgrave Dictionary of Economics and the Law* (Peter Newman, ed., 1998); John C. Coffee, Jr., Liquidity Versus Control: The Institutional Investor as Corporate Monitor, 91 *Colum. L. Rev.* 1277 (1991); John C. Coffee, Jr., The Folklore of Investor Capitalism, 95 *Mich. L. Rev.* 1970 (1997) (review of Michael Useem, *Investor Capitalism: How Money Managers Are Changing the Face of Corporate American* (1996)); Jarrell, Ryngaert & Poulsen, *supra* note __, at 8.

²²³ See, e.g., Barry Rehfeld, *The Badgering State*, *Institutional Investor* 66 (June 1999) (noting that State of Wisconsin Investment Board is one of the most aggressive institutional investors, and generally opposes takeover defenses, yet its average annual returns in the 1990s falls below the median for all pension funds). Cf. Edward B. Rock, *The Logic and (Uncertain) Significance of Institutional Shareholder Activism*, 79 *Geo. L.J.* 445 (1991) (making general point about possible divergence between activist “entrepreneurs” and institutional shareholders they advise).

²²⁴ *Supra* note __, at 77.

the adoption of ATAs or the presence of ATPs.²²⁵ Brickley, Lease & Smith find that inside ownership was positively correlated with votes for such amendments, and McWilliams (1990) finds stock price reactions to certain types of amendments were negatively related to insider ownership. The latter finding was confirmed by McWilliams & Sen (1997), who were also able to show that it is ownership by inside directors (rather than outside directors or non-director officers) that is responsible for the different event study reactions. Such findings should be interpreted with care: if ATAs have mixed wealth effects (fewer bids, but higher rent extraction from bidders), one would think higher levels of inside ownership would improve managers' incentives to use ATAs to improve rather than harm shareholders. Perhaps the disparate ATA effects can be best explained as a temporary phenomenon in which institutional shareholders (who may as noted above be more opposed to ATAs than individual shareholders) sell their holdings in response to ATA proposal (an explanation that depends on the existence of downward sloping short-term demand curves for a given firm's stock).

²²⁵ See Agrawal & Mandelker, *supra* note __, at 155; Danielson & Karpoff, *supra* note __, at 365; Sundaramurthy, *supra* note __, at __; Jarrell & Poulsen, *supra* note __, at __; Sundaramurthy, Rechner & Wang, *supra* note __, at 795. Bhagat & Jefferis, *supra* note __, at 205, find a negative relationship, but attribute the difference to firm size, *id.* at 206. Danielson & Karpoff did find that low insider ownership and high proportion of independent directors are positively related to the presence of blank check preferred stock authorization provisions. *Id.* at 366. This finding is less likely to have anything to do with takeover defense and more likely to be attributable to the fact that at firms with high levels of insider ownership, financing flexibility is less important because insiders can approve preferred stock issuances as needed, whereas in firms with low levels of insider ownership, it is more time-consuming and difficult to obtain shareholder approval of preferred stock issuances on a timely basis, since doing so will require a shareholder meeting and proxy statement. Cf. Brickley, Lease & Smith, *supra* note __, at 275 (finding that institutional ownership is negatively correlated with votes against proposals for the creation of preferred stock).

2. *Board and Management Characteristics*

The proportion of independent directors has no effect on ATA adoption in Sundaramurthy's study of adoptions in the mid-1980s, a (non)result consistent with older studies,²²⁶ and with recent studies by Sundaramurthy, Rechner & Wang of staggered board amendments in the period 1978-1988,²²⁷ Sundaramurthy & Rechner of fair price amendments in the period 1984-1988,²²⁸ Danielson & Karpoff of takeover defenses in 1989,²²⁹ and Field's study of ATPs at firms going public 1988-1992.²³⁰ The consistency of these (non)results suggests that Borokhovich, Brunarski & Parrino – who find that firms adopting staggered board or fair price ATAs 1978-1987 had significantly more outside directors than a control sample matched by size and industry – may be a fluke, or reflect some underlying causal factor not controlled for in their study. One isolated but interesting finding is that the presence of a board with average tenure less than that of the CEO – suggested by Sundaramurthy as a better measure of the board's loyalty to the CEO and thus of their independence and degree of shareholder-orientation – made it more likely that fair price provisions would be adopted.²³¹

²²⁶ See Davis, *supra* note __, at __; Mallette & Fowler, *supra* note __, at __.

²²⁷ Sundaramurthy, Rechner & Wang, *supra* note __, at 793. This study does find a marginally significant negative effect on rate of adoption at firms with more outside directors, counting as “insiders” individuals with personal or professional connections to the firm (although they do not detail their method of identifying and classifying such connections). *Id.*

²²⁸ *Supra* note __, at 82-83 (tables 1 & 2).

²²⁹ *Supra* note __, at __. They did find a relationship between independent directors and blank check authorization. See note __ *supra*.

²³⁰ *Supra* note __, at __.

²³¹ Compare Sundaramurthy's other findings, *viz.*, that relative board/CEO tenure has no effect on pill adoptions, *id.* (table 4) and his argument that institutional ownership reduces ATAs and not pills because the former but not the latter require a shareholder vote, *id.*, at 389. Presumably, boards that are “loyal” to

Beyond board independence, the most striking thing about the studies is the contrast between findings relating to ATAs adopted “midstream” after a firm has gone public, and findings relating to antitakeover provisions (ATPs) adopted prior to a firm going public. In Sundaramurthy’s study, stock ownership of independent directors had no effect on the adoption of ATAs (nor did a split between the chairman and CEO roles), but Field finds that at firms going public 1988-1992 firms ATPs tended to have directors with slightly lower stock ownership (23%) than firms without ATPs (26%) ($p < .05$). Field finds that CEOs of IPO firms with ATPs had two years longer tenure than firms without ATPs, on average, but were approximately the same age, but Borokhovich, Brunarski & Parrino find no relationship between CEO tenure at a sample of firms adopting ATAs and a sample matched by size and industry.²³² Another contrasting finding is that Field finds no difference in CEO compensation for firms with ATPs at the time of the IPO, whereas Borokhovich, Brunarski & Parrino find that CEOs of firms adopting ATAs receive significantly higher cash and option compensation in the fiscal year preceding adoption, (and are twice as likely to be protected by a “golden parachute” than the control group).²³³ These contrasting (non)findings persist when Field controls for average industry compensation, and when both Field and Borokhovich, Brunarski & Parrino control for

the CEO (as measured by having a lower average tenure than the CEO) would be even more likely to approve pills than ATAs, given the lack of shareholder approval as a constraint.

²³² Supra note __, at 1507. The authors interpret the CEO’s tenure as a director as a proxy for firm-specific human capital, following David Mayers and Clifford W. Smith, Jr. *Executive Compensation in the Life Insurance Industry*, 6 J. Bus. 51 (1992). It is not clear why the authors believe tenure as a director is a better proxy than simply tenure at the firm.

²³³ Supra note __, at 1503. They interpret the latter finding as contrary to the theory of Charles R. Knoeber, *Golden Parachutes, Shark Repellents, and Hostile Tender Offers*, 76 Am. Econ. Rev. 155 (1986), that parachutes and takeover defenses are substitute mechanisms for protecting deferred compensation.

firm size, pre-tax-earnings/book, CEO tenure, and the percentage of outside and CEO and outside blockholder ownership (among other things). In Borokhovich, Brunarski & Parrino, the average difference in the ATA-firms' CEO's annual cash compensation in the year of adoption is roughly \$30,000 (growing to \$80,000 per year over the next two years), and when option value is added, the difference after one year is \$87,000.

Overall, manager and board characteristics show different effects in different studies. These differences may reflect the difference between the contracting settings – midstream adoptions present collection active problems that are at least not obviously present when firms go public – or underlying differences in the types of firms that adopt ATAs midstream and firms that adopt ATPs prior to an IPO, or underlying differences in the preferences of managers of the two types of firms. Alternatively, the contrasting IPO/midstream findings may simply reflect (as argued in Part III) the dramatically lower importance of the principal types of defenses studied (fair price and supermajority provisions) after the pill became widely adopted in the late 1980s. If such provisions ceased to be of much relevance to investors around 1988 (after the end of the sample period in Sundaramurthy and Borokhovich, Brunarski & Parrino, but the beginning of Field's sample period) then the studies will reflect very different investor reactions and contracting forces. Thus, the implications of these findings for evaluating *either* midstream ATAs or ATPs in initial charters remain unclear.

3. *Operating Performance*

However, golden parachutes are effectively capped by tax law at 3x salary, and may not fully protect

Borokhovich, Brunarski & Parrino find that adopting firms have statistically similar stock price performances but significantly higher ratios of pre-tax earnings/book assets than the control sample (after subtracting average performance for firms with the same two-digit SIC code), and thus implicitly lower price/earnings ratios. These findings are consistent both with the market taking a relatively dim view of current management (i.e., higher earnings are not being rewarded with higher stock prices), but also with managers' worrying about a possible price/value mismatch.²³⁴ On the other hand, the authors note that adopting firms outperform industry averages both in the two years prior and the three years after adoption. In addition, the authors examine the adopting firms' book/value ratios (book assets to market value of equity plus book liabilities) as a proxies for growth opportunities (the lower the ratio, the higher the expected growth opportunities), and find that adopting firms have significantly better (lower) ratios. Field also finds that firms adopting ATPs prior to an IPO have significantly better ratios of operating income to total assets in the year prior to the IPO, have fewer years of negative operating income prior to the IPO, are older, have lower liabilities, are less likely to be in the product development stage, and have higher quality underwriters. Together, these findings seem hard to reconcile with a simple story that predicts takeover defenses are adopted by underperforming managers to stave off discipline by the market for corporate control.

deferred compensation, making them partial complements of defenses.

²³⁴ Supra note __, at 1505 (table II).

4. *Firm Size*

Sundaramurthy finds larger firms less likely to adopt charter amendments than smaller firms, consistent with prior studies.²³⁵ In contrast, Brickley, Lease & Smith. find that, after controlling for the level of inside and outside blockholders, the level of support for antitakeover charter amendments increases with firm size.²³⁶ Field finds that increasing firm size increases the likelihood of ATP adoption prior to an IPO, although the effect is sensitive to seemingly unrelated variables in the model chosen.²³⁷ Sundaramurthy & Rechner find size has no effect on fair price amendment adoption.²³⁸ As with pills, different size effects are likely at work here: the smallest firms (particularly the smaller firms in a sample of IPOs, which tend to be smaller than established companies on average) are less likely to generate large synergies necessary to make a hostile bid profitable; the largest firms are less vulnerable due to financing constraints. In addition, larger and older firms will have more dispersed shareholders, who more likely to be rationally apathetic and supportive of management, even when they propose ATAs.

5. *Post-Adoption R&D and Investment*

An initial study by Muelbroek et al. (1990) find that firms adopting ATAs do not after adoption increase expenditures on research and development (R&D) relative to sales as

²³⁵ Davis, supra note __, at __, and Mallette & Fowler, supra note __, at __.

²³⁶ Supra note __, at 274.

²³⁷ Supra note, at 42 (table 10).

²³⁸ Supra note __, at 83.

much as other firms in their industries.²³⁹ Pugh et al. (1992), however, were unable to reconstruct Muelbroek et al.'s sample or reproduce their results, and find instead that firms increase both capital investment intensity and R&D intensity following ATA adoption, both absolutely and relative to industry averages.²⁴⁰ Mallette (1991) finds that ATAs affect neither R&D nor capital investment more generally.²⁴¹ McWilliams (1992) finds that firms that propose such ATAs do not have Tobin's q ratios that are significantly differently from q ratios of non-proposing firms, whether before or after adoption.²⁴²

Conclusion

Despite the existence of two prior event studies of ATAs showing weak or positive price reactions, despite the fact that no such studies have ever shown any strong or consistent price reactions (and no result remotely close to that predicted by an agency cost theory of managerial entrenchment), event studies of pills published in the mid-1980s have set the

²³⁹ Lisa K. Muelbroek, Mark L. Mitchell, J. Harold Mulherin, Jeffry M. Netter, & Annette B. Poulsen, Shark Repellents and Managerial Myopia: An Empirical Test, 98 J. Pol. Econ. 1108 (1990) (study of 554 firms adopting ATAs 1979-1985, examining changes in R&D relative to sales in years +1, +2 and +3 following ATA adoption, independently and relative to average changes in R&D in market and industry categories).

²⁴⁰ William N. Pugh, Daniel E. Page, & John S. Jahera, Jr., Antitakeover Charter Amendments: Effects on Corporate Decisions, 15 J. Fin. Res. 57 (1992) (study of 376 firms adopting ATAs 1978-1985, examining cumulative change in percentage of fixed capex to sales and R&D to sales in years 0, +1, +2 and +3 after amendment, independently and relative to average changes in capex and R&D in market and industry categories). Pugh et al. specifically attempted to reproduce Muelbroek et al.'s results, and were unable to do so.

²⁴¹ Paul Mallette, Antitakeover Charter Amendments: Impact on Determinants of Future Competitive Position, 17 J. Mgt. 769 (1991) (comparison of 89 firms adopting ATAs 1983-1984 with control groups of non-adopting firms matched by SIC code, sales, assets, employees, return on equity and assets, growth in sales, assets and employees and R&D intensity and capital investment intensity; estimation of R&D and capital investment intensity in two years following ATA adoption). Mallette does not note or reconcile his results with either those of Muelbroek, et al. or Pugh et al.

tone for all subsequent academic discourse on the topic, whether positive or normative, theoretical or empirical. Worse, event studies of defenses were seriously flawed in three ways that have gone unnoticed: pill adoptions are wrongly assumed to have a direct impact on legal takeover vulnerability; ATA studies are of historic interest but of little importance in the post-pill era, and even if otherwise well-designed tell us little about the effects of ATAs in the current (post-pill) era; and none of the studies has adequately taken account of the ways that defenses interact. These three flaws have also afflicted non-event studies, so that the general failure of researchers to find strong or consistent relationships between firm characteristics and defense adoptions is, in hindsight, not surprising.

Researchers have failed to find consistent evidence that either pills or ATAs deter bids, and although pills appear to correlate consistently and strongly with higher premiums for target firms, the correlation almost certainly masks some other as-yet-unproven cause rather than the effect of pills themselves. Neither pills nor ATAs consistently correlate with institutional ownership, independent directors, CEO/chairman splits, or firm size. ATA adoptions show no strong correlations (either way) with firm performance or the intensity of R&D or capital investment.

Some evidence also supports the idea that pills are adopted by firms with higher leverage. Pill adoptions in the 1980s triggered larger negative price reactions at firms with fewer independent directors, and ATA adoptions in the 1980s triggered larger negative price

²⁴² Victoria McWilliams, Tobin's q and Antitakeover Charter Amendments, Working Paper (1992),

reactions at firms with higher levels of insider ownership. But interpreting these findings is difficult once it is recognized that investors were reacting to signal rather than wealth effects.

The strongest empirical finding on pills to date seems to be that they are adopted by firms that are located more "centrally" in networks of directors of *other* adopting firms and of networks of directors of Fortune 500 (but not the very largest) firms, suggesting that pill adoptions are more strongly influenced by network effects than by wealth effects. In addition, there are some interesting, discrepant effects of midstream adoption of ATAs, on the one hand, and initial adoptions of ATPs prior to IPOs, on the other hand. ATAs in the mid-1980s are significantly correlated with higher CEO compensation, but not with board ownership or CEO tenure; pre-IPO ATPs IPOs in the late 1980s and early 1990s are significantly correlated with lower board ownership and longer CEO tenure, but not with CEO compensation.

Where does this largely critical review of the scientific evidence on takeover defenses leave us? First and obviously, future research should correct for, or at least take account of, flaws identified in this paper. ATA event studies are now largely moot, given the relative infrequency with which firms adopt ATAs midstream. Pill adoptions should be recognized for what they are – nothing but signals at the vast majority of firms – and what they are not – alterations in the legal takeover vulnerability of the adopting firm. Even when the point of the study is to look for *different* price reactions to pill adoptions

cited in McWilliams (1994), supra note ____.

by different subsets of firms (and so explore other firm traits, like board independence and insider ownership), research needs to recognize that, based on the scientific evidence produced to date, pill adoption cannot proxy for "management entrenchment." For the same reason, pill adoptions cannot proxy for "majority rule for takeover bids" or "higher extraction of surplus," as the pill premium studies might suggest. Given the multidirectional signals that pill adoptions can send, future event studies should use two-stage or conditional estimations if they are to discriminate between different possible signal effects.²⁴³

That leaves less direct but potentially more productive research methods. The search for scientific evidence of the wealth effects of defenses should shift from pills and ATAs to ATPs, and from fair price and supermajority ATPs to staggered boards and other ATPs that continue to have an effect on takeovers in the post-pill era. To select among ATPs for study, better models of the way in which ATPs affect takeovers (built on case studies and field research) need to be created and used.²⁴⁴ Relationships between firm traits and ATPs adopted prior to IPOs should be explored, and these results should be compared to the distribution of ATPs among more mature firms, to explore the possibility that ATPs are efficient generally, or efficient for some subset of firms.

²⁴³ See generally E. Eckbo, V. Maksimovic & J. Williams Consistent Estimation of Cross-Sectional Models in Event-Studies, 3 Rev. Fin. Stud. 343 (1990); S. Acharya, Value of Latent Information: Alternative Event Study Methods, 48 J. Fin. 363 (1993); N.R. Prabhala, Conditional Methods in Event Studies and an Equilibrium Justification for Standard Event-Study Procedures, 10 Rev. Fin. Stud. 1 (1997). It may be impossible to redesign pill adoption studies to produce meaningful information if researchers cannot devise adequate proxies for the different types of signals pill adoption may send.

²⁴⁴ Such a model is presented in Coates, Studying Variability, supra note ____.

At least three other areas of useful empirical research on takeover defenses seem promising. First, as noted in Part IV, the evidence of the "direct effects" of defenses on bid incidence and outcome is mixed, and the studies to date have been flawed by failing to account for interactions among defenses. Such studies are also in need of updating, to reflect the very different market for corporate control in the post-pill era. Second, hazard models can be used to look for relationships between pill adoptions and firm or other variables as way of teasing apart the varied signal effects that pill adoptions can have, to examine the importance and role of networks on firm behavior, and to explore the way that legal innovations spread. Finally, the foregoing critique of the scientific evidence on takeover defenses raises questions (or "meta" questions) about the social sciences more generally. Why did so many academics misread event studies as persuasive evidence that takeover defenses are harmful to shareholders?²⁴⁵ Why were such studies – which as their authors noted at the time produced weak results,²⁴⁶ results that in fact were so weak as to cast serious doubt on the implicit model of how defenses work – taken instead as proof of a hypothesis (management entrenchment) vigorously denied by defense proponents?

²⁴⁵ See note __ supra.

²⁴⁶ See sources cited in note __ supra.