

Effects of Antitakeover Defenses on Value in the Pharmaceutical Industry

Isaac Wanasika
University of Northern Colorado

Yam B. Limbu
Montclair State University

Previous studies have found mixed results regarding the effects of antitakeover defenses on firm value and performance. Few studies have identified effects of antitakeover defenses on specific industries. Over the past two decades, there have been mergers and acquisitions and other strategic shifts in the pharmaceutical industry that are unique and of interest to scholars and practitioners. It is worth investigating how pharmaceutical firms protect value in the course of these activities. This study explores the effects of antitakeover defenses on economic value and performance in the pharmaceutical industry. Our results show a positive effect of antitakeover mechanisms on firm performance. Tobin's Q is higher when companies incorporated in Delaware use poison pills.

INTRODUCTION

This study explores effects of antitakeover defenses on economic value in the pharmaceutical industry. The pharmaceutical industry offers a unique perspective for identifying and analyzing the potency of antitakeover instruments. Over the past decade, there have been significant shifts in the industry that are unique and of interest to scholars and practitioners. There is intense competitive pressure from emerging economies, especially the BRIC countries (Gassman, Reepmeyer & Zedtwitz, 2008), saturated western markets, pressure to reduce costs and pricing of basic drugs. These conditions have forced big pharma to reconsider its business model (Chesbrough, 2007; Gilbert, Henske & Singh, 2003). Within the pharmaceutical industry, there has been strategic realignment through restructuring activities including mergers and acquisitions (Ornaghi, 2009) as major corporations continuously reposition themselves as they identify more viable strategies. Drug development pathways have undergone a major transformation, characterized by outsourcing of core businesses, incorporation of generics in the price-performance envelope by big pharma (Reiffen et al., 2007) and a move to increase the speed to market. Despite the constraints and burdens of being a mature industry, pharmaceutical firms have performed relatively well. The year 2012 was of historic significance for the pharmaceutical industry, with a patent cliff affecting major blockbusters such as Lipitor, Plavix, Seroquel, Singulair and Actos (Nicholls, 2011). It is expected that over \$29 billion of sales revenues from these blockbusters have been exposed to generic competition.

The competitive dynamics in the industry are contextualized by heavy upfront investments that are required to develop new drugs and related processes. There is also inordinate reliance on patents for value and innovation as a source of competitive advantage. On the other hand, extreme outsourcing initiatives

have exposed big pharma to disproportionate risks of protecting intellectual property, while striving to maximize internal efficiency. Although generic manufacturers will be the major beneficiaries, big pharma continues to undergo major strategic realignments. These unique characteristic are likely to create additional uncertainty, a dissonance between intrinsic and perceived value and subsequently motivate antitakeover actions such as poison pills. The purpose of this paper is to examine the effects of various antitakeover defense mechanisms namely poison pills, antitakeover index, and blank check preferred stock on the firm's value and performance. Past studies have analyzed antitakeover defenses from a global perspective and only a few have looked at specific industry effects. This study moves to new frontiers by analyzing a select number of antitakeover mechanisms in the pharmaceutical industry. An alternative rationale for antitakeover defenses is developed through a transaction cost economics (TCE) approach.

The use of antitakeover defense mechanism has continued to decline over the years (Subramanian et al., 2009), in part due to increased corporate governance activity and as a result of market corrections rendering the potency of such pills ineffective. However, most major pharmaceutical firms have some form of antitakeover provision in place. We examine the value-effect of these provisions and whether they are strategically significant and relevant from a performance and value perspective. Using data from S & P Capital IQ, we explore major pharmaceutical companies that have antitakeover provisions, the depth of such provisions and whether there are implications on performance and value. Our secondary objective is to investigate the effect of state of incorporation in the relationship between antitakeover defense mechanisms and firm value. The rationale for investigating moderators is based on mixed findings in existing literature. We submit that that these findings, might be in part, due to moderating effects of pertinent variables.

THEORETICAL FOUNDATIONS AND RELEVANT LITERATURE

Corporate antitakeover defenses owe their origins to the poison pill. A poison pill is a shareholder rights plan that has the effect of increasing the costs of takeover unless the process is sanctioned by managers. The poison pill was first used by Martin Lipton of Wachtell, Lipton Rosen and Katz in 1982 (Lipton, 1987). Lipton invented the pill in response to a proliferation of corporate raiders in the 1970s. Corporate raids were so pervasive in the 1980s that 30% of all fortune 500 firms received a hostile takeover bid (Coates, 1999). The original intent of the poison pills was not to prevent corporate takeover, but to buy management time to consider the consequences of a takeover on other stakeholders and the longtime implication on firm value (Lipton & Rowe, 2001). Behind the impetus to invent the poison pill, was the view that efficient market hypothesis had led to market failure. Specifically, the invisible hand of the market was ill-equipped to confront the wave of hostile bids by corporate raiders, who were in some cases armed with junk bonds or even the targets' own assets (Lipton & Rowe, 2001).

Poison pills tend to delay, make it costly and occasionally deter raiders from taking over the target firm. One of the main attractions of using pills is that they do not require shareholder approval (Danielson & Karpoff, 2006). Management, through the board of directors, can launch a poison pill or remove it at their own discretion. Scholars have evaluated the overall effects of these actions from different perspectives. As shown in Table 1, empirical findings on the effects of pills on firm value are mixed. Over time, shareholders have increasingly sought to have a say on when poison pills should be activated and have, in some cases, punished those executives in favor of such provisions.

This study analyzes antitakeover defenses from a TCE perspective. Previous studies have submitted two main theoretical frameworks; shareholder and managerial entrenchment perspectives. Following the original intent of antitakeover defenses (Lipton, 1979), the firm would buy time to be utilized in negotiating the best offer while scrutinizing corporate raiders' long-term intentions. Lipton was also concerned about the wider implications to other stakeholders. Generally, results to support the shareholder interest theory have been mixed. However, some studies have found positive returns for stockholders (Danielson & Karpoff, 2006; Linn & McConnel, 1983; Comment & Schwert, 1995). The broad question is whether markets alone can determine the correct stock price efficiently.

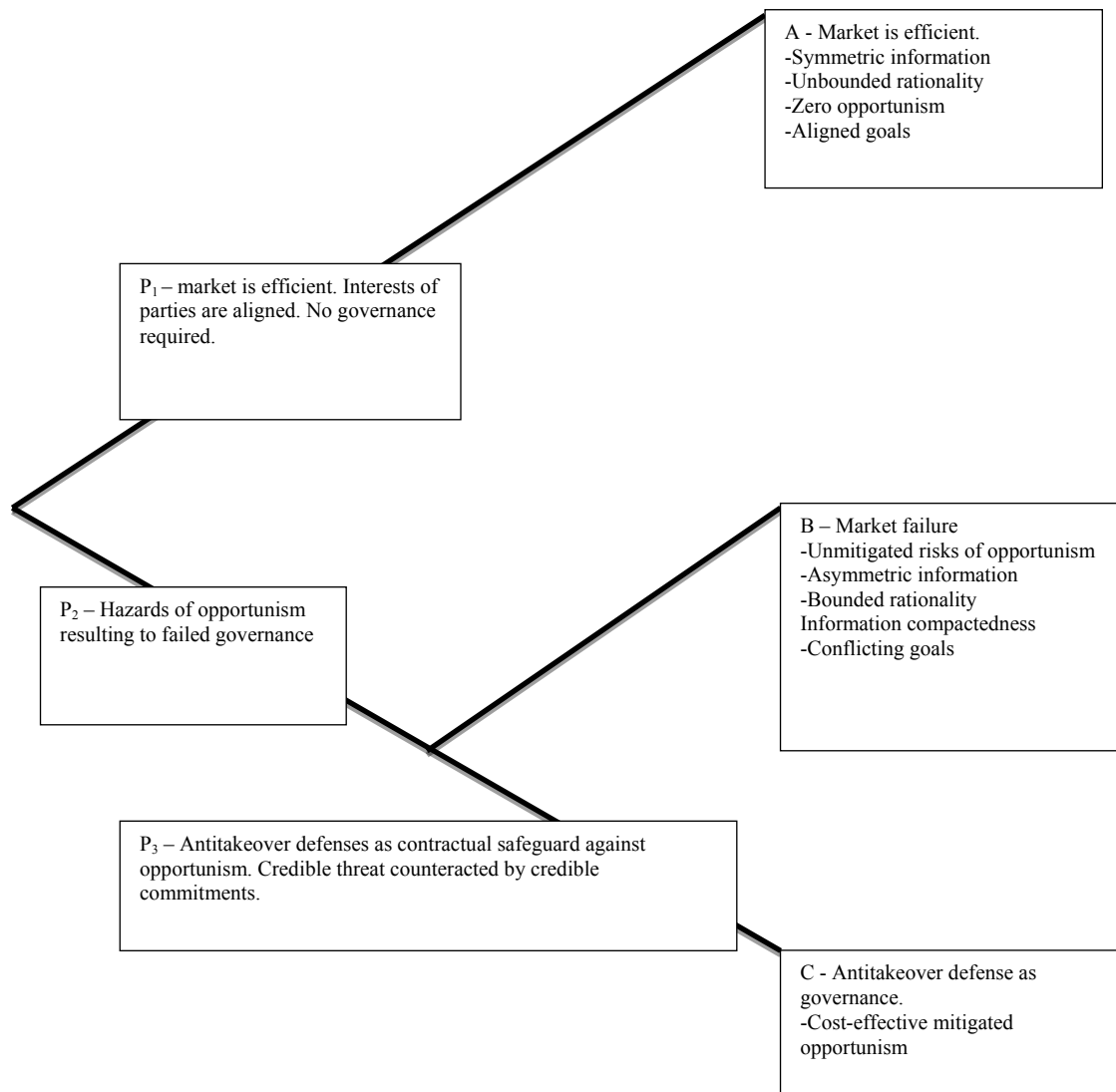
Antitakeover mechanisms insulate managers from employment risk associated with mergers and acquisitions. There is extensive literature on agency theory and consequent management entrenchment (Jensen & Meckling, 1976; DeAngelo & Rice, 1983; Hwang & Lee, 2012; Yeh, 2013). From an agency theory perspective, managers have an incentive to entrench themselves by minimizing employment risk and reducing the threat of external control. Entrenchment manifests itself when managers use antitakeover mechanisms to protect their employment, engage in excessive perquisites, and make value-diminishing investments on behalf of shareholders. The ultimate result is market failure; inability for the market for corporate control to weed out underperforming executives. Studies have demonstrated various forms of value-destructive behavior by managers such as excessive compensation (Masulis et al., 2007), increased cost of capital (Collins & Huang, 2011) and non-synergistic diversification (Kim et al., 2009).

The third perspective that justifies antitakeover actions is derived from TCE. Antitakeover defenses can be crafted as an alternative governance mechanism. Due to market imperfections, antitakeover measures can be injected in the governance and contractual mechanism of a corporation, as a pragmatic way of safeguarding intrinsic firm value and future performance that is not reflected by the market. Such measures would attract additional transaction costs if a transaction was to take place. Following Ronald Coase's (1937) seminal work on TCE, the theory has been extensively extended by Williamson (1985) and others. Macher and Richman (2008) and David and Han (2004) provide a detailed analysis of refinements and extensions to the theory by other scholars. Coase (1937) sought to understand why it was sometimes more efficient to use the firm rather than the market. Coase demonstrated fundamental flaws with the economic theory of price mechanism: there was a cost to using the price mechanism, transaction costs. Arrow (1969) defines transaction costs as the costs of running the economic system. If the organization is an engine, then friction is the transaction cost. Williamson (1985) uses the lens of governance modes, associated with a variety of contracting forms, to explicate the TCE problem. Where transactions can be efficiently supported by general-purpose assets, identity of the parties is irrelevant with little need for protective governance structures. High-powered market incentives are adequate. Such conditions are amenable to contract law. The second governance structure is the hybrid mode that has autonomous parties but a given level of dependency. Such transactions are supported by neoclassical contract that is 'elastic' and offers a threshold for renegotiation of maladaptations and misalignments. Hierarchical structures are suitable where there is significant exposure and safeguards against exposure cannot be effectively implemented. This is the contract law of forbearance. TCE is relevant due to market failure and occasional organizational failure in a free enterprise economy. Due to complexity, bounded rationality, uncertainty, asymmetric information and opportunism, an efficient market is rarely achieved. Firms will assume a long term strategic view and pursue a pragmatic path of efficient contracting with the ultimate objective of minimizing transaction costs. Consequently, the market may not necessarily reflect firm value because of the incompleteness and elasticity of the firm's contractual obligations with third parties. This justifies the long term strategic perspective of the enterprise and the need to create a balance with short term performance. Antitakeover defense mechanisms would reflect this hidden non-quantifiable firm value and a superior performance in the future. Recent studies (Zhao et al. 2012) have shown that takeover protection reduces management myopia, while facilitating a focus on long term performance.

There are few similarities between the management entrenchment hypothesis and TCE. Both theories attempt to explicate market failure due to opportunism and asymmetric information. While the manager is the focal point in management entrenchment, the transaction is the unit of analysis in TCE. TCE implicitly assumes that the value of the shareholder must be sustained in the long term. However, there is a need to support naïve self-enforcing assumptions about market conditions through credible commitments. TCE lens allow us to assume realistic conditions of market imperfections and resultant preemptive opportunism. The figure below (figure 1) highlights the governance mechanisms when viewed from TCE lens. At P_1 the market is deemed to be efficient with the interests of all parties aligned and information available to all. There is no need for additional governance mechanisms. At P_2 there are hazards of opportunism resulting from bounded rationality, asymmetric information and information compactedness. Absent antitakeover mechanisms, the firm will become susceptible to preemptive

opportunism by raiders targeting underrepresented value and future premium earnings. The firm can choose to correct hazards of market failure by deploying antitakeover defenses at P₃, as safeguards against opportunism and other ills.

FIGURE 1
ANTITAKEOVER DEFENSES THROUGH TCE LENS



HYPOTHESES

Antitakeover Defenses and Firm Value

Poison pills give the holders of the target's stock, other than the bidder, the right to purchase stock in the target's company at a steep discount, making the target unattractive or diluting the acquirer's voting power (Jiraporn, 2005). There are several types of poison pills: flip-over plans, flip-in plans and back-end plans (Higgins & Nelling, 2002). Flip-over rights allow shareholders the option of buying the acquirer's stock at deeply discounted prices. Flip-in plans, in addition to having flip-over provisions, allow the shareholders of target firms call options on target firms' stock when triggered. Flip-in plans essentially provide target shareholders the mechanisms to acquire both target stock and acquirer's stock at a discount.

On the other hand, back-end plans are rights dividends that allow shareholders of the target firm to redeem their stock at back-end prices set by the board. Some studies have found positive wealth effects; Jensen and Ruback (1983), Ho (1986), and Andrade, Mitchell and Stafford (2001). Other studies have found negative wealth effects; Malatesta and Walking (1988), Ryngaert (1988), Gompers et al. (2003), Bebchuck et al. (2009), and Chi (2005). Collectively, this study submits that due to the volatile nature of the pharmaceutical industry, a constant need to innovate and sustain intellectual capital, the market does not always signal the correct firm value and pharmaceutical firms have an incentive to adopt a poison pill. From a TCE perspective, the governance environment is in a state of asymmetric information, uncertainty and bounded rationality, rendering efficient market conditions impractical. Alternative safeguards have to be deployed to enhance performance and value. In line with the studies of Jensen and Ruback (1983), Ho (1986), and Andrade, Mitchell and Stafford (2001), we hypothesize that a poison pill will have a positive effect on firm value in the pharmaceutical industry.

H1: Poison pills have wealth maximizing effects.

One of the main arguments against antitakeover provisions is that they are costly mechanisms that involve a less transparent corporate charter. However, firms that have instituted antitakeover provisions have argued that within the pharmaceutical industry, there is undervalued intellectual capital, undervalued drugs in the pipeline, unpatented discoveries or even perceived over-performance in the future. This is consistent with the TCE argument of information compactedness (Williamson, 1975), bounded rationality and subsequent asymmetric information (Williamson, 1985) that justify a more hierarchical governance mode. Where such value is nonexistence, poison pills can be enacted due to prevailing institutional norms. Regardless of the motivation, poison pills have a signaling effect to the market of an underlying firm value that is not reflected in the market. It is therefore, in order to assume that antitakeover defenses would signal this value. Capital IQ has developed a proprietary antitakeover defense index that compounds the various defenses and compares them against the industry and S & P index. The following information is included in developing the index; poison pill details, fair price provision, classified Board, board/shareholder approval percentage for acquisitions, blank check preferred stock, supermajority approval to amend bylaws/charters, authority to call special meetings and fill board vacancies, advance notice requirement for director nominations, and shareholders ability to act by written consent. To our knowledge, no study has looked at the relationship between the antitakeover index and wealth effects. Consequently, there is an incentive in the pharmaceutical industry to signal to the market or protect underrepresented intellectual firm value. We predict a positive effect of antitakeover index on firm value.

H2: High antitakeover index is positively related to superior firm value.

Blank check Preferred Stock grants the board, without shareholder approval, powers to create unissued stock and determine its provisions such as voting rights and dividends. The stock can then be issued as a poison pill in the event of a takeover threat. Blank Check Preferred stock is essentially a shadow poison pill that offers credible protection against opportunistic threats. In addition to agency issues, actors involved in corporate governance often have conflicting interests, rendering self-interest seeking with guile (Williamson, 1993), a realistic posture. Firms have a fundamental duty to act with distrust as a safeguard against potential opportunism from takeover threats. Blank Check Preferred Stock offers a potential safeguard. We hypothesize that Blank Checks signify wealth effects. Some research findings show that blank check preferred stock has no wealth effects; Bojanic and Officer (1994) and Jirasorn (2005). However, blank check provisions may be deployed for legitimate reasons of representing underlying intellectual value or providing space for negotiating a better M & A deal to the benefit of shareholders.

H3: Blank Check Preferred Stock has wealth maximizing effects.

Moderating Effect of State of Incorporation

State laws have unique effects on different corporate charters. Delaware has the least restrictions on corporate charters; it also provides clear legal precedent as a framework for negotiation, contracting and conflict resolution (Jensen & Ruback, 1983). The Delaware court-ordered regime provides greater immunity against hostile bids. The Delaware court decisions proxy for a shift in power from shareholders to managers (Kacperczyk, 2009). Such a shift of power from the shareholders to managers can be potentially be used to enhance managerial entrenchment. More than 50% of publicly traded corporations are incorporated in Delaware (Jiraporn & Gleason, 2007). While many studies have looked at the wealth effects of incorporation in Delaware, few studies have identified industry-specific effects. Some studies have found positive wealth effects. Using Tobin's Q, Daines (2001) found that Delaware firms are worth significantly more than similar firms incorporated elsewhere. Similarly, Netter and Poulsen (1989) and Karpoff and Malatesta (1989) found positive wealth effects. However, other studies such as Bebchuk, Cohen, and Ferrell (2009), Heron and Lewellen (1998), and Romano (1996) did not find wealth effects from incorporation in Delaware.

More than 50% of public firms are incorporated in Delaware. It is most likely that corporations that are incorporated in Delaware benefit from the deployment of poison pills in ways that are quickly reflected in stock price, to individual managers through agency, or through reputational effects of being perceived as friendly to M & A. Due to the fact that each firm potentially holds a shadow pill, firms with a corporate governance orientation that gives the board and managers disproportionate power, are more likely to favor Delaware as a state of incorporation. We therefore hypothesize that the state of incorporation will have a moderating effect on the relationships between various forms of antitakeover defense and firm value.

H4a: State of incorporation will moderate the relationship between poison pill and firm value.

H4b: State of incorporation will moderate the relationship between antitakeover index and firm value.

H4c: State of incorporation will moderate the relationship between blank check preferred stock and firm value.

METHODOLOGY

Data Sources

We compiled data for the study from S&P Capital IQ database. Capital IQ provides financial data of a wide variety of companies including pharmaceutical companies. A sample of 91 firms was generated, based on the following criteria: market capitalization of at least US\$10 million; classification as "pharmaceutical" in basic industry, location in the US and public listing. A majority of the sampled companies (63.7%) were incorporated in Delaware. The average (mean) number of employees was 4839. Blank check preferred stock was the most prevalent antitakeover mechanisms used by these companies (89%). About 19.4 percent of them maintained poison pills. Table 1 below describes the details of antitakeover provisions among sample firms.

TABLE 1
USE OF ANTITAKEOVER DEFENSES IN SAMPLE FIRMS

No. of firms with antitakeover provisions	Yes	No
Dead hand provision	0	91
Poison pill	15	76
State poison pill endorsement	10	81
Blank check preferred stock	81	10
State of incorporation: Delaware = 58; other = 29; unknown = 4		
Takeover defense score range : 0.13 – 0.61		

As described in Table 2, unlike most past studies which employed a single financial performance measure, this study used three measures in the analyses: return on equity, return on assets, and Tobin's Q. Tobin's Q (Lindenberg & Ross, 1981) is widely considered as the most appropriate measure of managers' contribution to shareholder wealth. Tobin's Q measures financial performance that indicates the market expectation of the present value of future profits that the company will generate from the current assets in place (Kacperczyk, 2009). Due to computational issues involved in the Lindberg and Ross formula, this study adapts a readily available balance sheet formula that is both conservative and involves minimal computational effort (Chung & Pruitt, 1994).

$$Q = (MVE + PS + Debt)/TA$$

Where, MVE is the product of share and the number of common stock shares outstanding; PS is the liquidation value of the firm's outstanding preferred stock; Debt is the short-term liabilities net of short term assets, plus long-term debt; and TA is the book value of total assets.

Table 1 below summarizes study variables, description of the variables, measurement and selected findings.

TABLE 2
STUDY VARIABLES, DESCRIPTION, AND MEASUREMENT

Variables	Description	Measurement	Previous findings
<i>Management strategies</i>			
Antitakeover index	Index of antitakeover provisions consists of the strength of a company's takeover defenses. It allows users to compare the strength of one company's takeover defenses to peer groups including other members of its industry, and all companies in the Capital IQ universe. Takeover provisions include poison pill, blank check preferred stock, fair price provisions and supermajority approval.	The strength of the company's takeover defenses is determined by assigning values to various aspects of its corporate governance and takeover defenses it has adopted, and averaging these weighted points. The calculation is determined by a proprietary formula by Capital IQ. The resulting score is between 0 and 1, with a higher number indicating stronger takeover defenses.	Negative wealth effects: Field and Karpoff (2002); Denis (1990); Pound (1987). Positive wealth effects: Comment and Schwartz (1995).

Poison pill	Shareholders' rights plan activated by the board of directors and aimed at increasing the takeover premium or buying time to consider the bid.	Measured by whether the company has a poison pill provision in its Charters and Bylaws or otherwise. It was coded as a dichotomous variable with 1 (Yes) for companies that adopted a poison pill and 0 (No) for others that did not adopt a poison pill.	Positive wealth effects: Jensen and Ruback (1983); Ho (1986); Mitchell and Stafford (2001). Negative wealth effects: Malatesta and Walking (1988); Ryngaert (1988); Gompers et al. (2003); Bebchuck et al. (2009); Chi (2005).
Blank check preferred stock	Issuance of preferred stock by the board of directors with broad provisions on voting, dividends, conversion and other rights. It has similar effect to a poison pill.	Measured by whether the company has an active blank check preferred stock provision or not (1 = Yes, 0 = No)	No wealth effects: Bojanic and Officer (1994); Jirasorn (2005).
State of incorporation	Delaware state has the least restrictions on corporate charters. It also provides clear legal precedent as a framework for negotiation, contracting and conflict resolution. Incorporation in Delaware signals shadow antitakeover provisions.	Whether the corporation is incorporated in the state of Delaware or any other state. Those companies incorporated in the state of Delaware were coded 1= Yes, while the others were coded 0 = No.	Positive wealth effects: Campbell, and Varma (2010); Netter and Poulsen (1989); Karpoff and Malatesta (1989); No evidence: Bebchuk et al. (2002); Heron and Lewellen (1998).
Performance metrics			
Return on equity (ROE)	It measures the rate of return on shareholder's equity.	Net profit after tax is divided by shareholder's equity (percentage)	
Return on assets (ROA)	It measures how profitable a company's assets are in generating revenue.	Net profit after tax is divided by total assets (percentage)	
Tobin's Q	It shows how well the firm has done with its investment decisions.	Market value of a company is divided by the replacement value of assets (ratio)	

RESULTS

A multivariate analysis of variance (MANOVA) was performed to examine whether differences in financial performance measures existed between firms that used antitakeover defenses or not. MANOVA is a commonly used multivariate technique suitable for examining the main and interaction effects of categorical variables on two or more dependent variables in a single analysis. Prior to running the MANOVA, a number of assumptions for MANOVA were assessed. The assumption of univariate homogeneity of variance across groups had been met as the Levene's tests were not significant for all performance measures ($p > .05$). Since the Box's M test for homogeneity of covariance matrices was not

significant (Box's $M=108.34$, $p>.05$), the assumption regarding the equality of covariance matrices had not been violated.

Hypothesis Testing

Hypothesis 1 posited a positive effect of poison pill on company's financial performance. As shown in Table 2, the MANOVA test for poison pill was nonsignificant but univariate tests indicated that return on equity and return on assets were higher for companies employing poison pill than those which did not. However, poison pill had no significant effect on Tobin's q. Thus, Hypotheses 1 received only partial support.

As predicted in Hypothesis 3, main effects of the blank check preferred stock were found in the multivariate analysis and univariate results for return on equity and return on assets. Presence of blank check preferred stock improved wealth maximizing effects suggesting that company's financial performance in terms of return on equity and return on assets were higher for those which utilized the blank check preferred stock than those which did not. However, such effect was not evident for Tobin's Q.

TABLE 3
MULTIVARIATE AND UNIVARIATE F-VALUES FOR DEPENDENT VARIABLES

Source	MANOVA	Return on Equity	Return on Assets	Tobin's q
Main Effects				
Poison pill (A)	1.599	3.146*	4.684**	Ns
Blank check preferred stock (B)	5.026***	6.110**	13.221***	1.806
State of incorporation (C)	1.315	1.887	3.705	Ns
Interaction Effects				
A × C	2.274	3.368*	5.630**	1.074
B × C	3.225**	5.410**	9.655***	Ns

Note: ns = not significant
MANOVA degree of freedom (df)=3/49, Univariate df =1/51
Significant at * $p < .01$, ** $p < .05$, *** $p < .001$

In Hypotheses 2, we hypothesized a positive relationship between antitakeover index and firm value. Since both antitakeover index and firm value were continuous variables, data were analyzed using linear regression analysis. Regression analysis is one of the most widely used statistical procedures for business research. It allows us to determine how firm's financial performance (e.g., return on equity, return on assets, and Tobin's Q) is affected by changes in antitakeover index. Results revealed positive relationships between antitakeover and return on equity ($F_{1,64} = 4.452$, $b=.255$, $p<.05$) and return on assets ($F_{1,80} = 6.343$, $b=.271$, $p<.05$). However, influence of antitakeover on firm's Tobin's q was nonsignificant ($F_{1,76} = 1.287$, $b=.129$, $p=.26$); thus providing a partial support for Hypothesis 2.

In Hypotheses 4, we hypothesized moderating effects of state of corporation on the relationships between poison pills and firm performance. Consistent with Hypothesis 4a and b, a two-way poison pill by state of incorporation interaction was observed in the univariate results for return on equity and return on assets (see Table 3). Marginal means for ROE and ROA were higher when blank check preferred stock (BCPS) was present and companies were incorporated in Delaware (see Figure 2 and 3). Thus, Hypotheses 4a and b were partially supported. Interestingly, Tobin's q was higher when companies incorporated in Delaware used poison pill than those incorporated outside of Delaware (see Figure 4). Thus, results provided partial support for Hypotheses 4a and b.

FIGURE 2

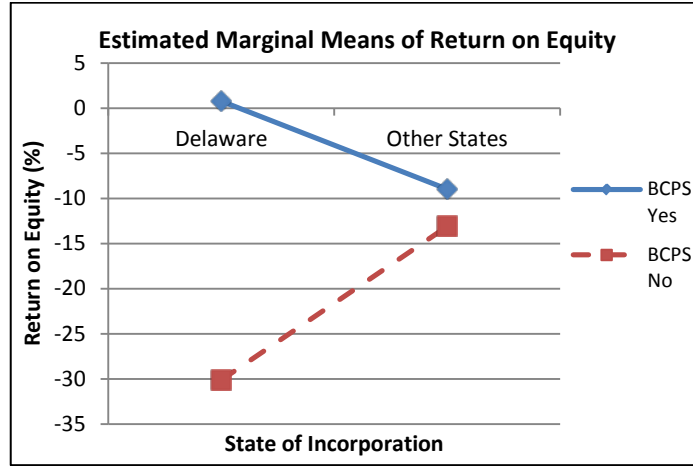


FIGURE 3

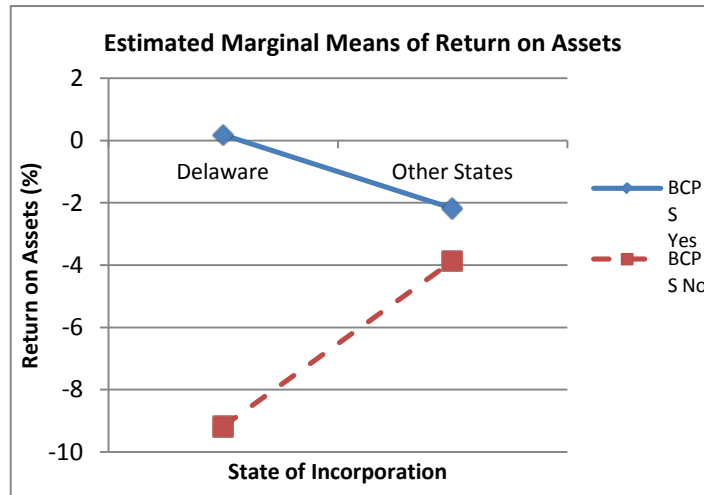
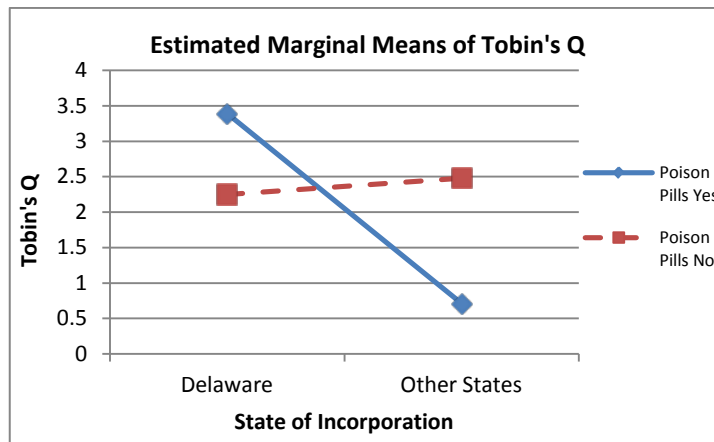


FIGURE 4



DISCUSSION AND IMPLICATIONS

Although the use of antitakeover mechanisms has continued to decline, these defenses are still being deployed in the pharmaceutical industry. This trend is likely to continue in the foreseeable future. Due to outsourcing and hollowing out, firms in the industry are increasingly losing control over the process while becoming even more susceptible to external uncertainties. Consequently, the firm's intrinsic value cannot be fully determined by the market. This may be due to a variety of factors. Asymmetric information between the market and the managers continues to cause market failure. Analysts and investors are not in a position to accurately account for firm value.

Our findings demonstrate that despite the decline of the use of antitakeover defenses over the years, they still have some performance effects in the pharmaceutical industry. Consistent with previous studies (e.g., Netter & Poulsen, 1989; Karpoff & Malatesta, 1989), a Delaware incorporation has a positive effect on firm value and performance. Effects of antitakeover measures on Tobin's Q were generally not supported. A possible interpretation is that either investors do not see the value of these antitakeover defenses or the value has been reflected in the market *ex ante*. These results are surprising for the pharmaceutical industry where a significant portion of the firm's value is embedded in intellectual capital that may be excessively impacted or idiosyncratic to be fully factored by the market. Unlike other industries, the pharmaceutical industry has seen more friendly mergers and acquisitions in general, a tacit recognition of the legitimacy of antitakeover defenses as a bargaining tool prior to mergers and acquisitions. Consequently, it can be argued that, to a large extent, antitakeover defenses in the industry have been deployed for legitimate reasons of strategic survival rather than managerial self-interest. Our results found that being domiciled in Delaware has positive effects. While some previous studies have found no benefit of incorporating in Delaware (e.g., Bebchuk, Cohen, & Ferrell 2009; Heron & Lewellen, 1998), it seems that, for the pharmaceutical industry, incorporation in Delaware either has signaling effects to the market or the market is not as efficient as expected.

Our findings add to the inconclusive debate on the effects of various antitakeover defenses. We provide an alternative theoretical foundation for the deployment of antitakeover defenses; a transaction cost economics explanation. TCE offers a viable framework that mitigates the consequences of market failure and pragmatic safeguards that would provide alternative governance to sustain value in the long-term. TCE also offers a viable pragmatic approach to resolving uncertain situations and asymmetric information and information compactness, where there is no incentive for managerial entrenchment and other forms of opportunism.

This study is another installment to the mixed results in corporate antitakeover defenses and corporate governance literature. The study submits industry-specific findings on antitakeover defenses and how they interact with value and corporate performance. While many studies have analyzed antitakeover defenses from a global perspective, few have looked at specific industry effect. The pharmaceutical industry is idiosyncratic enough to warrant such inquiry.

While it is assumed that the state of incorporation is factored into the market, our results suggest otherwise. A possible explanation would be found in new institutionalism as firms strive to seek legitimacy through path dependency. It can also be argued that there is significant expertise and more streamlined processes in dealing with strategic issues such as mergers and acquisitions that are prevalent in the pharmaceutical industry.

LIMITATIONS AND FUTURE RESEARCH

Like many studies of this magnitude, our analysis is limited by the small sample size. The study also limited itself to antitakeover defenses that are easily quantifiable. In reality, corporations have a wide range of shadow antitakeover defenses that can be deployed, including the option to "just say no". Most of the data was collected at a point-in-time, limiting the consistency of our findings over time. There are also contingent factors such as the patent cliff that may well be one-off events and may affect the way

various firms have repositioned their strategies. We have only utilized a limited number of TCE variables. While TCE assumes a long term strategic view of the firm, there are human actors involved. These actors have emerging agency problems that cannot be reasonably predicted in the long term. Despite these limitations, our findings highlight important governance issues in the pharmaceutical industry. Future studies might be interested in comparing the variety of antitakeover defenses with other industries and exploring underlying factors. Using longitudinal studies, it would also be useful to understand the long-term effects of antitakeover defenses. Given the nature of friendly M & A activities in the industry, scholars might be interested in evaluating the level of shareholder activism, compared to other industries with more hostile bids.

CONCLUSION

Looking at data from the pharmaceutical industry through TCE lens, we investigate effects of antitakeover provisions on performance and value. The results demonstrate a positive effect of antitakeover mechanisms on firm performance in the pharmaceutical industry. Tobin's Q is higher when companies incorporated in Delaware use poison pill than those incorporated outside of Delaware. While there is significant literature on antitakeover defenses, this study is unique and adds to the literature in several ways. The pharmaceutical industry is idiosyncratic in many ways such as requiring significant upfront investments with long periods of drug development, high risks of failure and real pressure to invest in cheap treatments for basic diseases. There have been major shifts in the industry such as M & A activities, migration of the value chain towards emerging markets and increased strategic importance of generics. By analyzing industry-specific data, our paper provides more specific findings. Few studies, if any, have utilized TCE as the main analytical framework in explicating corporate governance issues.

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