

AGENCY THEORY AND TAKEOVER DEFENSES: AN EMPIRICAL ANALYSIS
OF TARGET COMPANY MANAGEMENT INCENTIVES IN RELATION TO
SHAREHOLDER CONCERNS

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Abstract

The following study critically examines the actions and underlying incentives of public corporate governors in response to unsolicited tender offers. Using established theoretical frameworks, this thesis hypothesizes that takeover target managers and directors will tend to respond to personal financial incentives and risks in lieu of shareholder wealth concerns. Indeed, the past literature on the subject has mostly reflected this result; however, no recent study has determined conclusively if this trend is harmful to shareholders. Using methodology reflecting that of the successful past research, the empirical models test the explanatory power of the following variables on bid resistance by target firms over a sample of 64 tender offers spanning from 2004 to 2012: Hostility (defined as the intention of the bidder to replace target management), Bid Premium (the only variable of concern to shareholders), Managerial Wealth Change (a variable representing the immediate capital gains facing the top managers and directors as a result of the takeover) and Managerial Stock Ownership (as a percentage of total shares, and as the natural logarithm of total shares held by top managers and directors). The relationships highlighted by the data will be compared in their explanatory power and statistical significance to determine if shareholders, and thus the greater capital markets, should be concerned about the potential results of a misalignment of principal and agent incentives.

KEYWORDS: (Takeover Defenses, Mergers and Acquisitions, Agency Theory)

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CHAPTER I

INTRODUCTION AND BACKGROUND

Introduction

Agency theory has become an increasingly popular subject in the light of the financial crisis of 2008, with headlines constantly alluding to issues involving principal-agent relationships. Whether these stories involve executive compensation, financial services regulation, or investment bank interest conflicts, all are related to agency theory. This thesis analyzes the decision-making process surrounding takeovers and the effects on shareholders. Specifically, this paper will analyze the decisions that boards of directors face regularly. That question is, more specifically, whether or not to defend against a takeover bid. The key question the empirical regression model addresses is whether or not directors are fulfilling their duty to shareholders. The model identifies incentives for the use of defensive action when facing a takeover bid and determines whether directors make decisions based on the shareholder wealth effects or based on their stockholdings/personal wealth effects.

To analyze the decision by target firm managers and directors to resist a tender offer, one must understand the history and context of takeovers and takeover defenses in the United States. Furthermore, it is generally accepted that being a takeover target greatly increases shareholder wealth. Bid premiums tend to fall between 30% and 50%, offering substantial short-term returns to holders. To get a general understanding of the

effects of defending against a takeover, let us examine a basic model of the market value of a firm.

$$MV = MV_{cm} + \pi_{cc} * \Delta MV_{cc}^1$$

Here, the market value of a firm is equal to the value of the firm with its current management/director team, plus the probability of a change in control times the change in firm value from the change. From this model, one is able to ascertain that takeover defenses enact a tradeoff for shareholders between the bid premium (change in value from a control change) and the probability of a control change. An aggressive defensive action by a target firm's incumbent management may lower the probability of success but greatly raise the bid premium. Also, in many cases, the bidder will restructure the offer to increase the returns to shareholders.

Managers and directors of target firms generally enact defenses based on one or more of three rationales: They believe the firm has hidden value, to raise the offer price, or to retain their positions. Each rationale will be analyzed through the lens of agency theory and shareholder wealth maximization. Most management and director teams have private information about their companies. Even in efficient capital markets, this private information will not be reflected in the stock price. If management believes this private information to be valuable and to suggest share value higher than the offer price, then it would be in shareholders' best interests to resist a takeover attempt. This assumes that

¹ Richard S. Ruback, "An Overview of Takeover Defenses," *Mergers and Acquisition*, Chicago: NBER Books (1988): 50-51.

the private information will be priced in by the market at a later date and that the market is willing to pay for it.

Another key reason for defending against takeover offers is to attempt to raise the offer price. In takeovers, as opposed to bilateral mergers, the bidder often makes an offer directly to shareholders, as opposed to negotiating with management. This means that the target firm has lower bargaining power, and therefore shareholders would receive an insufficient price if managers failed to act. Utilizing takeover defenses can prevent the bidder from obtaining the firm at a cheap price. It allows other firms to enter the bargaining arena, slowing down the process and allowing shareholders greater bargaining power and therefore generally a better price.

Managers and directors may also decide to defend based on the preservation of their individual positions. These may take the form of stockholdings and employment positions. If the bidder plans to replace the target firm's management, there would be little incentive for them to vote in favor of the takeover. The theoretical model of this study will attempt to determine if the size and structure of manager and director stockholdings has an effect on the decision making process. This justification is rarely in the interests of shareholders and will only be beneficial if it is conjunction with one of the above two justifications.

Through both theoretical analysis of the agency theory and empirical study of the shareholder wealth effects, this paper will attempt to come to a conclusion about how the use of takeover defenses by target company managers and board members affects the

welfare of shareholders and the efficient operation of the capital markets. The prediction is that managers and directors with smaller average holdings in target companies will more often elect to defend their position against a hostile bid, and that those actions they choose to take to protect their personal well-being will be harmful to shareholders. In cases where managers and board members have large average positions, one should be less likely to see takeover defenses. When they are used, however, they are more likely to be helpful to shareholders because shareholder well being is more closely aligned with that of the directors. Other factors will also be analyzed for influencing the individual director's decision to enact takeover defenses, including: bid premium, hostility of the bidder and manager/director stockholdings.

Before covering the underlying economic and financial theories, the background section will lay out the history and development of takeovers and defenses against them. Next a review of literature will cover the extensive past research on the subject and give an illustration of the studies on which the empirical model and agency analysis will be based. In Chapter IV, the data set and methods used will be described. The data will consist of both a set purchased from an M&A database as well as insider holdings information compiled from public record for this study. The empirical model and analysis will come next, through which the study will support or refute the hypothesis.

Background

Corporate takeovers and the market for corporate control are relatively new topics within the area of finance, rising to the interest of financial markets in the past few decades. With the proliferation of leveraged and management buyouts during the 1980s, profit driven financiers made headlines by reaping massive profits. A multitude of factors led the rise of buyouts, takeovers and mergers in the 1980s. The development of the junk bond market on Wall Street meant many lenders were willing to provide ample debt financing for buyouts. Financial innovations led to not only junk bond financing but also to the rise of the leveraged buyout, or LBO, and subsequently the 1980s' private equity boom.

An LBO is industry jargon for when a company or partnership finances a buyout transaction with a large amount of debt. The assets of the target company are pledged as collateral for the loans, which amounts to the majority of the cash required for the purchase. The remaining portion of the capital is provided by the acquirers, generally a limited partnership of private equity firms and/or private investors, who receive the leveraged equity of the company. The partnership's goal is to exit at a later date, either through M&A or a public offering, at a higher price per share than originally paid. Often, private equity firms offer management expertise or higher a consultancy to improve profitability of their companies and thus investments.

According to Harvard Business School, the first leveraged buyout in history was conducted by private equity firm Kohlberg Kravis Roberts & Co. (KKR) in their

purchase of Orkin Exterminating Company in 1964. The trend did not catch heat until the early 1980s, after Congress lessened restrictions on pension fund investments and lowered the capital gains tax. As a result, money flowed into the private equity and investments industry, leading to huge growth in the market for LBOs and other buyouts. The market for corporate control zoomed into the forefront of American finance, and yet there was little known on how a company could defend itself from profit driven financiers.

Managers and directors subsequently began to fear for control of their companies and to develop defenses against these corporate raiders. In the early 1980s, the shareholder rights plan, also known as a poison pill, was developed by Martin Lipton, a mergers and acquisitions lawyer at Wachtell, Lipton, Rosen & Katz as a way to fend off hostile cash tender offers. Subsequently, the use of defensive tactics by corporate directors and managers grew to become commonplace in the market for corporate control throughout the rest of the decade.

Among the takeover defenses developed since the early eighties, the poison pill has stood above the rest to become the most commonly used, discussed and studied defense. Essentially, the poison pill allows the target board to issue "rights" to shareholders, giving them the chance to purchase additional shares at a discount. This increases the stake of non-acquirer shareholders and often dilutes the acquirer's stake, making it more difficult to complete a hostile takeover. Many firms have passive poison pills built into their corporate governance schemes, which may trigger when a single

shareholder builds a stake above a certain percentage of the company. Martin Lipton explains his invention of the poison pill,

"It was the age of the corporate raider. By the early 1980s, we had reached a whole new plateau of hostile takeovers... I kept probing to find something that would be useful *not* in preventing hostile takeovers, but in giving the board of directors of a target company an opportunity to level the play field and have time to make a rational business judgment decision as to how to deal with a takeover."²

One can see how takeover defenses can allow for improved corporate governance, protecting vulnerable takeover targets from being raided ruthlessly. Assuming that managers and directors use takeover defenses only in the best interests of shareholders, they can protect shareholder wealth from corporate raiders and maximize offer premiums in the case of a takeover. Thus, the development of takeover defenses theoretically allows boards to protect shareholder wealth. The desire of corporate governors to protect the wealth of shareholders has developed, like many other financial best-practices, from a theoretical basis.

To investigate the determinant factors behind the bid resistance decision, Chapter II provides a theoretical basis for the analysis of takeover situations, including discussion of agency theory, corporate governance, and shareholder wealth maximization. Chapter III will examine the past academic research up to this point, and then incorporate the most important lessons and methodologies into the current study. After that, the data will be presented and analyzed, followed by discussion of the variables of the model and their

² David Schatz, comment on "A Historical and Legal Background of the Poison Pill," The Official Activist Investing Blog, comment posted January 6, 2011, <http://activistinvesting.blogspot.com/2011/01/historical-and-legal-background-of.html> (accessed December 4, 2011).

predicted influence on takeover bid resistance. Finally, the results will be presented and analyzed. The study will conclude with discussion of the results and their findings about the agency concerns highlighted in the hypothesis of the current study. The following section will provide the theoretical background necessary to fully understand how and why the M&A marketplace has developed as it has.

CHAPTER II

THEORY

To analyze the incentives faced by target company boards and the resulting value effects, one must first understand the related economic theories. The study of the interaction between managers and owners of companies, known as agency theory, is important to understand the incentives facing decision-makers. The resulting effects of incentives and agency theory upon the value of companies must be analyzed in the context of the theories of efficient markets and shareholder wealth maximization. These financial paradigms reflect the academic and corporate knowledge bases that have developed concerning takeovers and buyouts. The study and process of governing a company and the relationships between involved parties is broadly known as the subject of corporate governance. These standards have developed over time from legal and financial theory and practice; however, this study questions the value of the current takeover system. This theoretical content is discussed in the following sections.

Agency Theory

The first important theory underlying the analysis in this paper is agency theory; which is the study of the relationship between the principals and their agents. In this case, the principals are shareholders, and the agents are the firm's managers. This study will particularly focus on the conflicts and misalignment of incentives between managers, directors and shareholders within the takeover process. Agency theory will help to

analyze the decision making process and what contributes to the decision to enact defensive actions in response to a takeover offer.

While agency theory covers a broad range of topics related to corporate governance, the most important concepts to this paper include the role of incentives and managerial risk aversion. When analyzing the behavior of human beings, it is a rational first step to consider the incentives that drive decisions and actions. Within the fields of economics and organizational theory, the role of incentives has been a thoroughly studied and debated concept; however, rational economic-minded people have been shown to consistently respond to incentives. Corporate governors, as rational business people, are expected to respond to incentives, particularly those that concern their career and financial well-being. Thus, when a director is facing the takeover resistance decision, there must be a multitude of financial incentives that affect such a choice. These incentives include the change in value of the agents' stock positions and the potential to lose steady employment. Many other factors also could change the total incentive pool for one director's takeover defense vote, such as personal or family related incentives. Fully understanding the key incentives will help to highlight the whole decision process and what might be wrong it.

While financial and other incentives certainly shape the behavior of corporate governors, risk aversion can also influence their decisions. The incentive of immediate capital gains on stockholdings may push a director away from voting in favor of a poison pill, while the possibility of losing his or her job may push back in the opposite direction. This is known as risk aversion, or the tendency for people to prefer certain to uncertain outcomes in the absence of other factors. This may cloud the decision process,

incentivizing risk-averse directors to vote in favor of anti-takeover action. Many corporate governors may prefer a safe, steady income stream to the uncertainty created by a takeover; however, this risk-aversion may not be shared by shareholders. If directors act based on risk aversion, they may not be properly representing the risk-neutral or risk-loving shareholders. It is easy to see that the combination of incentives facing public company decision makers can become extremely complicated. Measuring the significance of some of the more important incentives and risk-aversion tendencies could shed light upon how these decisions affect investors worldwide. The regression model will be testing the significance of these forces by estimating coefficients for the independent variables of wealth change and hostility.

It is worth questioning how directors' holdings affect their decision process, and agency theory will help to understand these tendencies. This paper will attempt to determine, both theoretically and then empirically, whether the size of directors' stockholdings affect their tendencies to defend against takeover bids. The hypothesis is that, when a target company's managers and directors have large average stockholdings, they should be less likely to vote to enact defenses. Also, if directors were to vote in favor of a poison pill, for instance, it is likely that their incentives are aligned with shareholders, due to their large holdings.

Companies and boards with smaller average stock positions would be more likely to defend against a takeover, because the payout from the takeover is smaller in relation to the annual payments from the employment position. Furthermore, managers and directors with smaller average stock positions would be more likely to take defensive action in a manner that would be harmful to shareholders. This is because they have less

equity in the firm, and therefore face fewer disincentives to act harmfully to shareholder wealth.

Valuation and Shareholder Theory

To analyze the effects of takeover defenses, one must first understand the basic theories surrounding shareholders, financial markets and valuation. First, the theory of shareholder wealth maximization asserts that the most important aspect of a firm is the maximization of returns to shareholders and thus shareholder wealth. The analysis of the effects of takeover defenses will occur through the lens of shareholder wealth maximization, and the results of the model will determine if these actions are in the best interest of shareholders, and thus society in general. The business and financial paradigm that holds shareholder wealth maximization to be of the utmost importance is loosely based upon the idea that markets and firms that are more efficient are better for society. This idea, in turn, reflects a famous and controversial theory known as the theory of market efficiency.

The basic concept of efficient markets theory is that competition will cause all available information to be built into the market price of a security. The implications of this theory reach beyond the scope of this study, into the realms of value investing and arbitrage; however, the important implication is that if capital markets are efficient, then all available information will be incorporated into a company's market value. If this hypothesis were true, there would be little need for takeover defenses, and the market for corporate control would be stagnant. The profits that motivate competitors and private equity firms to engage in buyouts and mergers would not exist. The efficient markets hypothesis is highly debated among financial economists, with the general consensus that

markets are not efficient in the perfect sense. One can beat the stock market through superior fundamental research, and the M&A marketplace is highly active. The key concept of efficient markets theory as it relates to the topic of this paper is that, in general, financial markets operate efficiently -- undervalued securities are purchased by speculators, fueling demand and raising the price to a proper valuation. What this means is that if a target firm is undervalued, the market will incentivize speculators (think private equity firms) to engage in a takeover with the potential for profit. The existence of takeover defenses thus creates a barrier to the efficient operation of the market for corporate control.

The theories of shareholder wealth maximization and efficient markets identify efficiency as a requisite characteristic in financial markets to achieve optimal results. Takeover defenses, as possible impediments to the smooth functioning of capital markets, can be justified in their use only by the shareholder wealth argument. In protecting and maximizing shareholder wealth, takeover defenses can play an important role by preventing hostile bidders from getting a cheap deal. The mechanisms for controller managers' actions fall under the guise of corporate governance, presented in the following section.

Corporate Governance

The system through which companies are directed and controlled is known as corporate governance, and it includes policies, customs, laws and institutions that effect how organizations are run. Corporate governance should be enacted in a way that prevents and mitigates conflicts of interests between shareholders, employees and other stakeholders. Several key principles of corporate governance have been identified and

highlighted in past legislation, including most recently the Sarbanes-Oxley Act of 2002. In response to the corporate scandals of Enron Corporation and Worldcom, the United States government put into legislation several general principles around which businesses are expected to operate to ensure proper corporate stewardship. Organizations are expected to respect shareholder rights and ensure their concerns are met. Firms must also recognize their contractual and legal obligations to other stakeholders such as creditors, employees, customers and suppliers. It is important for organizations to operate with the best interests of these non-shareholder stakeholders in mind as well as those of shareholders. Public company boards should be made up of professionals with relevant skill sets who understand the business. To avoid repeating the mistakes of Enron, boards were also mandated to have adequate independence, size and checks and balances. Finally, Sarbanes-Oxley mandates that integrity and ethical behavior be an utmost requirement in choosing corporate officers and directors. Additionally, disclosure and transparency were introduced as financial reporting paradigms.

The above factors contribute to corporate governance as it currently exists in the United States; however, this study is questioning the efficiency and efficacy of corporate stewardship of the takeover process. If target company management enacts takeover defenses for their personal wealth preservation, then the interests of other stakeholders (employees in this case) are outweighed relative to shareholders. Corporate governance is the framework through which agency theory and incentives will be analyzed and tested with the empirical data.

There are two main competing theories that attempt to explain the behavior of target managers in response to takeover offers. The management entrenchment

hypothesis argues that they use anti-takeover provisions as a way to retain their jobs and embed themselves with the target firm. There is support for this hypothesis in much of the past literature, and this study's expectations are generally in line with the management entrenchment viewpoint. The alternative explanation, the shareholder wealth hypothesis, argues that managers use takeover defenses to guard shareholder returns. This theory would expect that managers enact takeover defenses in reaction to low offer premiums. The regression model later in this study will assign coefficients to variables that will help to support or reject these expectations.

The above discussion offers the most basic theoretical underpinning for the current study's hypothesis that takeover defenses can harm shareholder wealth. Obviously, agency concerns must be analyzed additionally, as it is possible for defensive actions to benefit shareholders with a higher offer price. In the following chapter, the academic literature surrounding takeover defenses, their usage and effects will be reviewed. Significant research has been done in the arena of takeover resistance; however, few recent empirical studies incorporate board of director characteristics and ownership structure into the agency theory and shareholder wealth analysis.

CHAPTER III

REVIEW OF LITERATURE

To answer the question of whether agency problems in the takeover process are harming shareholders, past research on the subject and related fields must be reviewed. Studies focused on the agency theory will be reviewed, including the most seminal articles on the topic. More recent literature will then be discussed, finishing with a related study focused on greenmail, which highlights some important points considered in this thesis.

Among the most important literature on the subject, one article that stands out is entitled “On the Use of Poison Pills and Defensive Payouts by Takeover Targets” by Heron and Lie.¹ The study uses a model similar to the one in this thesis to analyze the use of takeover defenses after receiving an unsolicited offer, as explained by company data, hostility of the bid, and insider ownership. Not only are the authors' methods applicable to this thesis, but the study also finds relevant results. When the authors regress the likelihood of post-offer poison pill adoption, they find that poison pills are more likely to be implemented when insider ownership is low. This is indicative of management’s need to increase their bargaining power when they own little of the firm themselves. Their data set also indicates that poison pills positively affect shareholder

¹ Randall Heron and Erik Lie, "On the Use of Poison Pills and Defensive Payouts by Takeover Targets," *The Journal of Business*, Vol. 79, no. 4 (2006): 1783-1808.

returns during the process. The major conclusion suggests that managers may use defensive actions to increase their bargaining power, as opposed to maximizing their expected post-takeover welfare -- an important factor to consider when compiling and analyzing the data of the current work.

A similar article from the 1980s identifies managerial welfare change as the key incentive for managerial takeover defenses.² The authors manage to quantify managerial welfare change in their model, explaining managerial resistance by bid premium, wealth change, conglomerate (dummy), foreign (dummy) and the percentage of target company shares controlled by the bidder before the offer. Wealth change is measured as the bid premium times pre-offer market price per share times number of shares owned by each manager. This metric will be used in the current study to represent the incentive for managers and directors to allow a takeover bid to succeed. The study's model also considers management stock options, looking at the option price change through the takeover process. The authors find that the decision to enact defensive actions is significantly conditioned on managerial wealth change and also the percentage of shares owned by the bidder before the offer. The potential managerial wealth change is significantly lower in contested offers than in uncontested ones. Also, they find that top management is retained at a much higher rate in uncontested offers, showing that takeover defenses themselves may actually lower the potential earnings of top managers. The study finds substantial evidence that the decision to contest tender offers is influenced by personal wealth changes of target management. The authors suggest

² Michael Long and Ralph Walking, "Agency Theory, Managerial Welfare, and Takeover Bid Resistance," *The RAND Journal of Economics*, Vol. 15, no. 1 (1984): 54-68.

different compensation plans that may bring incentives in line. What this study is missing is the importance of the board of directors and their incentives. More detailed analysis of ownership structure and board composition is required to gain a full understanding of the takeover process, which the current study will incorporate.

A third crucial study upon which this thesis will build looks specifically at management's performance and its link to defensive activity.³ The authors find that firms who pay greenmail (when the target firm buys back shares from the hostile bidder at a premium to prevent a takeover) in response to unsolicited offers perform no differently than other firms in their respective industries. Also, they find that bid premiums are not increased as a result of paying greenmail, which indicates that greenmail may not be in the best interests of shareholders seeking high premiums. Other studies have found that defensive actions can lead to higher bid premiums for target firm shareholders, which indicates that defenses may provide higher bid premiums and thus returns to stockholders.

It is also crucial to review articles that focus on boards of directors such as "Board Structure, Antitakeover Provisions, and Stockholder Wealth."⁴ This study presents a regression model of firms with takeover provisions and analyzes the defense tendencies of different board compositions. Among the variables are ones that will be used later in the current study, such as the proportion of outsiders to insiders on the board. The data show that firms with more outside directors experience a greater negative stock price

³ Sanjai Bhagat and Richard Jefferis Jr., "The Causes and Consequences of Takeover Defense: Evidence from Greenmail," *Journal of Corporate Finance*, Vol. 1, no. 2 (2002): 201-231.

⁴ James M. Mahoney, Joseph T. Mahoney and Chamu Sundaramurthy, "Board Structure, Antitakeover Provisions, and Stockholder Wealth," *Strategic Management Journal*, Vol. 18, no. 3 (1997): 231-245.

reaction to the adoption of takeover defenses. The conclusion is that takeover defenses adopted by boards dominated by insiders cause a less negative price reaction than firms with outsider boards. This is contrary to what the past discussion in this study would predict. Agency theory would indicate that outsider-dominated boards would act in the interests of shareholder wealth more often than insider boards. Entrenched boards dominated by company insiders would be more likely to protect their positions by enacting takeover defenses, whereas outside directors' incentives are more closely tied with their stockholdings and therefore with shareholders. The study was conducted using a sample of firms from the 1980s, so it is possible these conclusions are not true today; however, the data set compiled for this thesis will conclude whether wealth effects match the predictions of agency theory in the twenty-first century.

Another article that uses ownership structure as a key determinant of takeover resistance is "Takeover Defenses, Ownership Structure and Stock Returns in the Netherlands: An Empirical Analysis."⁵ The study, although using firms from the Netherlands, is closely related to this thesis. The study empirically analyzes the relationship between takeover defenses, firms' ownership structure and shareholder wealth. With their sample of 177 Dutch companies between 1992 and 1997, the authors come to an interesting conclusion, finding that firms with lower ownership concentration (stock held in small quantities by many) are more likely to adopt defensive tactics than firms with concentrated ownership. This is consistent with the current hypothesis that boards of directors are more likely to vote in favor of takeover defenses when ownership

⁵ Dolph Cantrijn, Andreas Jeunink and Rezaul Kabir, "Takeover Defenses, Ownership Structure and Stock Returns in the Netherlands: An Empirical Analysis," *Strategic Management Journal*, Vol. 18, no. 2 (1997): 97-109.

is less concentrated (smaller average stock positions of directors). The authors do not find any conclusive trend in the data as far as shareholder wealth effects are concerned. The 1997 study touches upon the agency theory inherent to takeover defenses and proxy fights, discussing how shareholder monitoring of managers and the capital markets help to control agency problems between managers and principals.

The above articles provide a basis upon which this thesis's model will be built, as well as a basis for the agency analysis. Other literature touches upon the subject of agency theory and shareholder effects of takeovers, such as "Management-Board Relationships, Takeover Risk, and the Adoption of Golden Parachutes."⁶ Golden parachutes (contracts between companies and management that guarantee cash and/or stock payouts for managers upon departure from the firm), although different from takeovers, serve as a point of analysis for the potential wealth change of managers. This downside protection for managers changes the agency question, and the authors analyze the management-board relationship with respect to the adoption of parachutes across different director compositions.

Similar to takeover defenses, golden parachutes were found to be more often adopted by firms with less concentrated ownership structure. This is consistent with agency theory, in that management is more concerned about the threat of takeovers and termination in firms with diffused ownerships, and thus in situations where top management/directorship has smaller average stockholdings. Although the authors did not attempt to determine the overall value effect of golden parachutes, they did find that

⁶ Singh Harbir and Farid Harianto, "Management-Board Relationships, Takeover Risk, and the Adoption of Golden Parachutes," *The Academy of Management Journal*, Vol. 32, no. 1 (1989): 7-24.

the mechanism may in fact help to align the interests of shareholders with managers by lessening the influence of future wealth change on decision makers.

The main questions of this thesis concern the link between management's agency actions and corporate governance provisions such as takeover defenses. A 2004 study from the Harvard Law School attempts to measure the correlation between corporate governance provisions that allow circumvention of majority shareholder interests (poison pills, staggered boards, supermajority requirements) and trends in firm valuation.⁷ The authors analyze the shareholder value effects of various governance provisions, most relevantly poison pills and golden parachutes. Similar to the hypothesis of this thesis, they take the view that arrangements such as takeover defenses, which protect incumbents from removal or downside, are harmful to shareholders. The provisions that best reflect a defensive, or "entrenched," tendency from management are called takeover readiness provisions, and the authors find that these are negatively correlated with firm value and stock returns during the 1990 to 2003 period. In addition to their empirical research, the authors present a comprehensive review of literature that presents a compelling argument against this trend of entrenchment. Other literature concerning the negative shareholder value tendencies of entrenched management exists; however, other theories attempt to explain the effects of pro-incumbent provisions.

Two major competing theories explain the effects of anti-takeover provisions on shareholders: Management entrenchment theory (The above study highlights this theory.) and short-term myopia (which argues that defenses can increase shareholder wealth/returns). Anti-takeover provisions can have a positive impact on shareholder

⁷ Lucian Bebchuk, Alma Cohen and Allen Ferrell, "What Matters in Corporate Governance?" *Harvard Law School John M. Olin Center for Law, Economics and Business Discussion Paper Series* 491 (2004).

wealth for a number of reasons. For instance, if the assets of a firm are highly liquid and easily saleable, management may be correct to protect those assets from outside arbitrageurs. Also, smaller companies who have highly proprietary technology, research or assets may wish to protect themselves from takeovers to a greater extent than a larger corporation with more diverse businesses. In the 1994 study entitled “Poison Pills and Corporate Governance,” the authors use an empirical model to determine the causality behind companies’ use of poison pills.⁸ The model regresses the use of poison pills between data sets of companies that do and do not meet predetermined factors that improve the shareholder effects of poison pills. These factors include: saleability of assets, capital structure, innovative activity and management compensation and holdings. Capital structure and management compensation and holdings are included to test their explanatory power on poison pill use compared to saleability and innovation. The results suggest that management poison pill use is significantly related to both the liquidity of the firm’s assets and innovation. The study finds no relation between management stockholdings and poison pills; however, compensation plans do have an effect. Overall, this study contrasts with much of the reviewed literature, as it argues for the efficient use of anti-takeover provisions by management. Although the past research clearly seems to confirm the management entrenchment hypothesis, the above study was included to illustrate that these mechanisms can help shareholder value in some situations.

Corporate governance and the system of stakeholder relationships within companies can be complicated and difficult to analyze. This study is looking at the actions and incentives of corporate governors in an attempt to determine their effects.

⁸ Richard J. Dowen, Gerald R. Jensen and James M. Johnson, “Poison Pills and Corporate Governance,” *Applied Financial Economics* 4 (1994): 305-313.

The agency theory problems that are highlighted in the introduction are mentioned in several important studies. The 1997 article “Wealth Creation and Bid Resistance in U.K. Takeover Bids” analyzes the relationship between corporate governance mechanisms and takeover defenses.⁹ The authors identify a set of four mechanisms that promote management discipline concerning takeover resistance. These include the monitoring provided by managerial compensation, the existence of large block shareholders, shareholdings by the bidder and financial structure of the firm. These mechanisms serve as monitoring tools for shareholders to ensure the proper stewardship from the management team.

The authors suggest that these are effective disciplinary tools. The data show an inverse relationship between the gains from takeovers for acquirers and the size of large shareholdings, suggesting that institutional investors and other large shareholders such as potential bidders are effectively monitoring management. In an analysis closely related to this thesis, the authors find that large director shareholdings are associated with bid acceptance and small director holdings with bid rejection. Also, managerial compensation generally includes stock or options, which serve to align management incentives with shareholders'. Interestingly, the data also indicate that target firm management is more likely to accept bids from firms in different industries. This preference for conglomerate bids indicates a management preference for diversification that may not be held by shareholders.

⁹ Peter Holl and Dimitris Kyrziadis, “Wealth Creation and Bid Resistance in U.K. Takeover Bids,” *Strategic Management Journal*, Vol. 18, no 6 (1997): 483-498.

A final study that highlights the governance factors involved with takeover resistance is “Corporate Governance within the Context of Antitakeover Provisions.”¹⁰ This article examines the differential impact of institutional holdings, managerial holdings and corporate board characteristics on the adoption of various types of takeover defenses. However, this study particularly focuses on the agency theory and corporate governance implications of antitakeover provisions and management discipline. Specifically, the study analyzes both the management entrenchment argument against takeover defenses as well as the bargaining power theory. The empirical research supports the management entrenchment hypothesis as indicated by agency theory. The study takes the viewpoint that antitakeover provisions restrict the monitoring power of the external takeover market and that the most entrenching provisions are those not requiring shareholder approval.

An interesting finding in the study indicates that when managers with small stock positions increase their holdings, poison pill adoption decreases, while increases in large positions leads to higher poison pill frequency. Agency theory dictates that managers with small stockholdings would be more likely to adopt poison pills, because the annuity income from their job is greater relative to the value of their stockholdings. This prediction is confirmed by the decreased poison pill adoption when managers with small holdings increase their positions; however, when managers with large positions increase their holdings, poison pill adoption rises. The explanation for this may be that increased stockholdings from managers with large positions is indicative of extreme confidence in

¹⁰ Chamu Sundaramurthy, “Corporate Governance Within the Context of Antitakeover Provisions,” *Strategic Management Journal*, Vol.17, no. 5 (1996): 377-394.

the company or privileged information. Thus, they are more willing to adopt antitakeover provisions in defense of this hidden value.

The past chapters have laid out the history, theory and past research important to fully understanding the upcoming empirical model and theoretical discussion. As takeovers and the tactics for preventing them have developed in the past few decades, significant academic discussion has surrounded both the shareholder effects as well as the conflict of incentives between principals and agents. This thesis is attempting to accomplish a twenty-first century empirical study that provides conclusions as to the wealth effects of takeover resistance in publicly held U.S. companies. Along with a focus on manager and board of director composition and incentives, it will attempt to identify the key characteristics of takeover targets and their agents that influence the decision to resist. In the next section, the data will be illustrated and described, followed by the empirical model.

CHAPTER IV

DATA AND METHODOLOGY

The following section will outline the process through which this study gathered data and prepared the regression model. Data were gathered in multiple segments from the SDC Platinum database and then supplemented with holdings information from the Mergent Online database. The data section will outline the problems faced when gathering complicated financial data by hand. The methodology section will highlight each variable and its expected behavior in the model. Additionally, it will outline the analysis underlying the choice of each independent variable and its proxy within the regression.

Data

Past literature provides guidance for the methodology of the current study. To produce conclusive results, the data and methods should reflect those used in crucial past studies such as those by Heron and Lie,¹ Long and Walking² and Sundaramurthy,³ described in Chapter III of the current work. Following the research design of Heron and

¹ Randall Heron and Erik Lie, "On the Use of Poison Pills and Defensive Payouts by Takeover Targets," *The Journal of Business*, Vol. 79, no. 4 (2006): 1783-1808.

² Michael Long and Ralph Walking, "Agency Theory, Managerial Welfare, and Takeover Bid Resistance," *The RAND Journal of Economics*, Vol. 15, no. 1 (1984): 54-68.

³ Chamu Sundaramurthy, "Corporate Governance within the context of Antitakeover Provisions," *Strategic Management Journal*, Vol. 17, no. 5 (1996): 377-394.

Lie, the data for this thesis were drawn from the Securities Data Company (SDC) Mergers and Acquisitions database, which has since been acquired by Thomson Reuters.

The data were gathered in three parts from the Thomson Reuters SDC Platinum mergers and acquisitions database. This is because of the need for Thomson Reuters to pull data from SDC platinum based on certain criteria. It was intended that the first data set include unsolicited offers that prompted bid resistance from the target. The second requested data were to include unsolicited tender offers in which the target did not enact defensive measures. Unfortunately, due to communication issues, the second deliverable included only six usable takeover instances. Thus, replacement data were requested based on the original criteria.

The first database run was completed with the criteria of the most recent 30 takeover attempts (unsolicited tender offers) faced by U.S. domiciled public companies in which the target company engaged in defensive action as a direct result of the bid. This resulted in 30 takeover battles with defensive action during the period January 2009 to January 2012. While each of the 30 takeover attempts garnered resistance from the target, some of the instances did not involve an active takeover defense from the target company. These mainly consisted of proxy fights or legal battles. Many of these takeover attempts garnered headline financial news, such as Carl Ichan's fight for control of The Clorox Co and multiple competitors' attempts to buy out Dollar Thrifty Automotive Group. Information in the deliverable includes: announcement and effective dates, target and acquirer names, defensive tactics, target share prices at intervals prior to the announcement, offer price, and a paragraph synopsis describing the details of each deal.

The synopsis of each takeover attempt is used to generate two additional independent variables: hostility and completion. In many cases, the synopsis itself classifies bids as hostile, and in the remaining cases, the determination is based on the public reaction of the target firm to the offer in the form of publicly issued statements and management's statements to shareholders. Although bid hostility is often a questionable measure, the public statements of the target as well as the bidder highlight the hostility of the relationship. Hostility will be an indicator variable used in the model to analyze how target management reacts differently between offers where they expect to lose their position and those where they expect to remain employed. Completion is a dummy variable that represents the current stage of the takeover process. Takeover attempts in which defensive action by the target results in withdrawal of the offer are coded with a zero. Instances where the takeover is pending or completed receive a completion value of one. While this indicator will not be used in the regression model, it will allow comparison of management tendencies during successful and unsuccessful takeovers.

The data set is also supplemented with holdings data compiled from Mergent Online U.S. Company Data module. Supplemental data include: percentage of target shares held by insiders (directors and officers), trailing twelve months change in insider holdings (TTM change) and total direct insider shares. Including the independent variable of TTM change should serve to highlight management's most recent opinion on the value of the company. A large TTM increase in management stockholdings could indicate increased confidence in the value or growth prospects of the firm; therefore, defensive actions are more likely to benefit shareholders. Thus, this variable will control for targets in which shareholder value is more likely to be protected by defensive

measures. The final supplemented variable is managerial wealth change, a key variable used by Heron and Lie⁴, calculated as:

$$\text{Managerial Wealth Change} = \text{Total Direct Insider Shares} \times \text{Share Price 1 Day Prior to Announcement} \times \text{1 Day Bid Premium}$$

This variable acts as a measure of the total capital gains facing management of the target firm. It incorporates the 1 day bid premium variable into a measure that includes total insider holdings, and it is expected that higher values of the variable will lead to lower probabilities of defensive action. This expectation stems from the agency theory prediction that managers will respond to personal financial incentives. The variable will be tested for multicollinearity against percentage of total direct shares held by insiders; however, these variables will serve different purposes in the model. A significant negative coefficient on the independent variable of percentage of total direct shares held by insiders could result from a tendency for target managers to supplement their bargaining position, whereas a similar coefficient on managerial wealth change would more likely indicate a widespread agency problem.

The dependent variable of the model will be an indicator variable that represents bid resistance on the part of the target. This includes poison pills as well as rejected bids and proxy fights. Since this study is focusing on the determinants of the bid resistance decision, the model should include all forms of resistance, not just those with direct shareholder effects. The distinction between these two types of resistance is made in the data set by Thomson Reuters, which identifies six of the 30 instances as proxy fights.

⁴ Randall Heron and Erik Lie, "On the Use of Poison Pills and Defensive Payouts by Takeover Targets," *The Journal of Business*, Vol. 79, no. 4 (2006): 1783-1808.

The remaining 24 takeovers involved the activation of a shareholder rights plan, or poison pill.

In addition to the above data on unsolicited offers that garner takeover resistance from the target, a second set was pulled from the Thomson Reuters SDC Platinum database. The criteria for this data set were to include the 30 most recent successful hostile bids facing U.S. target firms. The resulting compilation of takeovers includes completed deals from the period 1996 to 2006. Unfortunately, holdings data are unattainable for a large number of these takeover targets, largely due to the fact that many of these companies were bought out before Sarbanes-Oxley as well as prior to the prominence of the internet.

Given the difficulties, ownership data consistent with the quality of the first data set was found for six successful hostile takeovers via the Mergent Online U.S. Company Database, the most recent target company 10-K filings and SEC Form-4. These holdings consist of the SEC reported shareholdings of all target company directors and top executives (CEO, CFO, Executive VPs, Controller, Senior VPs) at the most recent filing date prior to the announcement of the tender offer. It is important to note that this sampling approach is consistent with that of the first data set and that the insider holdings data purposefully exclude all transactions after the announcement and reflect the pre-takeover status-quo. Using this data, the variables of managerial wealth change and percentage of total shares held by insiders are added to the six completed takeovers without defensive action. While the second data set does not include synopses, hostility will be coded based on the public reactions of each party during the takeover process.

Additionally, these takeovers will be coded for the dependent variable of active takeover resistance, based on public statements from the target.

A third set of takeovers was pulled from the SDC Platinum database with the criteria of including the 30 most recent unsolicited tender offers that did not garner any takeover resistance from the target. The resulting list includes 30 completed deals from 2010 to 2012. This third data set was acquired to have a sufficient number of deals in which the target did and did not resist the tender offer. Using the Mergent Online U.S. Company database, holdings data were compiled using the same methodology as the first data set. Hostility was coded based upon public disclosures, resulting in the entire sample being coded as non-hostile.

When aggregated, the data include 30 takeover attempts with active bid resistance from the target, 30 non-hostile bids without resistance and 6 successful hostile bids with a mixture of resistance. In total these deals span the period from 2002 to 2012, with a heavy focus on bids since 2009. Using this dataset, a regression model will determine the explanatory power of each independent variable on the decision by takeover targets to actively fight bids. The following section will underline the fundamentals of the model, hypothesized characteristics of independent variable coefficients and what they could mean for the capital markets.

Methodology

This study uses an empirical model to investigate the potential agency problems caused by clouded public director incentives. Both the past research and agency theory analysis indicate that takeover targets display concerning tendencies in their use of anti-takeover provisions. This thesis aims to test the conclusions of the past research on a

data set of recent takeovers while utilizing a methodology drawn from the most promising past studies. Additionally, the model focuses on testing the explanatory power of director incentives such as bid hostility and managerial wealth change on the use of takeover defenses. This section discusses the inputs of the model, their expected characteristics and the reasoning for using such methodology.

The dependent variable of takeover defense enactment is represented by an indicator, allowing for an Ordinary Least Squares (OLS) regression to determine the coefficients of each exogenous variable upon the anti(pro)-takeover decision. The indicator will be equal to one in cases where the target resists the tender offer in some attempt to reject the bid. This includes direct takeover defenses such as poison pills as well as outright bid rejection, proxy fights or refusal to negotiate. The choice of takeover resistance as the dependent variable is an easy one based upon the methodologies of the past literature as well as the previous agency theory discussion.

The fraction of total outstanding shares held by insiders is a very important exogenous variable, as it provides a simple view of management's position. An entrenched management team is likely to hold a higher percentage of shares in their company than a less entrenched one. Much of the past literature has identified an inverse relationship between takeover bid resistance and management holdings, which will be tested in the current model. This variable is also the best measure of management's bargaining position, which is the main argument against the entrenched management hypothesis mentioned earlier. Based upon both the findings of past studies as well as the predictions of agency theory, the coefficient on this variable is expected to be negative. Takeover targets whose top management has relatively small stockholdings will elect to

resist more often than those with large holdings, because of the higher risk-reward ratio facing those with small holdings. While the risks associated with job loss for target directors are affected more directly by the hostility of the bid, the rewards from not resisting a takeover are tied directly to the size of their stockholdings. Thus, directors with large positions are expected to respond to the higher reward by more often voting against bid resistance, and directors with small positions will prefer not to risk their employment and vote in favor of bid resistance.

The indicator variable representing the hostility of the bid will also be important for analyzing the actions of managers. For the purposes of this study, bids are considered hostile if the target management is likely to be replaced or heavily modified as a result of the takeover. To determine the value in each instance, the hostility determination by the SDC Platinum database was supplemented with research into public statements made by each company. Takeovers where public statements include harsh language, accusations or any mention of intentions to replace management by the acquiror are considered hostile. The hostile or friendly nature of a bid is crucial in analyzing the behavior of target managers. These managers and directors face the risk of losing their jobs as a result of a takeover, and that risk is directly related to the hostile/friendly intentions of the bidder. Given the above definition of hostility, managers are faced with a significant incentive to vote in favor of takeover defenses: keeping their job. This agency analysis leads to the expectation that takeover resistance is more common in response to hostile bids than in response to friendly ones; however, there may be other factors causing this trend. Perhaps target managers respond less amicably to hostile offers because they see less potential for value creation on average compared to friendly offers with intended

mergers. If that were the case, then shareholders may benefit in cases where defensive management fends off hostile bids in hope of future friendly offers. It is also possible that hostile bidders tend to offer lower bid premiums, which will be addressed in the data illustration.

Expanding upon the work of Long and Walking,⁵ the regression model will include an explanatory variable for managerial wealth change. This measure represents the potential aggregate wealth gain to the top management of the target firm (directors and top executives) from the completed takeover. Given the wide range of values for managerial wealth change, the model will use the log of the variable. While multicollinearity is a potential concern, this variable is particularly valuable because of how it relates to bid premium. A larger (greater distance from zero) and/or more statistically significant coefficient on managerial wealth change compared to the coefficient on bid premium could indicate an agency problem. Recall that managerial wealth change is equal to: bid premium times market value of insider stockholdings. If this variable has greater explanatory power upon bid resistance than bid premium itself, then target managers must be overvaluing their stockholdings relative to bid premiums. In other words, takeover targets' resistance decisions are less influenced by the premium offered for the entire share capital of the company than by the premium specifically offered for management's share capital. Shareholder wealth could unambiguously be harmed if this is a widespread tendency. Consider a hostile bid in which the offered bid premium is agreeable to the wide majority of target shareholders; however, management owns very few shares in the company. Management's potential gains from the takeover

⁵ Michael Long and Ralph Walking, "Agency Theory, Managerial Welfare, and Takeover Bid Resistance," *The RAND Journal of Economics*, Vol. 15, no. 1 (1984): 54-68.

are minimal due to their light holdings, while the risks they face are very high because of the hostility of the bid. A larger magnitude and/or greater significance of the coefficient of managerial wealth change relative to bid premium would imply, in the context of the above example, that management tends to reject such bids at the expense of shareholders. While this is a very specific example, one can see the potential problems this explanatory variable will search for in the data.

Due to limited data availability, the independent variable of trailing twelve months change in insider holdings (TTM change) will be included in a second regression. This OLS model will include only takeovers for which this information was available, resulting in a data set of 31 takeover attempts during the period from 2009 to 2012. This data set includes 20 instances with and 11 without bid resistance in reaction to 13 hostile and 18 friendly bids. The variable for TTM change in insider holdings is intended to represent target management's confidence in the prospects of the company. Buying by insiders is generally accepted by financial markets as a positive signal. Renowned investor Peter Lynch is famously quoted, "Insiders might sell their shares for any number of reasons, but they buy them for only one: they think the price will rise."⁶ While the variable includes selling as well as buying, the main relationship the second regression aims to investigate is that between insider buying and takeover bid resistance. A large amount of insider buying by target management in the year prior to receipt of a takeover bid would indicate confidence in the stock price and growth prospects of the company. It is expected that this confidence would lead target managers to more often resist bids, because they expect the stock price to perform relatively well. This would manifest itself

⁶ Investopedia Articles, "What Investors Can Learn From Insider Trading," Investopedia, posted November 10, 2010, <http://www.investopedia.com/articles/02/061202.asp#axzz1oS3v4HFv> (accessed March 7, 2012).

as a positive coefficient in the model. However, it is possible that heavy insider buying could cause management's stockholdings to become large enough that the immediate capital gains incentivize them to decide against anti-takeover provisions. In conclusion, this explanatory variable and second regression model should illuminate the relationship between target management's confidence in the stock price and the decision to resist takeovers.

The first regression model attempts to determine the explanatory power of hostility, bid premium, managerial wealth change and the fraction of direct shares held by insiders on the takeover resistance decision. This first regression model is run over the total sample of 64 unsolicited tender offers spanning from 2004 to 2012, with the majority occurring since 2009. The second regression model is run on a sample of 31 unsolicited offers and focuses on the independent variable of trailing twelve months change in insider holdings. The following chapter presents the regression results and interprets the explanatory power of each variable on the use of bid resistance.

CHAPTER V

RESULTS AND ANALYSIS

The following section outlines the results of the regression model in the context of the previous agency theory analysis. Each regression coefficient with explanatory significance will be related to the actions and incentives facing target managers. Although several regressions are run on various combinations of independent variables, each one aims to explain the behavior of management with respect to the decision to resist an unsolicited offer. The regression set ups are outlined below, along with detailed analyses of the results.

The initial run of the first regression model reflects a need to further analyze the choice of independent variables. The bid resistance decision is first regressed against hostility, bid premium, managerial wealth change and fraction of shares held by insiders. The independent variables explain fewer than 25% of the variation in the use of defensive tactics by takeover targets with a 99% significant f-statistic of 4.89; however, the independent variable of hostility is found to be the only significant determinant of bid resistance. The value of the coefficient on hostility is ~ 0.455 , with a 95% confidence interval from 0.19 to 0.72. This significant and unambiguously positive relationship supports the agency theory prediction that hostile bids comprise a large risk to target company managers and directors. The constant term is found to be equal to 0.47 with a significant t-statistic of 3.85. This positive constant term supports the expectation that the bid resistance decision is a function of a large number of determinant factors, many of

which are not included in the OLS regression. The model assigns a coefficient of -0.19 to the bid premium variable, which supports the hypothesized inverse relationship between bid premium and bid resistance. However, the t-statistic of 0.23 is far from the desired absolute value of 1.96, indicating a weak relationship.

Further consideration of the independent variables is necessary. The coefficient on the fraction of total direct shares held by insiders is insignificant, with a value of -0.77 and a 95% confidence interval stretching from -2.57 to 1.03. Such a wide confidence interval spanning both positive and negative values makes it impossible to determine the relationship to the dependent for this data sample. The initial regression indicates that the inclusion of managerial wealth change should be reconsidered. First, due to the incorporation of bid premium into the calculation of managerial wealth change, the two variables are interrelated. The correlation between bid premium and managerial wealth change is low at 0.0147; however, these variables are still highly related. The inclusion of both independents in the model could lead to less significant terms and a less powerful model. In attempting to remedy this problem, the natural logarithm of managerial wealth change is substituted for the variable.

The second iteration of the initial model regresses bid resistance against bid premium, fraction of direct shares held by insiders, hostility and the natural logarithm of managerial wealth change. The logarithmic measure of managerial wealth change is meant to scale the variable to values that are closer to those of the dependent variable. Unfortunately, this substitution does little to increase the explanatory power of the regression. While the coefficient on hostility remains significant and positive, the substitution of managerial wealth change for its natural logarithm results in a weaker

model. The constant term is found to be insignificant in this iteration, with a t-statistic of -0.04. While the F-statistic and R-squared scores remain relatively unchanged compared to the original iteration (5.03 and 0.254, respectively), the lack of a significant constant term and coefficient on the log of managerial wealth change indicate the need for an alternative measure of managerial stockholdings.

Managerial wealth change is included because of its successful use by Long and Walking; however, the first regressions show a lack of statistically significant relation to the dependent variable. This is likely due to the relatively small sample size of this study's data (n=64). The size and complexity of this study's data set are limited by financial and temporal constraints that may not be present for professional researchers. It is also possible that the inclusion of both bid premium as well as share price causes the values to vary too widely across companies with widely different market valuations. This variable is dropped in favor of separate measures of bid premium and insiders holdings.

A potential replacement for managerial wealth change is a measure of the value of total direct shares held by insiders. The removal of bid premium from the representation of management stockholdings addresses the problem of correlation between the two variables. The variable is called management stock value and is calculated as the product of total direct insider shares and the share price one day prior to announcement. This replacement allows for separate analysis of the potential gains to management relative to their holdings (bid premium) from the magnitude of those holdings (management stock value). Separate coefficients for the potential gains to managers and the magnitude of their holdings allows for more detailed analysis.

The third regression model is run with independent variables for hostility, bid premium, fraction of total shares held by insiders and management stock value. The results are similar to those of the previous iterations. Both the constant term and the coefficient on hostility are significant with t-statistics of 3.89 and 3.63, respectively. The values of those two terms are largely unchanged from previous models, indicating a further need to analyze the independent variables. The newly included variable of management stock value is found to have no significant relationship to bid resistance, with a t-statistic of -0.13. The coefficient on bid premium is found to be -0.18; however, with a t-statistic of -1.22, it has little significance. Finally, the fraction of shares held by insiders is found to have no significant explanatory power over bid resistance. The replacement of management stock value with its natural logarithm does not improve its relationship with the dependent, nor does it improve the model. Multiple OLS regressions using these variables make it clear that the fraction of shares held by insiders and the value of management holdings have little explanatory power over bid resistance.

A few factors may influence these results. The first and most obvious reason is a sample bias. Perhaps the sample size is too small to capture this complicated relationship. The measurement of management stockholdings as a proportion of the company's market value seems obvious; however, it is possible that outside factors may affect its accuracy. Companies with high market valuations but relatively few managers could exhibit higher levels of this variable compared to firms with larger management teams. Also, corporate culture could affect the buying or selling trends of managers. The lack of a statistically significant relationship between the values of management shareholdings and bid resistance could be a result of the inclusion of price as well as total

shares. Total shares held by insiders show an extremely wide range of values, from 17,250 to over 14 million. Its mean value of 2.8 million shares is less than its standard deviation of 3.2 million shares. Factoring share price into this variable further increases the variation, resulting in the weak regression coefficients.

To improve the model, the variable representing the fraction of total direct shares held by insiders is now dropped. Too many outside factors influence the ratio of managerial holdings to total shares. The replacement for the value of management stockholdings must avoid the measurement problems of previous variables. Since total insider shares have such wide variation, the natural logarithm is taken. This allows for the scaling down of insider holdings to a level closer to other variables. To convert this figure from the log of shares to market value, price is factored in. The new variable, labeled the value log of management shares, is included in the next iteration of the regression.

The explanatory variables included in the following regression are hostility, bid premium and the value log of management shares. The results show an improvement from the past iterations, with an R-squared value of 0.3274 and a significant F-statistic of 9.73. The constant term has a significant coefficient of 0.238, which has decreased from the past regressions. This means that the independent variables explain more of the variation in bid resistance relative to outside factors. Hostility once again has a positive coefficient greater than 0.4, with a strong t-statistic of 3.56. Bid premium receives a negative coefficient; however, the t-statistic of -0.83 indicates a weak relationship. The newly added variable is found to have a coefficient of 0.00043 that is significant at the 99% level. Although the coefficient is quite small, the 95% confidence interval lies

above zero. This identifies a significant relationship between the value of management stockholdings and the target's bid resistance decision; however, the relationship is positive. Agency theory and the past literature indicated a negative relationship would be expected. The independent variables pass a correlation test, indicating a lack of multicollinearity. The Cook-Weisberg test for heteroskedasticity failed to reject the null hypothesis of constant variance. The above regression model highlights the determinant power of hostility and the positive relationship between value log of management holdings and bid resistance. The latter could be a result of the inclusion of price in the variable. It is possible that taking the log of management shares before the inclusion price is affecting the outcome of the model. Thus, the model below uses the logarithm of direct shares held by management instead of the value log. The next regression relates the dependent variable to hostility, bid premium and the log of direct shares held by insiders.

Similar to the past models, the constant term and hostility are positive and have statistically significant t-statistics; however, in this case the constant term is equal to 1.497. This is because the model identifies a negative determinant relationship between the dependent and both the log of total direct shares as well bid premium. The table below illustrates the results.

TABLE 5.1

Final Regression Model			
	Obs=64	R ² =0.28	F= 7.64
Ind. Variables	Coef.	t-stat	P> t
Bid Premium	-0.2235	-1.48	0.145
Hostility	0.4769	3.99	0.000
Log (TDIS)	-0.0735	-1.79	0.078
Constant	1.497	2.46	0.017

The coefficient assigned to the log of total direct shares is significant above the 90% level with a t-statistic of -1.79. This is the first indication of support for the hypothesized negative influence of managerial stockholdings on takeover bid resistance. While this measure excludes market price, the logarithm of total shares held by insiders should provide a relatively accurate measure of management's stake in the company.

Additionally, the coefficient on bid premium achieves improved significance compared to the past regressions. The coefficient's value of -0.22 supports the hypothesized inverse relationship between premium offered and defensive action; however, it is only significant at the 85% level with a t-statistic of -1.48.

Interestingly, the previous regression finds that pre-offer price times the log of management stockholdings has a positive influence on the adoption of takeover defenses; however, the final regression finds that the log of management shareholdings has a negative influence. The difference in results is likely related to the inclusion of pre-offer share price in the previous model. The exclusion of pre-offer share price is the only change between the previous and current models. Therefore, there must be a relationship between pre-offer share price and bid resistance that is skewing the model. To test for this, bid resistance is regressed on the independent variable of price. As expected, pre-offer share price has a significant relationship to bid resistance. The regression finds a coefficient of 0.0085 on pre-offer share price, with a t-statistic of 3.9. This miniature model shows that price is positively related to the dependent, which likely explains the positive coefficient assigned to value log of managerial holdings. Thus, the best and most accurate measure for this study is the log of management shares.

The final regression highlights the negative relationship between the log of management shares and target company bid resistance. As hypothesized, the model indicates that management teams with larger stakes in their firms will enact bid resistance less often than those with small stakes. It must be noted that this coefficient is only significant at the 90% confidence level; however, the finding is supportive of the agency expectation that managers with more to gain from a takeover bid are less likely to fight one. This coefficient may also be a result of the tendency for managers with fewer shares and thus less bargaining power to more readily enact formal takeover defenses. Either of these theories may be supported by this coefficient; therefore, analysis of the remaining independent variables is necessary to understand the true implications of the model.

The most consistently significant explanatory relationship identified by the model is that between hostility and target bid resistance. Statistically significant and unambiguously positive coefficients in each regression highlight the strength of hostility as a determinant of bid resistance. Since bidders are defined as hostile based on their publicly announced intentions to replace target managers, this could indicate an agency problem. The fact that hostility has consistently significant determinant power over bid resistance, while bid premium does not, could mean that managers value retention of their jobs more highly than bid premiums. If that were the case, shareholder wealth would likely suffer during takeover transactions. Hostility seems to be the main determinant of bid resistance, with the largest and most significant coefficient in each regression. The lack of consistently powerful coefficients on other variables could mean that managers are neglectful of important factors in their decision-making process.

Bid premium is found to have greatly improved explanatory power over bid resistance in the final model. The coefficient of -0.22 highlights a negative influence of the bid premium offered on the defensive reaction of the target. While only significant at the 85% level, this is the most conclusive result yet for bid premium. As expected, larger bid premiums should garner less bid resistance on average than smaller premiums. Bid premium is expected to be one of the top factors considered by management in the takeover process. For shareholders, the premium to the market price offered by the bidder is of the utmost concern. If the offer premium properly rewards shareholders for their sacrifice of future earnings, then they should prefer a successful buyout. From a shareholder wealth maximization perspective, bid premium should have more explanatory power over target bid resistance than any other variable. The results of the regression model show otherwise. The lack of consistently significant determinant power for the variable could indicate that managers are underweighting shareholder concerns relative to their own.

Before moving on to further analysis and conclusions, an alternate regression is performed that includes a measure of trailing twelve months (TTM) change in management stockholdings. Due to a lack of data availability, this regression is run on a sample of 31 unsolicited tender offers. The independent variables include bid premium, hostility and TTM change in insider holdings. The log of total direct shares is excluded because it is too closely related to the TTM change variable. The final variable is calculated as net TTM insider buying (shares bought minus shares sold) divided by total direct shares held by insiders twelve months prior to announcement. The purpose of this regression is to briefly assess the effects of management confidence on bid resistance.

Heavy insider buying is generally accepted as a positive signal from management concerning the health and future prospects of the company. Selling by management may indicate financial distress or changes in top executives.

The findings are interesting, yet statistically inconclusive. The model identifies a tentative relationship between the TTM change in management stockholdings and bid resistance. Similar to past models, hostility is found to have significant and positive explanatory power over bid resistance. However, the model finds no explanatory power and generates inconclusive t-statistics for bid premium for this smaller sample. The removal of bid premium from the regression leads to improved coefficients while only negligibly reducing the R-squared value. The resulting coefficient on the variable of TTM change in holdings is -0.043, with a t-statistic of -1.41. The confidence level for this coefficient is low at just above 80%. The negative coefficient goes against the hypothesized positive relationship between management confidence and bid resistance. It is possible that the sample of 31 takeovers is insufficient to determine such a finite relationship. Perhaps the lack of a relationship is a result of increased public scrutiny on insider purchasing. It is also possible that net buying by insiders in the year leading up to a takeover bid simply has insignificant determinant power over the resistance decision compared to total stockholdings.

The results have identified several conclusive relationships with potential agency implications. Hostility is shown to have the best explanatory power over takeover defenses. Other variables are found to influence bid resistance but not to the same extent as hostility. This is concerning, because hostility is defined as the intention of the bidder to replace the target firm's management team.

The results of the regression model are of particular interest when considered in the context of the agency theory discussion in Chapter II. Recall that the analysis resulted in several hypothesized tendencies for target managers. Managers were predicted to respond to financial incentives such as bid premium and management stockholdings. While the model identified these factors as influential, their weak statistical significance questioned their explanatory power relative to hostility. Managerial risk aversion during the takeover process is the behavior most supported by the results of the model.

The strength of the regression coefficient on hostility combined with the weak relationships found for other incentives could mean that managers are negligent of shareholder concerns. The regression results show that, for this sample of 64 unsolicited offers, the offer premium has significantly less of an influence on the bid resistance decision than does the intention of the bidder to replace target management. The implication is that managers weigh their personal risks more heavily relative to shareholder rewards. Additionally, the log of total shares held by insiders has a more significant relationship to bid resistance than bid premium. This is even more disconcerting, because it shows that directors are more concerned about their stockholdings than they are about the potential capital gains to shareholders. Perhaps corporate governors do not hold adequate shares in their companies to outweigh the risks they face during a takeover.

From a shareholder wealth maximization perspective, the model indicates some serious potential fiduciary violations. If managers were fulfilling their duty to shareholders properly, the regression would show different results. The expectation

would be a significant negative coefficient on the offer premium, with explanatory power over the dependent variable closer to or greater than that of hostility. Shareholders should be concerned that bid premium is found to have little determinant power over management's resistance decision. The negative influence of the log of insider shares may indicate that management teams with larger stakes in their companies experience incentives that more closely align their interests with those of shareholders.

The regression model supports the expectation that the misalignment of incentives between principals and agents could be harmful to shareholder returns and wealth. Although this study does not include detailed analyses of the effects to shareholder wealth, the tendency of managers to resist takeovers based on their employment risks instead of shareholder returns (bid premium) is likely to be harmful to investors.

If shareholder wealth is harmed by the tendency for managers to resist takeovers based on their expectation of losing or keeping their jobs, then a potential remedy would be to enact holdings requirements for managers and directors. Since managers seem to be influenced more by risks than rewards, increasing their potential reward should lessen their risk aversion tendencies. This would lead to lower explanatory power for hostility relative to bid premium in the bid resistance decision process, thus bringing management incentives into closer alignment with shareholder wishes.

Further research could be done on the shareholder wealth effects of target company bid resistance, with special focus on the harm done to shareholders by selfish management tendencies. Additionally, a larger sample size and more independent variables could provide statistically significant results concerning the explanatory power of variables such as managerial wealth change and trailing twelve months change in

insider holdings. Qualitative research, such as interviews with target managers and directors about their decision making process, could also shed light on possible solutions.

The next chapter offers a recap of the current study.

CHAPTER VI

CONCLUSION

Before diving in to the complicated agency analysis seen in previous chapters, this study provided an overview of the history of takeover battles and why they are highly relevant to today's financial markets. Given the renewed public focus on corporate governance practices and agency theory that has arisen since the 2008 financial crisis, this study set out to question the effects of incentives facing takeover target managers and directors that may not be faced by shareholders. To fully understand the factors that lead takeover target management teams to enact takeover defenses, one must first analyze the overall principal-agent relationship in light of relevant established theories.

The theory chapter discussed the areas of economic, behavioral and financial study that pertain to takeover resistance. The agency analysis leads to several important hypotheses. First, the expectation that takeover target management shareholdings are inversely related to bid resistance is derived from a simply look at their incentives. Directors with large stakes in their companies have more to gain from a takeover relative to those with small holdings and are thus expected to be less motivated to resist a takeover. After the discussion of management incentives, the study covers the theory behind the financial paradigms surround takeover resistance. More specifically, the remainder of the chapter identifies and discusses the two major competing corporate governance theories that explain the use of takeover defenses. The management entrenchment hypothesis argues that target company directors use anti-takeover

provisions to entrench themselves in their positions, by protecting their jobs from hostile bids. The alternative explanation argues that managers use takeover defenses to protect shareholder wealth by garnering higher bid premium and protecting shareholders from lowball offers. The hypothesis of this study argues in favor of the management entrenchment hypothesis, and the model finds evidence that points towards confirming its accuracy.

The literature review was of particular importance in the development of the model, hypothesis and agency theory analysis for this study. Much of the reviewed literature in the area of takeover defenses, agency theory and corporate governance has contributed to the theory and established paradigms discussed in the previous section. The most important past studies contributed significantly to decisions about the data, model, variables and expectations. While many of these studies argue in favor of and find evidence in support of the management entrenchment hypothesis, a significant number find a lack of empirical evidence showing the expected relationships.

Following the literature review, the data and methodology were significantly influenced by the actions of past researchers. Data were gathered from the SDC Platinum database, which was used in the past by several key studies. The data were focused around a small number of key variables, which aimed to test the existence of several predicted incentive-action relationships. These relationships include the influence of hostility, bid premium and management stockholdings on the takeover resistance decision by the target firm. While the mix of independent variables required some trial and error to perfect, the model was able to generate conclusive and interesting results.

The regression finds hostility, or the intention of the bidder to replace target management, as the most powerful explanatory factor in the takeover resistance decision. The model also finds a tentative negative relationship between insider holdings (the natural logarithm of total direct shares held by insiders) and bid resistance. While the final iteration of the regression finds a tentative influence of bid premium on bid resistance, the confidence level of only 85% indicates inconclusiveness. The fact that hostility has such a large influence on takeover target bid resistance relative to other factors is a finding with far-reaching implications. The indication is that target company managers overweigh their personal job-loss risks (hostility) relative to shareholder wealth concerns (bid premium).

The empirical findings suggest that the current incentive structure for public company agents is leading them to make decisions that may not be in the best interest of shareholders. Potential solutions to this problem, while requiring further research, could include management stockholding mandates or a more widespread implementation of a form of golden parachutes. The latter could allow takeover target management teams to analyze bids with a lesser focus on their personal employment risks. Implementing larger stake requirements for directors potentially could align their interests closer to those of shareholders, and decrease the use of anti-takeover provisions by target directors as a tool against employment loss.

This thesis has shown conclusively that the corporate governance system surrounding takeover bids and target resistance is flawed. The regression highlighted the tendency for target management to overweigh their personal risks relative to shareholder returns during the decision process. The lack of a consistently statistically significant

relationship between bid premium and bid resistance also indicates management negligence towards shareholder concerns. Based on the results, this study strongly indicates a mismatch of incentives for target company managers that leads them to behave in ways that likely are harming shareholder wealth.

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