SHAREHOLDER-MANAGEMENT CONFLICT AND EVENT-RISK COVENANTS

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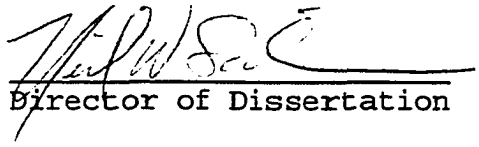

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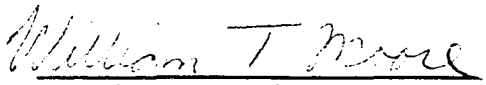

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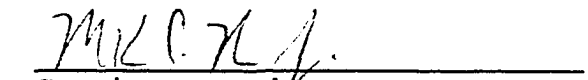

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Dedication

To Mom, Dad, and Nita

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Abstract

Event-risk covenants (ERCs) constitute a class of bond covenants that extend event-risk protection to bondholders. Event risk is the risk of a decline in the credit quality of an issuer resulting from its takeover, leveraged recapitalization, or similar restructuring. Two competing hypotheses of ERCs are tested in this study, the Shareholder Interest Hypothesis and the Management Entrenchment Hypothesis. The Shareholder Interest Hypothesis states that managers use ERCs primarily to benefit shareholders by reducing the true costs of borrowing. The Management Entrenchment Hypothesis states that managers use ERCs primarily to raise costly barriers to takeover, that is, to entrench.

The results of this study indicate that at least one type of ERC (the nonwaivable poison put) decreases shareholder wealth, on average. The evidence suggests that shareholders of firms that use ERCs would not be harmed by issuances of unprotected debt. However, shareholders of these firms are harmed by issuances of ERC-protected debt. Also, the results indicate that debt issuers which suffer greater shareholder-management conflict are more likely to use nonwaivable poison puts. After controlling for the effects of industry and firm size, a positive relationship is found between estimated free cash flow and the probability of nonwaivable poison put use. Overall, the evidence presented in this study is consistent with the Management Entrenchment Hypothesis.

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CHAPTER ONE

INTRODUCTION

1.1 DESCRIPTION OF EVENT-RISK COVENANTS

Event-risk covenants (hereafter ERCs) constitute a class of bond covenants that extend event-risk protection to bondholders. Event risk is the risk of a decline in the credit quality of an issuer resulting from its takeover, leveraged recapitalization, or similar restructuring.

ERCs protect bondholders in one of two ways. Most ERCs give a put option to bondholders. This put option allows them to sell the bond back to the issuer, usually at par or par plus a small premium, upon the occurrence of any one of a number of stated "designated events" and a decline in the bond's rating. This type of put option is frequently called a "poison put." Designated events that can trigger the put option are specified in the ERC and typically include change of control events. Two common designated events are the purchase of a specified percentage of the issuing firm's voting stock by an outside individual or group and a change in the majority control of the issuing firm's board of directors. A typical poison put is triggered when one of these events occurs and the protected bonds are downgraded

by Moody's or Standard and Poor's within a specified number of days following the event.

Poison put contracts are heterogenous. While the triggering requirements mentioned above are typical, these requirements are not always included in poison puts. For example, some poison puts are triggered solely by the designated event and do not require a downgrading of the debt. Also, the two mentioned events do not represent an exhaustive list of triggering events. Some poison puts are triggered by leverage-increasing events not necessarily associated with a change in control. These events include share repurchases and special dividends. Furthermore, the magnitude of share purchase, share repurchase, or special dividend that triggers the poison put varies among poison-put covenants. Most poison puts are triggered by a purchase of above twenty or thirty percent of the firm's voting shares by an outsider and a downgrading of the debt.

Some poison put options may be waived by the issuing firm's board of directors. A waivable poison put allows the board to waive the rights of bondholders to exercise the put, such as in the case of a "friendly" takeover. In effect, a waivable poison put gives the issuing firm's board the right to exercise the put. A nonwaivable poison put, frequently called a "super poison put," does not give the board the option of waiving bondholders' exercise rights. From the sample of ERC-protected bonds gathered in this

study, it appears that nonwaivable poison puts are the most common type of ERC.

Some ERCs protect bondholders through a coupon reset provision rather than through a put option. This type of ERC provides an automatic adjustment in the coupon rate if the bond is downgraded (or upgraded) by a major rating agency for any reason. A change in the bond's rating is the only designated event that must occur for most of these ERCs to be triggered. Generally, if the coupon reset provision is triggered by a downgrade, the issuing firm is required to raise the coupon rate so that the bond trades at par. Coupon reset provisions are considered to be ERCs because they provide bondholders with relatively strong protection from credit quality deterioration induced by leverage-increasing events.

By making takeovers more costly to shareholders, ERC-protected debt could discourage takeovers of the issuing firms. In this dissertation it is argued that poison-put ERCs are more likely to deter takeovers than are coupon reset ERCs. Consider the likely outcome if a poison-put ERC is triggered as a result of a leveraged takeover. Shareholders will likely pay a higher rate of interest on the *new debt* that is used to replace the put-protected debt (because of the increase in default risk associated with the increase in firm leverage). Furthermore, the poison put will force the bidder to obtain additional financing to buy out the protected bondholders. In some cases it could be

very difficult and costly for the bidder to obtain the additional financing needed to buy out these bondholders. Even if the bidder can obtain the additional financing, the costs associated with refinancing the put-protected debt could severely reduce the gain to the bidder. Thus, the refinancing costs associated with obtaining the additional funds is likely to be the greatest takeover cost imposed by a poison put.

Note that a coupon reset does not require that the bidder obtain additional financing. The coupon reset only requires that shareholders pay a higher rate of interest on the protected debt, assuming that the takeover results in a downgrading of the protected debt. Both coupon-reset ERCs and poison-put ERCs are likely to result in a higher rate of interest paid on that portion of the debt that was ERC-protected. However, only poison-put protected debt imposes on the bidder the costs associated with raising additional financing. For this reason poison-put ERCs are more likely to deter takeovers than are coupon-reset ERCs.[1]

1.2 WHY DO FIRMS USE EVENT-RISK COVENANTS?

The appearance of ERCs in 1986 coincided with the increase in the number of large-scale leveraged buyouts (LBOs) and leveraged restructurings that were occurring at that time. According to Weston, Chung, and Hoag [1990], the

[1]The possibility that a poison put could prevent a takeover is often stated in the covenant itself. However, this type of language does not appear in any of the coupon-reset covenants examined for this study.

value of merger and acquisition activity in the United States almost tripled from 1980 to 1983. They further report that during the 1980s ten to thirty percent of all acquisitions were executed as LBOs.[2]

While these leveraged restructurings typically increase shareholder wealth, they typically decrease bondholder wealth.[3] Asquith and Wizman [1990] find that, on average, LBOs decrease prebuyout bondholders' wealth. Yet bondholders with strong covenant protection enjoy wealth gains in LBOs. Bondholders with weak or no covenant protection suffer wealth losses in LBOs.[4]

If ERCs extend valuable protection to bondholders, then, *ceteris paribus*, bondholders should be willing to pay more for ERC-protected bonds. However, the effect of ERCs on shareholders is unclear. By making takeovers more costly to shareholders, managers could use ERCs as a takeover defense. The effect of ERCs has two possible implications for shareholders. ERCs could benefit shareholders by lowering true borrowing costs or by providing management with a bargaining chip that is useful in takeover

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[2]The economic and legal environment in which ERCs were born is explored in depth in Lehn and Poulsen [1991].

[3]For a review of the evidence concerning shareholder gains in LBOs see Palepu [1990]. For evidence of shareholder gains associated with other leverage-increasing transactions see Cornett and Travlos [1989] and Denis [1990], for example.

[4]Asquith and Wizman [1990] do not have ERC debt in their sample. Their sample period ends about the time ERCs were coming into use. For more evidence that LBOs lead to bondholder losses see Cook, Easterwood, and Martin [1992].

negotiations. Alternatively, ERCs could harm shareholders by entrenching inefficient management.

This study investigates whether managers use ERCs *primarily* to benefit shareholders or to entrench. These motivations are discussed below as the Shareholder Interest Hypothesis and the Management Entrenchment Hypothesis. Note that these hypothesis are not mutually exclusive. Some managers can use ERCs to benefit shareholders while other managers use ERCs to entrench. The evidence presented in this study suggests whether managers use ERCs predominantly to benefit shareholders or predominately to entrench.

1.3 THE SHAREHOLDER INTEREST HYPOTHESIS

The Shareholder Interest Hypothesis (hereafter SIH) states that managers use ERCs to benefit shareholders by reducing the cost of conflict between shareholders and bondholders. As residual claimants, shareholders stand to capture the gains associated with a reduction in the cost of shareholder-bondholder conflict. By attaching ERCs to debt issues, shareholders may commit themselves *ex ante* to a claims structure that does not allow an *ex post* transfer of wealth from bondholders through leverage-increasing transactions.

This commitment by shareholders decreases the event risk that bondholders would otherwise bear. In the absence of ERCs, bondholders may have concerns regarding event risk. Management, acting in the interest of shareholders, may

believe that bondholders' concerns about event risk are exaggerated. In this case, management may be able to reduce true borrowing costs (as opposed to nominal borrowing costs) by attaching ERCs to debt issues. ERCs could also reduce true borrowing costs by decreasing the monitoring costs that bondholders incur, but ultimately pass on to shareholders. Obviously, a reduction in true borrowing costs would benefit shareholders.[5]

There is another way in which managers could use ERCs to benefit shareholders. Managers could use waivable poison puts and shelf registrations of ERC-protected debt as bargaining chips in takeover negotiations. If ERCs raise costly barriers to takeovers, then management may be able to use waivable poison puts and shelf registrations of ERC-protected debt to threaten a hostile bidder with an increase in takeover costs unless the bidder agrees to raise the offering price.

As noted, the board can waive bondholders' rights to exercise waivable poison puts. During takeover negotiations

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[5]Because ERCs are valuable options we expect them to reduce coupon rates, which are nominal borrowing costs. However, the true borrowing cost to shareholders associated with issuing ERC-protected debt includes not only the explicit nominal borrowing cost, but the implicit cost associated with the sale of contingent claims to bondholders. In conjunction with a bond issuance, if shareholders confer to bondholders any valuable assets in addition to the straight bonds, then the nominal borrowing cost associated with those bonds should be lower than the nominal borrowing cost associated with otherwise similar straight bonds. Yet for shareholders to benefit from the sale of ERCs (that is, for ERCs to reduce true borrowing costs) shareholders must receive a price for ERCs that is greater than their reservation price for ERCs. Their reservation price incorporates any expected costs associated with the entrenchment effects of ERCs. Because managers, not shareholders, actually sell ERCs, there is no guarantee that shareholders receive a price that is greater than their reservation price. Therefore, ERCs could simultaneously reduce coupon rates and increase true borrowing costs.

the board could insist that the bidder raise the price paid for the firm's stock in exchange for a waiver of bondholders' exercise rights. Also, if the firm has previously registered ERC-protected debt through a shelf (Rule 415) filing, then the board could threaten the bidder with an immediate issuance of ERC-protected debt unless the bidder raises the bid price for the firm's stock.[6] In this respect waivable poison puts and shelf registrations of ERC-protected debt are similar to poison pills. Each of these devices potentially benefits shareholders because they may force a bidder to negotiate with the board. In this way the board may use these devices to extract a higher takeover premium.

These two potential benefits, reduced (true) borrowing costs and higher takeover premiums, are the basis for the SIH. The SIH states that management uses ERCs to benefit shareholders. The SIH is based on the assumption that managers who use ERCs have interests that are aligned with those of their shareholders.

The SIH emphasizes that ERCs decrease the agency costs of shareholder-bondholder conflict. The conflicts of interest between shareholders and bondholders are manifest. For example, Jensen and Meckling [1976] argue that there is an agency cost associated with issuing debt. Bondholders

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[6]In general, if a firm has previously shelf-registered securities it can issue securities within several hours of the board's decision to issue (see Pratt and Livingston [1994]) and it can issue securities sooner than would be the case had it not previously shelf-registered securities.

fear that after shareholders borrow funds, they will take actions that transfer wealth from bondholders to shareholders. Jensen and Meckling also argue that potential bondholders will be willing to pay a higher price for debt securities that permit monitoring and bonding. In other words, potential bondholders price securities assuming that the agent on the other side of the transaction is rational.[7]

We may extend this argument to analyze ERCs. If bondholders fear that management will permit or facilitate leverage-increasing transactions that increase shareholders' wealth and decrease bondholders' wealth, then bondholders will price the firm's debt lower to reflect this fear. Also, bondholders may believe that the debt-issuing firm is vulnerable to hostile LBOs. Even in the absence of a moral hazard problem (that is, a management-bondholder conflict), bondholders may still face event risk because the debt-issuing firm's incumbent management team may be incapable of preventing some hostile LBOs from occurring. Crabbe [1991] finds evidence that ERCs do in fact decrease the cost of shareholder-bondholder conflict. He finds that ERCs reduce nominal borrowing costs about twenty to thirty basis points during periods of high takeover activity.[8]

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[7]For further discussions on the cost of shareholder-bondholder conflict see Galai and Masulis [1976], Myers [1977], and Smith and Warner [1979], for example.

[8]For more evidence that ERCs decrease nominal borrowing costs see Fields, Kidwell, and Klein [1994] and Bae, Klein, and Padmaraj [1994].

The decision to use ERCs is costly to shareholders, at least in the cases of nonwaivable poison puts and coupon reset ERCs. Shareholders generally prefer management to have more flexibility to permit or facilitate leverage-increasing transactions. Nonwaivable poison puts and coupon reset ERCs are likely to render these transactions more costly to shareholders. Lehn and Poulsen [1991] discuss this loss of flexibility and note, "If lenders value the protection against event risk more than issuers value flexibility, then event-risk covenants will be included in bond contracts." This argument is generally consistent with Smith and Warner's [1979] Costly Contracting Hypothesis, which states that there is a unique, value-maximizing set of financial contracts for each firm.

To summarize, the SIH states that management will attach ERCs to debt issues because ERCs benefit shareholders. The SIH is based on the assumption that managers who use ERCs have interests that are essentially aligned with those of their shareholders.

1.4 THE MANAGEMENT ENTRENCHMENT HYPOTHESIS

Because managers' interests are often in conflict with those of shareholders, managers could use ERCs to entrench. If ERCs make takeovers more costly and shareholder-management conflict exists, managers can issue ERC-protected debt to deter hostile takeovers. If ERCs are used for this purpose, they can increase the cost of shareholder-

management conflict by making it more costly to discipline inefficient management. Just as shareholders bear the cost of shareholder-bondholder conflict, they also bear the cost of shareholder-management conflict. The Management Entrenchment Hypothesis (hereafter MEH) predicts that the increase in the cost of shareholder-management conflict associated with using ERCs is greater than the decrease in the cost of shareholder-bondholder conflict associated with using ERCs.

The argument supporting the MEH is as follows. Bondholders should be willing to pay for a covenant that decreases event risk. However, bondholders should not be willing to compensate shareholders additionally for the increased cost of management shirking and inefficiency that ERCs could permit. If ERCs deter takeovers, then the sale of debt with ERCs may allow some increased level of management shirking and inefficiency to continue indefinitely. As the residual claimants, shareholders absorb most of the costs associated with managements' suboptimal performance. The net effect of ERCs is an increase in total agency costs. In other words, the MEH predicts that ERCs raise true borrowing costs. The MEH states that managers use ERCs to entrench. Consequently, ERCs decrease shareholder wealth. The MEH is based on the assumption that a conflict of interest exists between managers and shareholders in firms using ERCs.

Jensen [1986] addresses some of the conflicts of interest that exist between managers and shareholders. He states that the market for corporate control imposes discipline on inefficient managers when the board fails to monitor managers effectively.[9] This external discipline can align the interests of managers with those of shareholders. He further argues that because activity in the corporate control market imposes costs on managers, they have sought ways to impede this market. According to Jensen, takeover defenses, such as poison pills, hurt shareholders and society by decreasing the efficiency of the corporate control market. Additionally, Comment and Schwert [1993], Malatesta and Walkling [1988], and Ryngaert [1988] find evidence that, on average, poison pills decrease shareholder wealth at the announcement.[10]

ERCs are similar to poison pills in that both instruments are implemented by management without shareholder approval and can impede the corporate control market. Like poison pills, waivable poison puts could be used to entrench or to extract a higher bid during takeover negotiations. In contrast, issuances of nonwaivable poison-

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[9]Martin and McConnell [1991] find that managers who do not perform well do become vulnerable. They find that the top management turnover rate for target firms increases after a takeover. They also find that targets underperform their industries before the takeover and targets that experience post-takeover turnover underperform targets that do not experience post-takeover turnover.

[10]Evidence that other forms of takeover defenses decrease shareholder wealth may be found in Bhagat and Jefferis [1991], Chang [1990], Eckbo [1990], Gordon and Pound [1990], Jarrel and Poulsen [1988], Karpoff and Malatesta [1989], and Szewcyk and Tsetsekos [1992], for example.

put bonds and coupon reset bonds cannot be used to extract a higher bid. Thus, the only potential benefit to shareholders from attaching these ERCs to debt issues is a reduction in the agency cost of shareholder-bondholder conflict. The MEH does not predict that ERCs will provide a net benefit to shareholders. Rather, the MEH predicts that ERCs will decrease shareholder wealth. Even if bondholders are willing to pay a premium for ERCs, they will not pay enough to compensate shareholders for the increased cost of shareholder-management conflict associated with ERCs.[11]

To summarize, the MEH states that managers use ERCs to entrench. The MEH predicts that ERCs will decrease shareholder wealth because ERCs increase total agency costs borne by shareholders. The MEH is based on the assumption that managers who use ERCs have interests that are not aligned with those of their shareholders.

1.5 MOTIVATION FOR THE STUDY

ERCs are a relatively recent financial innovation whose use has spread quickly. Lehn and Poulsen [1991] find no evidence that ERCs existed prior to 1986. However, they find that during 1989 approximately one-third of all public issuances of nonconvertible debt by nonfinancial firms were ERC-protected.

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[11]Bicksler and Chen [1992] recognize this possible effect of ERCs. They state "[T]he total costs (including both the explicit and the implicit costs) of this debt financing to the firm will depend on the firm's marginal corporate income tax rate and its effects on incentive and productivity of the incumbent management."

Only a few studies examine the shareholder wealth effects of ERCs and these studies find conflicting evidence. Cook and Easterwood [1994] find that, on average, ERCs decrease shareholder wealth. They interpret this evidence as consistent with the entrenchment hypothesis. Bae, Klein, and Padmaraj [1994] find that, on average, shareholders experience no significant wealth changes at announcements of ERC-protected debt issues. They conclude that ERCs benefit shareholders. Moreover, no studies examine whether an increase in shareholder-management conflict increases the probability that a firm will use a poison put, the type of ERC most likely to deter takeovers.

In short, ERCs are relatively new financial contracts that are widely used, yet remain poorly understood and controversial. Therefore, more empirical evidence is required to understand the motives for using ERCs and the effects of ERCs on shareholders. The objective of this study is to provide that evidence. The results of this study add to our knowledge of agency theory, takeover defenses, security design, and the shareholder wealth effects of debt financing.

1.6 PURPOSE OF THE STUDY

The primary purpose of this dissertation is to examine two general research questions. First, what are the shareholder wealth effects of ERCs? Second, is shareholder-management conflict related to poison-put use? Evidence

that ERCs increase shareholder wealth would be consistent with the SIH. Evidence that ERCs decrease shareholder wealth would favor the MEH. Evidence that poison-put use is more likely for firms with higher shareholder-management conflict would favor the MEH.

1.7 SUMMARY OF THE FINDINGS

The results of this study suggest that at least one type of ERC decreases shareholder wealth, on average. For the full sample of seventy-five ERC-protected debt announcements observed, the mean abnormal return is -0.52% (Z = -2.61). For a subsample of fifty announcements of debt protected by nonwaivable poison puts (or super poison puts), the mean abnormal return is -0.69% (Z = -2.76). This evidence is consistent with the shareholder perception that managers use nonwaivable poison puts to entrench.

The mean abnormal return for announcements of debt protected by waivable poison puts is not significantly different from zero. Likewise, the mean abnormal return for announcements of debt protected by coupon resets is not significantly different from zero. However, these two subsamples contain a small number of observations. Therefore, no generalizations can be drawn regarding the shareholder wealth effects of these types of ERCs.

Prior studies attempting to isolate the wealth effects of ERCs have compared shareholder returns for ERC-protected debt announcements to unprotected debt announcements made by

a control sample of firms. This study takes a different approach by comparing unprotected debt announcements and ERC-protected debt announcements by a sample of ERC-using firms. This study finds that firms which issue ERC-protected debt frequently shelf-register the debt without mentioning ERC-protection in the shelf registration. At the time of these shelf registrations shareholders are unaware that the firm will use ERCs.

For a sample of firms that ultimately issue ERC-protected debt, this study finds nonnegative shareholder reactions, on average, to shelf registrations of unprotected debt. In contrast, shareholders react negatively, on average, at issuances of ERC-protected debt pursuant to shelf registrations. The difference between the mean return for unprotected shelf registrations and the mean return for subsequent ERC-protected issuances by the same firms is 1.24% ($t = 2.576$, $p = 0.0126$). This evidence suggests that shareholders of firms that ultimately use ERCs are not disappointed at the prospect that the firm may soon issue debt. However, these shareholders are disappointed when they learn the firm has issued ERC-protected debt. Thus, the cause of shareholders' wealth loss does not appear to be managers' decisions to issue debt, but rather managers' decisions to use ERCs.

In this dissertation it is argued that poison-put ERCs are likely to impose greater takeover costs on shareholders than are coupon-reset ERCs. This study examines whether

shareholder-management conflict influences the probability that a firm issuing debt will use poison puts. For the full sample of fifty poison put users and their control firms, only weak evidence is found to suggest that shareholder-management conflict increases the probability that a firm issuing debt will use a poison put. However, for a subsample of thirty-eight nonwaivable poison put users and their control firms, this study finds that firms with greater estimated free cash flow are more likely to use nonwaivable poison puts. This evidence is consistent with the argument that managers who use nonwaivable poison puts fail to maximize shareholder wealth and become vulnerable to takeovers. These managers are likely to use ERCs for entrenchment.

Overall, the evidence presented in this dissertation suggests that the most common type of ERC observed, the nonwaivable poison put, decreases shareholder wealth, on average, and is used by managers primarily to entrench.

1.8 ORGANIZATION OF THE STUDY

In Chapter One ERCs are described, the competing hypotheses are introduced, the motivation for the study is provided, the goal of the study is stated, and the major findings are summarized. In Chapter Two background literature is analyzed. In Chapter Three the data is described, the specific hypotheses are stated, and the empirical methods are explained. In Chapter Four the

findings are presented in detail. In Chapter Five conclusions are drawn and future research is suggested.

CHAPTER TWO

LITERATURE REVIEW

2.1 BACKGROUND LITERATURE CONSISTENT WITH THE SIH

The Shareholder Interest Hypothesis (SIH) of ERCs is based on the assumptions that management is aligned with shareholders and that shareholders are in conflict with bondholders. Previous writers explain the incentive of management to act in shareholders' interests. For example, Fama [1980] argues that managerial incentive problems arising from the separation of ownership and control will be mitigated by three intervening factors. These factors are the labor market, the board of directors, and the corporate control market.

Fama [1980] suggests that incentive problems will arise when managers make decisions for shareholders. Managers will have incentives to shirk and consume perquisites. However, the internal and external labor markets limit the extent to which managers can deviate from acting in shareholders' interests. Fama argues that intrafirm competition for top jobs may prevent managers from excessive shirking or excessive perk consumption. Monitoring of firm managers by other managers in the same firm will occur because the wealth of all managers is tied to the success of

the firm. Monitoring of the firm's managers also takes place in the external labor market. Fama suggests that external and internal labor markets may infer the marginal product of a top manager by observing the firm's performance. Although this inference will contain some noise, if the labor markets base managers future wages on the inference then a near complete "ex-post settling up" can occur. If managers know that future wage revisions will be based on current performance, then managers will have little incentive to perform poorly.

Fama argues that the firm's board of directors and the corporate control market can also prevent managers from taking actions that harm shareholders. He places special emphasis on outside directors or "referees" who value their human capital as effective monitors. Because these directors are likely to protect their future ability to serve as directors, they may be particularly helpful in monitoring management and stimulating competition within the firm. Fama discusses the corporate control market as a monitoring source of last resort. He states that takeovers are expensive and that the board is a lower cost alternative. Still, outside takeovers provide some monitoring and also serve to decrease the agency costs associated with any shareholder-management conflict.

Considering these factors that align managers' interests with those of their shareholders, managers may have little incentive to take actions that harm

shareholders. This suggests that managers using ERCs could be acting in shareholders' interests. Even if we assume that the use of ERCs diminishes the monitoring efficacy of the corporate control market (by decreasing the likelihood of takeover), this leaves two other sources of monitoring mentioned by Fama. If managers face discipline from these two remaining sources, then the use of ERCs to avoid discipline may not be a viable option to managers.

The SIH suggests that by reducing the costs of shareholder-bondholder conflict, ERCs benefit shareholders. Previous writers, including Jensen and Meckling [1976], Myers [1977], and Smith and Warner [1979], support the general idea that it can be in shareholders' interests to include protective covenants in debt issues. Jensen and Meckling [1976] argue that there are agency costs associated with debt financing. The firm's owner-manager may promise to invest in low variance projects before borrowing from bondholders. After borrowing, however, the owner-manager has an incentive to shift from low variance to high variance projects. This action will result in a wealth transfer from bondholders to the owner-manager.[12] Bondholders understand the owner-manager's incentive to shift risk and will require

[12]This incentive is also discussed by Galai and Masulis [1976]. Galai and Masulis create a model of security pricing by combining the Black and Scholes [1973] option pricing model with the capital asset pricing model. Using this new model they show that unanticipated changes in the firm's asset structure or capital structure can differentially impact the firm's shareholders and bondholders. They show that unanticipated increases in firm-return variance will increase equity value but decrease debt value. They also show that unanticipated increases in the firm's debt-to-equity ratio will increase equity value but decrease (existing) debt value.

a higher coupon rate, *ex ante*, to reflect the riskiness of the high variance projects.

Because the owner-manager bears the agency costs associated with shareholder-bondholder conflict, it is in the owner-manager's interest to seek the lowest cost method of reducing these costs.[13] Jensen and Meckling [1976] note that there are costs associated with writing and enforcing bond covenants. There are also costs associated with a reduction in firm value "because the covenants occasionally limit management's ability to take optimal actions on certain issues." Nevertheless, it may sometimes benefit the owner-manager to provide certain bond covenants. Jensen and Meckling provide an example which illustrates that, under certain conditions, the owner-manager is willing to incur the "bonding" costs associated with bond covenants because they are the lowest-cost solution to shareholder-bondholder conflict. Jensen and Meckling argue that, assuming the bond market is efficient and makes unbiased estimates, potential bondholders will be indifferent to paying a lower price for a bond without a protective covenant and paying a higher price for a bond with a protective covenant. Sometimes, however, the manager is not indifferent to offering the covenant. If the covenant is the more efficient method of reducing agency costs then the owner-manager may voluntarily

[13]In their model of the agency costs of debt, Jensen and Meckling [1976] make the assumption that the owner-manager is the sole shareholder. Their discussion is based on the assumption that the manager's interest and the shareholder's interest are perfectly aligned.

offer the covenant. In Jensen and Meckling's example it is rational for the owner-manager to offer the covenant because it increases the manager's wealth.

Jensen and Meckling's [1976] discussion focuses on the agency cost associated with management's incentive to shift project risk. The argument is easily extended to the shareholders' incentive to increase leverage. Leveraged buyouts, management buyouts, and other leveraged recapitalizations may transfer wealth from (unprotected) bondholders to shareholders. Managers whose interests are aligned with those of their shareholders have incentives to promote or engage in these transactions. (In some cases managers are unable to prevent a hostile leveraged buyout from occurring.) If the bond market is efficient and makes unbiased estimates then potential bondholders will be indifferent to paying a lower price for a bond without an ERC and paying a higher price for a bond with an ERC. Yet shareholders might wish to include ERCs in debt issues because ERCs are the lower cost solution to the shareholder-bondholder conflict associated with highly-leveraged transactions. Accordingly, managers who include ERCs in debt issues could be acting to benefit shareholders.

Myers [1977] also supports the notion that shareholders sometimes want to provide bondholders with protective covenants because doing so increases shareholders' wealth. Like Jensen and Meckling [1976], Myers [1977] argues that shareholders ultimately bear the cost of monitoring

(by creditors) and the cost of debt contract enforcement. If covenants reduce these costs shareholders might want to include them in debt issues. In his model of the firm, Myers explicitly assumes that managers act in shareholders' interests. He argues the following:

> Managers complain about 'restrictive covenants' but they are rational from the debtors' point of view as well as the creditors'. It is true that lenders may demand such covenants before lending money *at a given interest rate*, but the choice of covenants is fundamentally the shareholders'. Where covenants exist, we must conclude that managers and shareholders have found that it pays to accept them. They freely choose to accept constraints today which rule out behavior which *seems* rational tomorrow.

Smith and Warner [1979] also support the notion that bond covenants can benefit shareholders. They compare the Irrelevance Hypothesis of debt covenants with the Costly Contracting Hypothesis of debt covenants. The Irrelevance Hypothesis states that the method by which shareholder-bondholder conflict is resolved does not affect firm value. Smith and Warner [1979] cite Fama's [1978a] argument that, if takeovers are costless, the only equilibrium strategy for managers is to maximize firm value rather than the value of any particular class of claimants. For example, if managers maximized shareholder wealth instead of total firm value, then an arbitrage opportunity would exist. Anyone could purchase the firm's securities, maximize total firm value, and realize a profit. Therefore, the corporate control market could ensure that firm value is maximized, rendering protective covenants irrelevant. Smith and Warner also cite

Galai and Masulis' [1976] argument that investors can hold equivalent proportions of the firm's debt and equity claims and thereby hedge the risk of wealth transfers between claimant types. Restructuring the firm's claims in this manner could also render protective covenants irrelevant.

By contrast, Smith and Warner's [1979] Costly Contracting Hypothesis assumes that external market forces and the ability to hedge wealth-transfer risk are insufficient to ensure that shareholders will pursue a strategy of maximizing firm value. According to the Costly Contracting Hypothesis, financial contracting is costly. Nevertheless, bond covenants can still increase the value of the firm by reducing the monitoring costs incurred by bondholders, but ultimately borne by shareholders. Smith and Warner note that "in the case of the claim dilution problem (which involves only a wealth transfer), if covenants lower the costs which bondholders incur in monitoring stockholders, the cost-reducing benefits of the covenants accrue to the firm's owners."

Smith and Warner [1979] find qualitative evidence to support the Costly Contracting Hypothesis over the Irrelevance Hypothesis. They sample 87 public issues of debt that were registered with the Securities and Exchange Commission in 1974 and 1975. They find the vast majority (90.8%) of issues contain restrictions on additional debt and many issues contain restrictions on dividends, mergers, and the disposition of firm assets. Smith and Warner argue

that, because covenants are costly, they would not survive unless they provided an efficient contractual solution to the problem of shareholder-bondholder conflict.[14]

The Costly Contracting Hypothesis can be extended to analyze ERCs. If ERCs are designed to protect bondholders from the risk of future highly-leveraged transactions, then ERCs may reduce the costs associated with this claim-dilution problem.[15] Assuming this is the case, shareholders can benefit from the use of ERCs. Furthermore, ERCs can be costly because they could force renegotiations with bondholders or debt redemptions. Thus, the survival of ERCs from 1986 to the early 1990s suggests that ERCs, like other bond covenants, could be efficient contractual solutions to shareholder-bondholder conflict.

Additional support for the view that bond covenants can benefit shareholders is found in Barnea, Haugen, and Senbet [1980], Thatcher [1985], and Malitz [1986]. Barnea, Haugen and Senbet [1980] argue that call provisions in debt contracts can reduce the agency costs of debt associated with the risk-shifting incentive of shareholders. As stated earlier, shareholders have incentives to shift from low

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[14]Smith and Warner [1979] cite Miller [1977b], who argues that harmful mutations will die out, but neutral mutations (which do neither harm nor good) can survive indefinitely. Smith and Warner argue that bond covenants cannot be neutral mutations because they are costly. Because covenants have survived for many years, Smith and Warner conclude that they increase firm value.

[15]Smith and Warner [1979] define "claim dilution" as follows: "If the firm sells bonds, and the bonds are priced assuming that no additional debt will be issued, the value of the bondholders' claim is reduced by issuing additional debt of the same or higher priority." It is essentially this problem that ERCs are claimed to alleviate.

variance projects to high variance projects after borrowing from bondholders. Risk shifting (or asset substitution) can benefit shareholders even if projects with lower net present values are chosen. Bondholders will be harmed when higher-variance, lower-value projects are chosen. Barnea et al. cite the Black and Scholes' [1973] analogy of common stock as a European call option on the firm that shareholders own. This option has an exercise price equal to the face value of firm debt. In the case of noncallable debt, stockholders only hold a call option on the firm. The value of this option increases with firm variance, giving rise to the risk-shifting incentive of shareholders. However, if the debt is callable, then shareholders also hold a call option on the firms' debt. The value of this option decreases with firm variance. As shareholders increase the variance of firm returns they increase the value of their call option on the firm but they decrease the value of their call provision on the debt. The call provision can be designed so that the risk-shifting incentive of shareholders is mitigated and shareholder-bondholder conflict is reduced. Barnea et al. also argue that call provisions on debt can reduce the agency costs of debt associated with informational asymmetry and shareholders' incentive to forego profitable future investment opportunities.

Thatcher [1985] finds evidence supporting the hypothesis that call provisions are used to reduce the agency costs of debt mentioned above. While call provisions

are not bond covenants, they are, like covenants, complex financial contracts attached to debt issues. Barnea, Haugen, and Senbet [1981] argue that these complex contracts evolve to reduce the agency costs of debt. Furthermore, they suggest, the notion of the evolution of complex contracts has the potential to explain other contractual arrangements, such as bond covenants.

Malitz [1986] finds evidence that firms likely to suffer higher agency costs of debt are also more likely to use restrictive covenants. Malitz [1986] argues that smaller firms are likely to suffer higher agency costs of debt associated with informational asymmetry. Smaller firms typically have not developed a reputation in the capital markets. Developing a reputation for not expropriating bondholders' wealth can reduce borrowing costs on subsequent trips to the capital markets. Smaller firms also receive less attention from financial analysts. Consequently, smaller firms should be more expensive for bondholders to monitor. Malitz finds that smaller firms are more likely to include dividend and debt restrictions in their publicly-issued debt.

Malitz [1986] also argues that highly-leveraged firms are more likely to suffer higher agency costs of debt. Shareholders of highly-leveraged firms have more to gain from risk shifting or underinvestment. Firms with greater debt are also more likely to experience financial distress. Consequently, firms with greater leverage are more likely to

have high agency costs that bond covenants can reduce. Malitz finds that firms with greater leverage are more likely to include dividend and debt restrictions in their publicly-issued debt. Malitz concludes that firms likely to suffer high agency costs of debt benefit from using debt covenants. He interprets his evidence as supporting Smith and Warner's [1979] Costly Contracting Hypothesis.

The arguments and evidence presented above support two general assumptions underlying the SIH: (1) managers have incentives to act in shareholders' interests, and; (2) bond covenants can benefit shareholders. As noted, bond covenants can benefit shareholders by reducing the agency costs of debt. However, covenants can only reduce these costs if they extend valuable protection to bondholders. Assuming that the bond market is efficient and makes unbiased estimates, then bondholders will only pay for covenants that offer valuable protection. ERCs are purported to offer valuable protection against event risk, but there is no direct evidence on the ability of ERCs to provide this protection.[16] There is evidence, however, that certain bond covenants provide valuable protection to bondholders of firms undertaking leveraged buyouts.

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[16]There is no published research investigating the wealth impact of highly leveraged transactions on ERC-protected bondholders. To date, only one ERC has ever been triggered. This covenant was offered by Xtra Inc. The covenant was triggered after a change in Xtra's board of directors following a successful proxy challenge by dissident shareholders.

Asquith and Wizman [1990] find that leveraged buyouts decrease prebuyout bondholders' wealth, on average.[17] Yet bonds that are protected by "strong" covenants experience abnormal *gains*. Bonds that do not have strong covenant protection experience abnormal losses. Asquith and Wizman [1990] define strong covenants as restrictions on total funded debt and restrictions on the net worth of a surviving firm in a merger. In general, Asquith and Wizman find that strongly protected bonds are retired or called while weakly protected bonds and nonprotected bonds remain outstanding. Asquith and Wizman note that if a bond is trading at a discount prior to the buyout, then a forced call of the bond results in a gain to the bondholder. This can allow bondholders to enjoy a gain in a leveraged buyout. Asquith and Wizman argue that strong, traditional covenants offer adequate protection against event risk. Therefore, poison put bonds should not be necessary. To their surprise, Asquith and Wizman find a decline in the use of traditional covenants during the 1980s. This is the period that saw a rise in the popularity of ERCs.

The evidence found by Asquith and Wizman [1990] suggests that bondholders should value strong, traditional covenants that provide protection from losses associated with highly leveraged transactions. These covenants could decrease the agency costs of shareholder-bondholder

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[17]Cook, Easterwood, and Martin [1992] find evidence consistent with Asquith and Wizman [1990]. They find that bondholders suffer wealth losses at announcements of management buyouts.

conflict. If ERCs offer similar or superior protection from leverage increases then they too should be valued by bondholders. In this case ERCs could decrease the agency costs of shareholder-bondholder conflict.

The SIH states that managers use ERCs to benefit shareholders, primarily by decreasing the agency costs of debt. There is another way in which managers could use ERCs to benefit shareholders. As stated, if ERCs raise costly barriers to takeover they could constitute a type of takeover defense. In this case, either the issuance of debt with waivable ERCs or the shelf registration of ERC-protected debt could be used as a bargaining chip in takeover negotiations. Managers of firms with outstanding debt that is protected by waivable poison puts, or managers of firms that have shelf registered ERC-protected debt could demand a higher tender price from a bidder by threatening the bidder with higher takeover costs. In return for a higher bid price, managers could agree to waive bondholders' ability to exercise their poison-put options or managers could agree not to issue ERC-protected debt available under a previous shelf registration. Using this negotiating tool, a manager could persuade a bidder to increase the offer price to avoid the costs of raising additional funds and/or negotiating with ERC-protected bondholders.[18]

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[18]The potential for ERC-protected debt to discourage takeovers is sometimes explicitly stated in the covenant itself. For example, immediately following the ERC language in a nonwaivable poison put used by the Safety Kleen corporation the following statement appears. "Because a Designated Event could be expected to occur in connection with certain

There is evidence that managers use takeover defenses to extract higher takeover premiums for shareholders. Ryngaert [1988] finds that 51.8% of firms that have poison pills in place and that receive unsolicited tender offers ultimately receive higher takeover premiums than were initially proposed. Ryngaert concludes that poison pills are not used to defeat all tender offers. Comment and Schwert [1993] find that takeover premiums are higher when the target firm has a poison pill in place or is under the jurisdiction of a state with antitakeover legislation. Comment and Schwert [1993] argue that these antitakeover devices raise costs to bidders and gains to target shareholders.

To summarize, this section has presented background literature supporting the SIH. There is support in finance literature for the view that managers are motivated to act in shareholders' interests. There is also support for the view that bond covenants can be in shareholders' interests because they decrease the agency costs of debt that shareholders must bear. There is evidence that some traditional bond covenants offer protection from highly-leveraged transactions. Bondholders should be willing to pay for this type of protection. Assuming that ERCs offer similar or superior protection, ERCs should also decrease

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forms of takeover attempts, these provisions could deter hostile or friendly acquisitions of the Company where the person attempting the acquisition views itself as unable to finance the purchase of the principal amount of Notes which may be tendered to the Company upon the occurrence of a Designated Event and a Rating Decline."

the agency costs of debt that shareholders must bear. Finally, ERCs might be used as a bargaining chip to extract a higher takeover premium for shareholders. Evidence exists that takeover defenses are sometimes used in this way to benefit shareholders. In conclusion, because ERCs can be used to reduce the agency costs of debt or to extract a higher takeover premium, ERCs could benefit shareholders.

2.2 BACKGROUND LITERATURE CONSISTENT WITH THE MEH

The Management Entrenchment Hypothesis (MEH) of ERCs is based on the assumption that a conflict of interests exists between shareholders and firm management. The potential for shareholder-management conflict is well established in the finance and economics literature. Jensen and Meckling [1976] argue that as the firm's owner-manager sells to outsiders a greater percentage of the equity claims on the corporation, the agency costs of equity will increase. The owner-manager's interests will diverge from (outside) shareholders' interests as the percentage of equity claims held by the owner-manager decreases. This occurs because the cost to the owner-manager of his nonpecuniary consumption decreases with the decrease in the owner-manager's proportional share of equity ownership. As the owner-manager's proportional ownership decreases, he has a greater incentive to consume nonpecuniary items.[19]

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[19]Nonpecuniary consumption refers to firm expenditures on items, other than managerial wages, that increase managerial utility but do not increase the value of equity claims to outside shareholders. Jensen and

Jensen and Meckling [1976] also argue that the manager's wage contract represents a quasi-debt claim on the firm. This may cause managers to be more closely aligned with bondholders than with shareholders. Jensen and Meckling argue that the quasi-debt nature of the manager's contract may cause the manager to "behave in a risk averse way to the detriment of the equity holders." Amihud and Lev [1981] find evidence consistent with Jensen and Meckling [1976]. They note that Galai and Masulis [1976] use a model of security pricing to show that unanticipated conglomerate mergers that provide no synergy will transfer wealth from shareholders to bondholders by decreasing the variance of returns for the combined firm. Amihid and Lev [1981] find that management-controlled firms engage in diversifying acquisitions more frequently than owner-controlled firms. Amihud and Lev [1981] conclude that managers engage in diversifying acquisitions to decrease their own employment risk even though these acquisitions are unlikely to benefit shareholders.

Jensen and Meckling [1976] provide support for the notion that shareholder-management conflict exists. However, they do not explain why managers would seek to deter hostile takeovers or why they would choose ERCs as a takeover defense. The MEH of ERCs not only assumes that

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Meckling give the examples of a "larger than optimal computer to play with, purchase of production inputs from friends, etc."

shareholder-management conflict exists, but that managers will attempt to deter hostile takeovers by using ERCs.

Jensen [1986] reviews the evidence on takeovers, explains why many takeovers occur with his "Free Cash Flow Theory of Takeovers," and explains why managers might utilize takeover defenses. He cites evidence that target-firm shareholders typically experience about a thirty percent wealth increase during a takeover. He argues that many takeovers occur because the target-firm manager hoards or squanders the firm's free cash flow. Free cash flow is the cash flow left over after all positive net present value investments have been taken. Jensen argues that to maximize shareholder wealth managers must pay out free cash flow. Failure to pay out free cash flow results in an agency cost which shareholders must bear (in the form of a reduced stock price). Managers resist paying out free cash flow because this reduces their power and subjects them to the monitoring and discipline of the capital markets. When managers abuse free cash flow by holding it or by wasting it in negative net present value projects, then the firm becomes vulnerable to takeover. Jensen argues that many takeovers are motivated by a desire to force disgorgement of the target firm's free cash flow and, by doing so, increase the target firms' stock price.[20]

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[20]Jensen [1986] is not the first to suggest that the market for corporate control disciplines managers who perform poorly. Manne [1965] argues for the "Improved Management Hypothesis." This hypothesis states that many takeovers occur to replace poorly performing target-firm managers.

Jensen states that the market for corporate control benefits target-firm shareholders and imposes costs on target-firm managers. These managers often lose control of the firm after a takeover. Consequently, managers have sought ways to regulate and restrict the market for corporate control. Jensen states that the motivation behind takeover defenses such as poison pills, antitakeover legislation, and discriminatory targeted repurchases is suspect. Top management often argues that poison pills are designed to benefit shareholders by blocking "coercive," two-tiered offers and by forcing bidders to negotiate with the board. This argument is based on the assumption that the board will operate in shareholders' interests during takeover attempts. Jensen argues that takeover defenses hurt shareholders and society by impeding the efficient transfer of assets. Referring to the willingness of some courts to allow poison pill defenses, Jensen writes:

> [T]he courts must not apply the business judgment rule to conflicts over rights between principals and agents. If the business judgment rule is applied to such conflicts, the courts are effectively giving the *agent* the right unilaterally to change the control rights. In the long run, this interpretation of the contract will destroy the possibility of such cooperative arrangements, because it will leave principals with few effective rights.
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> Recently the courts have applied the business judgment rule to the conflicts over the issuance of poison pill preferred stock, poison pill rights, and discriminatory targeted repurchases, and have given managers and boards the rights to use these devices.[52] In doing so the courts are essentially giving the agents (managers and the board) the right to unilaterally change critical control aspects of the contract, in particular the

> right to fire the agents. This has major implications for economic activity, productivity, and the health of the corporation. If the trend goes far enough, the corporation as an organizational form will be seriously handicapped.

Several researchers provide empirical support for Jensen's [1986] Free Cash Flow Theory of Takeovers. For example, Lehn and Poulsen [1989] find the probability that a firm will experience a management buyout increases with the firm's undistributed cash flow (a proxy variable for free cash flow) and "footsteps" (a variable set equal to one if the firm is rumored to be a takeover target). Lehn and Poulsen argue that the market for corporate control forces managers who are abusing free cash flow to pay out cash, through leveraged buyouts, to avoid becoming hostile targets. Lehn and Poulsen also find that premiums paid to shareholders in these going-private transactions are positively related to undistributed cash flow. This suggests that premiums are greater when the agency costs of free cash flow are more severe. Overall, their evidence supports Jensen's contention that the market for corporate control disciplines managers who abuse free cash flow.

Lang, Stulz, and Walkling [1991] find that abnormal returns to bidding-firm shareholders (calculated at the tender offer announcements) are negatively related to the bidder's undistributed cash flow when the bidder has a low Tobin's Q. No significant relationship is found between abnormal returns and undistributed cash flow in the case of bidders with a high Tobin's Q. Tobin's Q is defined as the

ratio of the market value of the firm to its replacement cost. Lang, Stulz, and Walkling [1991] view high Q firms as likely to have positive net present value investment opportunities and thus productive use for their undistributed cash flow. Low Q firms are considered unlikely to have positive net present value investment opportunities and should pay out their undistributed cash. Lang, Stulz, and Walkling suggest that shareholders of low Q bidders react negatively to acquisitions because the acquisitions are an abuse of free cash flow. They interpret their evidence as support for Jensen's [1986] free cash flow theory.

Several researchers also find support for the view that poison pill defenses harm shareholders. Ryngaert [1988] finds evidence that discriminatory poison pills, the most restrictive type of poison pills, decrease shareholder wealth at the adoption.[21] For seventy-seven adoption announcements by firms not subject to takeover speculation, Ryngaert [1988] finds the mean abnormal return to adopting-firm shareholders is -.61% (t = -2.09). For twenty-seven adoption announcements by firms that are subject to takeover speculation, the mean abnormal return to adopting-firm shareholders is -2.12% (t = -3.51). Ryngaert argues that the calculated abnormal returns probably underestimate the true wealth effects of discriminatory poison pills because

[21]Discriminatory pills subject the bidder to less than equal shareholder rights if the bidder exceeds a given level of ownership.

adoptions are sometimes anticipated by the market, adoptions can convey positive news (that the adopting-firm is a target), and the market might view some pills as vulnerable to judicial review. Ryngaert concludes that the evidence supports the Management Entrenchment Hypothesis over the Shareholder Interest Hypothesis.

Malatesta and Walkling [1988] also find evidence that poison pills decrease shareholder wealth. For a sample of 113 pill-adoption announcements, they find the mean abnormal return to adopting firm shareholders is -.915% (Z = -4.79). For seventy-three adoptions that appeared in the *Wall Street Journal* or the *New York Times*, the mean abnormal return is -1.324% (Z = -5.15). Malatesta and Walkling [1988] argue that shareholders likely suffer greater wealth losses at poison pill adoptions than at antitakeover charter amendment adoptions because poison pills are adopted without shareholder approval. Malatesta and Walkling find that firms adopting poison pills underperform firms in their industries during the period before the adoption. Firms adopting poison pills also have lower management ownership than other firms in their industries. The authors suggest that if recent firm performance has been poor, managers may be hesitant to put antitakeover charter amendments to a shareholder vote. Malatesta and Walkling's evidence is consistent with the view that poorly performing managers use poison pills as a substitute for voting power because they are threatened by the market for corporate control.

Considering their relatively small stock holdings, these managers are unlikely to suffer much of the immediate shareholder wealth consequences associated with poison pill adoptions.

More recent studies by Comment and Schwert [1993] and by Brickley, Coles, and Terry [1994] find evidence that poison pill adoptions decrease shareholder wealth only under certain conditions. Comment and Schwert [1993] find that, in general, only pills adopted in the early 1980s are associated with a decrease in shareholder wealth. However, they also find a significantly negative shareholder reaction to pill adoptions by firms rumored to be takeover targets. Brickley, Coles, and Terry [1994] find that the mean abnormal return calculated for adoption announcements is positive and statistically significant when outsiders hold more than fifty percent of the adopting firm's board seats. But when insiders hold more than fifty percent of the adopting firm's board seats the mean abnormal return is negative and statistically significant. Brickley, Coles, and Terry [1994] argue that their evidence is consistent with the view that outside directors serve the interests of shareholders.

Still other researchers find evidence that alternative takeover defenses decrease shareholder wealth. For example, Jarrel and Poulsen [1988] find that shareholders suffer a mean abnormal return of -0.82% at announcements of dual-class recapitalization plans. Wealth losses associated with

these announcements are concentrated among those firms with insider holdings ranging from thirty percent to fifty-five percent. Karpoff and Malatesta [1989] and Szewcyk and Tsetsekos [1992] find evidence that state antitakeover legislation decreases shareholder wealth. Eckbo [1990] finds that antigreenmail charter amendments increase shareholder wealth when the adopting firm is a known takeover target. Eckbo's evidence suggests that paying greenmail would harm these firms' shareholders. Gorden and Pound [1990] and Chang [1993] find that adoptions of employee stock option plans decrease shareholder wealth in cases where the adopting firm is a known takeover target. Chang [1993] also finds that managers of firms adopting employee stock option plans have lower equity ownership in their firms than do managers of comparable firms. Bhagat and Jefferis [1991] find that antitakeover charter amendments decrease shareholder wealth about one percent, on average.

The arguments presented by Jensen [1986], and others, against takeover defenses and the evidence that such defenses decrease shareholder wealth suggest that takeover defenses, generally speaking, are not in shareholders' interests. If ERCs constitute a takeover defense then they too may decrease shareholder wealth. As stated, ERCs may raise costly barriers to debt-financed takeovers. In general, ERCs are designed to be triggered by increases in leverage and/or by a change in firm control. ERCs became

popular during the period from 1986 through 1990 when a large number of debt-financed takeovers were taking place. By issuing ERC-protected debt, a manager might increase the cost of a takeover by increasing the level of financing required to purchase the firm. In some cases the bidder might be unable to raise the additional funds necessary to retire the ERC-protected debt. Even if the bidder is capable of raising the additional funds, the refinancing costs associated with raising the funds might decrease the return to the bidder. This in turn could decrease the probability of a takeover or at least decrease the gain shareholders receive from the takeover.[22]

As stated earlier, ERCs are similar in some respects to poison pills. Like poison pills, ERCs are implemented without shareholder approval. Like poison pills, waivable poison puts and shelf registrations of ERC-protected debt could be used (as predicted by the MEH) for management entrenchment. Alternatively, they could be used (as predicted by the SIH) to extract a higher bid for target shareholders during a takeover. In contrast, issued debt that is protected by nonwaivable poison puts or coupon

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[22]In some cases ERCs may also force the bidder to retire debt that is not directly protected by ERCs. Some bond prospectuses that include ERCs mention that existing senior debt or bank debt (previously not protected by ERCs) would have to be retired before the debt with the attached ERC could be retired. Because ERCs force retirement (or a coupon reset) of the issue to which they are attached upon the occurrence of the designated events, ERCs may indirectly force retirement of previously existing debt. This could force the bidder to raise even more financing to retire the indirectly-protected debt as well as the directly-protected debt. Cook and Easterwood [1994] find that fifteen percent of sampled prospectuses containing ERCs also mention preexisting debt that must be retired prior to the debt with the attached ERC.

resets cannot be used by management to negotiate a higher takeover premium. The only potential benefit to shareholders from issuing debt with these types of ERCs is a reduction in the agency costs of shareholder-bondholder conflict.

In light of the fact that poison pills were developed before ERCs, we might ask whether ERCs are redundant. Poison pills can function to entrench management, but ERCs could provide a more subtle and, in some cases, a less fragile method of entrenching. Managerial claims of acting in shareholders' interests may be more credible when managers can argue that ERCs serve directly to lower borrowing costs. Also, Coffee [1991] notes that some courts have not allowed the use of certain poison pills. He suggests that ERCs could be a more effective takeover defense than poison pills because ERCs are less susceptible to judicial invalidation.

> [A] poison pill is a gratuitous transfer of warrants, issued by management in theory to protect shareholders from coercive offers. Yet, a poison *put* . . . was bargained for between two parties that are normally at arm's length. . . . [I]n these bilateral agreements between . . . bondholders and management, the court cannot ignore that something was given up for the rights that the shareholder now wishes the court to invalidate. In general, absent proof of a conspiracy to defraud, contracts are not invalidated because one side gave up too much, and courts do not claim the competence to decide how much consideration is too much.

If ERCs are more likely to survive a legal challenge, then they could be a stronger takeover deterrent in certain instances.

Also, the CEO may not choose to depend on the continued goodwill he or she currently enjoys with the firm's board of directors. Issuing nonwaivable poison puts erects a takeover barrier that cannot be easily removed by the board at a later date. In the case of a poison pill, the CEO could be vulnerable to the continued cooperation from the other board members. In a takeover situation the CEO may wish to use the poison pill defense while the majority of the board members may want to allow a change of control.

Finally, if managers are committed to entrenchment, then they might not be satisfied with one type of takeover defense. Managers can establish multiple defenses to make the probability of hostile takeover as remote as possible. These managers might view poison pills and ERCs as compliments rather than as substitutes.

To summarize, this section has reviewed some of the background finance literature that is consistent with the MEH. There is support in the finance literature for the view that managers' interests are likely to conflict with those of shareholders. Support exists for the view that poorly performing managers implement takeover defenses to avoid discipline imposed by the corporate control market. There is also evidence that takeover defenses do not, in general, benefit shareholders. Because ERCs can be viewed as a type of takeover defense, they too could harm shareholders.

2.3 DIRECT EVIDENCE ON ERCS

The SIH predicts that ERCs will increase shareholder wealth by providing management with a valuable negotiating tool and/or by decreasing true borrowing costs. The MEH predicts that ERCs will decrease shareholder wealth because managers will use ERCs to entrench. The SIH and MEH have been discussed as though they are mutually exclusive. This is not the case. It could be that some managers use ERCs to entrench while other managers use ERCs to benefit shareholders. Still other managers could use ERCs to entrench and reduce nominal borrowing costs. There is direct evidence on ERCs that supports both the SIH and the MEH.

Several researchers find evidence that ERCs are valued by bondholders, at least during some periods. Crabbe [1991] estimates that ERCs reduced interest rates on industrial bonds by over thirty basis points in December of 1989. This spread contracted to about fifteen basis points by June of 1990. Crabbe notes that this contraction occurred during a period when the level of corporate takeover activity decreased. Fields, Kidwell, and Klein [1992] find that industrial bond yields, in excess of the treasury bond yield, increased by 26.4 basis points after the RJR/Nabisco leveraged buyout.[23] They also find that ERCs were not

[23]The RJR/Nabisco leveraged buyout resulted in heavy losses to the firm's prebuyout bondholders. This LBO, which became a watershed event in bond financing, remains the largest in history (see Fields, Kidwell, and Klein [1992]). Immediately after the RJR takeover, bond prices in the secondary market fell sharply and bond financing almost halted for several

valued before the RJR takeover, but they reduced bond yields 31.7 basis points after the RJR takeover. Bae, Klein, and Padmaraj [1994] gather a sample of 226 bond issues sold during the period 1982 to 1990. They find that the mean coupon rate on ERC-protected bonds is 9.73% while the mean coupon rate on nonprotected bonds is 10.15%. The difference between these two returns is statistically significant at the 0.05 level.

Note that Crabbe [1991], Fields, Kidwell, and Klein [1992], and Bae, Klein, and Padmaraj [1994] find evidence that ERCs reduce nominal borrowing costs. As stated earlier, the finding that ERCs reduce nominal borrowing costs is not sufficient to conclude that ERCs reduce true borrowing costs. ERCs could simultaneously reduce nominal borrowing costs and raise true borrowing costs. But the finding that ERCs reduce nominal borrowing costs is at least consistent with the notion that ERCs reduce true borrowing costs. A finding that ERCs do not reduce nominal borrowing costs would cast serious doubt on the assertion that they reduce true borrowing costs.

Some researchers find that weaker ERCs do not reduce nominal borrowing costs. Gilbert, Krull, and Rai [1992] find that ERCs ranked E-1 by Standard and Poor's reduced bond yields, but ERCs ranked below E-1 had no effect on bond yields. Fields, Kidwell, and Klein [1992] find that overall ERCs reduce bond yields after the RJR takeover. However,

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weeks (see Winkler and White [1989]).

Fields, Kidwell, and Klein [1992] partition their ERC sample and find that ERCs ranked E-1 or E-2 reduced bond yields while ERCs ranked E-4 or E-5 increased bond yields.[24] Fields, Kidwell, and Klein [1992] argue that weaker ERCs simply convey "bad news" to the bond market (that the firm is a target) while offering inadequate event-risk protection. Pratt and Livingston [1994] find only weak evidence that "quick-trigger" clause ERCs (ERCs triggered by the purchase of fifteen to thirty-five percent of the firm's stock) reduce bond yields after controlling for bond rating. They find that "slow-trigger" clause ERCs (ERCs triggered by the purchase of above fifty percent of the firm's stock) do not reduce bond yields.[25] Overall, prior research indicates that stronger ERCs reduce bond yields, at least during periods of high takeover activity. The evidence regarding the ability of weaker ERCs to reduce explicit financing costs is inconclusive.

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[24]This is inconsistent with Crabbe's [1991] finding that even weaker ERC covenants reduce bond yields. Note that ERCs ranked E-5 are waivable poison-put covenants. Standard and Poor's views waivable poison puts as seriously flawed, because bondholders' protection can be removed in certain takeovers. Consequently, Standard and Poor's assigns these ERCs the lowest ranking and we might expect bondholders to place little value on waivable ERCs.

[25]Pratt and Livingston may obtain weak results because they regress bond yields (in excess of treasury yields) on ERC dummy variables and on the Moody's bond ratings. Moody's incorporates consideration of ERC protection in their rating, while Standard and Poor's does not. Standard and Poor's provides both a bond rating and an ERC ranking. Because Moody's considers event risk protection in their rating, we might expect that the degree of event-risk protection captured by Pratt and Livingston's ERC ("QIK" and "SLO") dummy variables and Moody's rating to be correlated. When Pratt and Livingston remove the rating variable from the regression they find that quick-trigger ERCs significantly reduce bond yields.

The evidence concerning the shareholder wealth effects of ERCs is also mixed. Bae, Klein, and Padmaraj [1994] find abnormal returns to shareholders at debt announcements are higher when the bond issues are ERC-protected than when the bond issues are not ERC-protected. The authors gather a sample of 226 bond issues. Of these 226 issues, eighty-three are protected by ERCs, while 143 are not ERC-protected. Bae, Klein, and Padmaraj [1994] define the announcement date as the earlier of the SEC registration filing date or the *Wall Street Journal* announcement date. They find that the mean abnormal return for announcements of nonprotected bonds is -0.588% (t = -2.36).[26] The mean abnormal return for announcements of ERC-protected bonds is 0.138 (t = .51). Bae, Klein, and Padmaraj [1994] regress the abnormal returns for the full sample on several explanatory variables.[27] They find that coupon rates on bond issues are negatively related to the abnormal returns. Bae, Klein, and Padmaraj [1994] find that coupon rates are lower, on average, for ERC-protected issues. The authors argue that these two findings suggest "lower borrowing costs explain, at least in part, the gains realized by issuing protected bonds." Bae, Klein, and Padmaraj [1994] also find that the dummy variable COVENANT, which takes a value of one

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[26]In contrast, Cook and Easterwood [1994], Eckbo [1986], and Mikkelson and Partch [1986] all find that, on average, no significant shareholder-wealth changes occur at announcements of publicly issued straight debt.

[27]This discussion refers specifically to the working paper Bae, Klein, and Padmaraj [1994] that predates Bae, Klein, and Padmaraj [1995].

if the issue is ERC-protected, is positively related to the abnormal returns. This finding is significant at the 0.10 level. The authors argue that ERCs reduce borrowing costs and agency costs. According to Bae, Klein, and Padmaraj [1994], their evidence supports the Stockholder Wealth Enhancement Hypothesis.

In contrast to the findings of Bae, Klein, and Padmaraj [1994], the findings of Pratt and Livingston [1994] and Cook and Easterwood [1994] suggest that ERCs decrease shareholder wealth. In their event study, Pratt and Livingston sample eleven quickly triggered ERCs (which they call QIKs) and nine slowly triggered ERCs (which they call SLOs). Pratt and Livingston compare the announcement returns associated with QIKs to the announcement returns associated with eighty-six nonprotected, A-rated debt issues. They compare the announcement returns associated with SLOs with the announcement returns associated with eighteen nonprotected, B-rated debt issues.[28] Pratt and Livingston [1994] do not define the announcement date in the same manner as do Bae, Klein, and Padmaraj [1994]. Pratt and Livingston use the SEC file date in the case of regular registrations and the issue date in the case of shelf registrations. They find the mean abnormal return associated with QIK announcements is significantly lower than the mean abnormal return associated with nonprotected, A-rated debt announcements.

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[28]The authors make the comparisons in this manner because most QIKs occur in A-rated bonds while most SLOs occur in B-rated bonds.

They find the return associated with SLO announcements is not significantly different from the return associated with nonprotected, B-rated debt announcements. Pratt and Livingston interpret the shareholder reaction to QIK-protected debt as evidence that shareholders fear increased management entrenchment will result from the issuance of debt protected by relatively strong ERCs.

Cook and Easterwood [1994] also find negative shareholder reactions to ERC-protected debt announcements. Cook and Easterwood [1994] define the announcement date in the same manner as do Pratt and Livingston [1994]. Cook and Easterwood's sample includes sixty-four announcements of ERC-protected debt. Of these sixty-four announcements, thirty-nine are issue dates for ERC-protected bonds that were issued pursuant to shelf registrations.[29] The remaining twenty-five announcements are file dates for nonshelf registrations of ERC-protected debt. Cook and Easterwood obtain a control sample of 210 announcements of nonprotected debt. Of these 210 announcements, 160 are issue dates associated with shelf registrations. The remaining fifty announcements are file dates associated with nonshelf registrations. For the full ERC sample, Cook and Easterwood find that shareholders suffer a mean abnormal return of -0.70% (Z = -2.76). For the full sample of

[29]It is not known whether the shelf registrations contained ERC language. Apparently, none of the authors examining the shareholder wealth effects of ERCs examine the prospectuses filed with the shelf registrations. All that is known about these shelf registrations is that they ultimately led to issues protected by ERCs.

nonprotected debt announcements the authors find a mean abnormal return of 0.07 (Z = 0.36). The returns for the protected sample are significantly different from those of the nonprotected sample at the 0.02 level.[30]

Cook and Easterwood argue that the above results are consistent with their management entrenchment hypothesis and their mutual interest hypothesis. The mutual interest hypothesis states that ERCs provide incidental benefits to bondholders while entrenching managers. To distinguish between these two hypotheses, the authors calculate abnormal returns to existing bondholders at announcements of ERC-protected debt and at announcements of nonprotected debt. They find a negative relationship between the abnormal returns to existing bondholders and the abnormal returns to shareholders in the case of ERC-protected debt announcements. No relationship is found between bondholder and shareholder returns in the case of nonprotected debt announcements. Cook and Easterwood conclude that ERC-

[30]For the ERC sample, the mean abnormal return calculated for regular registrations is -0.90% (Z = -1.87), while the mean abnormal return calculated for (shelf-related) issue dates is -0.57% (Z = -2.03). For the nonprotected sample, the mean abnormal return calculated for regular registrations file dates is -0.01 (Z = -0.07), while the mean abnormal return calculated for (shelf-related) issue dates is 0.31 (Z = 0.32). For the ERC sample, the stronger results for the (nonshelf-related) file dates may suggest some leakage of information (regarding the ERC) is occurring prior to the issue date in the case of shelf-related announcements. A leakage of information could occur if ERC language appeared in the shelf registration.

protected debt entrenches managers and incidentally benefits existing bondholders.[31]

Another approach to testing the SIH and the MEH is to gather evidence on the characteristics of firms using ERCs. A finding that firms using ERCs are less likely to suffer shareholder-management conflict than other firms would support the SIH. A finding that firms using ERCs are more likely to suffer shareholder-management conflict would support the MEH. Previous researchers investigating the characteristics of firms using ERCs have interpreted their findings as supporting the SIH.

Kocher [1993] gathers a sample of all industrial firms issuing investment-grade bonds during the years 1989 and 1990. For the year 1989, of sixty-two firms issuing investment-grade debt, twenty-two firms used ERCs. For the year 1990, of sixty-four firms issuing investment-grade debt, eleven firms used ERCs. Kocher uses logistic regression (logit) analysis to examine what factors determine the probability that a firm issuing debt will use ERCs. She finds that firm size and the market-to-book ratio are negatively related to the probability of ERC use.

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[31]Cook and Easterwood's [1994] conclusion is consistent with Jensen and Meckling's [1976] argument that managers' interests are likely to be aligned with bondholders' interests more than with shareholders' interests because managers have a quasi-debt claim on the firm.

Undistributed cash flow and firm leverage are positively related to the probability of ERC use.[32]

Kocher [1993] interprets her evidence as supporting Smith and Warner's [1979] Costly Contracting Hypothesis but not Smith and Warner's [1979] Irrelevance Hypothesis. Kocher cites Jensen's [1986] argument that firms with high free cash flow have incentives to increase leverage. She argues that potential bondholders of these firms will be particularly concerned about the possibility of claim dilution resulting from future leverage increases. Kocher states that, according to the Costly Contracting Hypothesis, firms with high free cash flow will be more likely to use ERCs because ERCs reduce the agency costs of debt. Therefore, Kocher interprets the positive relationship between undistributed cash flow and ERC probability in conjunction with the negative relationship between the market-to-book ratio and ERC probability as support for the Costly Contracting Hypothesis.

Kocher suggests that firms with high leverage also suffer greater agency costs of debt because the probability of financial distress is higher. She states that, according to the Costly Contracting Hypothesis, firms with greater leverage will be more likely to use ERCs. Therefore, she interprets the positive relationship between firm leverage

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[32]The coefficients on firm size and the market-to-book ratio are significant at the .01 level and the .05 level, respectively. The coefficients on undistributed cash flow and firm leverage are significant at the .05 level and the .10 level, respectively.

and ERC probability as support for the Costly Contracting Hypothesis. Finally, Kocher argues that informational asymmetry (between managers and bondholders) is more likely to be present with small firms, because there is less public information available about small firms. She suggests that prospective bondholders of small firms could perceive a higher probability of event risk than do the managers of small firms. Kocher argues that managers of small firms could reduce the agency costs of debt associated with informational asymmetry by attaching ERCs to their firms' debt issues. She states that using ERCs sends an effective signal to the market that the firm is not a target. The signal is costly to mimic, she reasons, because if an event does occur bondholders may put their bonds back to the firm. Kocher states "Results which show a systematic relation between event risk covenant use and firm characteristics which proxy for informational asymmetry support the Costly Contracting Hypothesis."

Some of Kocher's [1993] findings have alternative interpretations that she does not discuss. By arguing that her tests (described above) are designed to support either the Costly Contracting Hypothesis or the Irrelevance Hypothesis, Kocher ignores the possibility that her tests are consistent with the MEH. While Jensen [1986] does argue that firms with high free cash flow and low growth opportunities have incentives to increase leverage, he also argues that these firms are vulnerable to hostile takeover.

Thus, managers of these firms have incentives to establish takeover defenses, which Jensen argues are not in shareholders' interests. According to Jensen, managers of firms that abuse free cash flow are not acting in shareholders' interests. Therefore, managers of firms with high undistributed cash flow and low market-to-book ratios are likely to have interests that are not aligned with those of their shareholders. The finding that undistributed cash flow is positively related to ERC probability and that the market-to-book ratio is negatively related to ERC probability supports the MEH. Smith and Warner's [1979] analysis of the Costly Contracting Hypothesis and the Irrelevance Hypothesis *assumes* that there is no shareholder-management conflict. By framing her tests so that support is provided for either the Costly Contracting Hypothesis or the Irrelevance Hypothesis, Kocher implicitly assumes that there is no shareholder-management conflict. Smith and Warner [1979] explicitly recognize this assumption in their comparison of the two hypotheses. They state that once shareholder-management conflict is introduced, the analysis of bond covenants changes.

> Finally, it is important to remember that in focusing on the bondholder-stockholder conflict, we have ignored other conflicts, such as that between managers and shareholders, which also exist. To the extent that the contracts comprising the firm are interdependent and simultaneously determined, the bondholder-stockholder conflict should not be viewed in isolation. The impact of the bondholder-stockholder conflict on the firm's total

> contracting costs cannot be fully understood until the nature of these contractual interdependencies is explored.

An alternative interpretation can also be gleaned from Kocher's finding regarding the relationship between the market-to-book ratio and ERC probability. The market-to-book ratio, which Kocher uses to proxy for investment opportunities, can also proxy for management efficiency. A low market-to-book ratio can be interpreted as evidence of low management efficiency.[33] Using the efficiency interpretation of the market-to-book ratio, Kocher's finding that the ratio is negatively related to ERC probability supports the MEH. One can interpret her findings regarding the market-to-book ratio and undistributed cash flow as evidence that less efficient managers who abuse free cash flow are more vulnerable to hostile takeovers and more likely to use ERCs (as a takeover defense). This interpretation is consistent with Jensen's [1986] suggestion that managers not acting in shareholders' interests become vulnerable to takeovers and often establish takeover defenses to avoid control market discipline.

Kocher's finding that firm size is negatively related to ERC probability also has an alternative interpretation. Several researchers have found that firm size is negatively related to takeover probability. For example, Mikkelson and Partch [1989] test the influence of several variables on the

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[33]Lang, Stulz, and Walkling [1989] interpret Tobin's Q in this way. Tobin's Q is closely and positively related to the market-to-book ratio.

probability of takeover. They find that firm size is negatively related to the probability of takeover. Furthermore, firm size is the most important explanatory variable in their study. Comment and Schwert [1993] review several studies of factors influencing takeover probability. They conclude that the only consistently strong explanatory variable determining takeover probability is firm size. In their logit analysis, Comment and Schwert [1993] also find that firm size is negatively related to takeover probability. If smaller firms are more vulnerable to takeovers, then we can conclude from Kocher's findings that firms more vulnerable to takeovers are more likely to use ERCs.[34] This interpretation is consistent with the MEH and the Costly Contracting Hypothesis.[35] According to Kocher [1993], her only test of the "manager entrenchment hypothesis" is her estimation of the relationship between insider ownership and ERC probability. She finds no

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[34]Kocher mentions that firm size can proxy for takeover probability. She runs a separate test using an alternative measure of informational asymmetry. Using earnings forecast variability, Kocher finds it has no relationship with ERC probability.

[35]Even if firm size were an unambiguous proxy variable of informational asymmetry Kocher's finding would still offer no clear implication for the MEH. We would simply have evidence that firms with greater informational asymmetry are more likely to use ERCs. Knowing that managers have inside information (that the firm is a target) does not imply that they will use that information to benefit shareholders. Similarly, using firm size as a proxy for takeover probability does not suggest a test of the MEH. A finding that small firms (likely targets) are more likely to use ERCs does not imply that ERCs harm or benefit shareholders. Firm size does not imply anything about shareholder-management conflict and should not be used to support or refute the MEH. Note that free cash flow, which might also be related to takeover probability, does imply something about shareholder-management conflict. According to Jensen [1986], firms that do not pay out free cash flow are not maximizing shareholder wealth. Firms not maximizing wealth are likely to suffer shareholder-management conflict.

relationship between insider ownership and ERC probability. Kocher concludes that her evidence does not support the manager entrenchment hypothesis.

Bae, Klein, and Padmaraj [1994] also conduct a logit analysis examining the factors that influence ERC probability.[36] Consistent with Kocher [1993], they find that the probability that a firm issuing debt will use an ERC is positively related to undistributed cash flow. In contrast to Kocher [1993], Bae, Klein, and Padmaraj [1994] find that ERC probability is negatively related to firm leverage and negatively related to insider ownership. They argue that firms with higher free cash flow have greater agency costs that can be reduced by using ERCs. Therefore, they interpret a positive relationship between undistributed cash flow and ERC probability as supporting the notion that firms use ERCs to reduce agency costs. As suggested earlier, an alternative view is that firms with higher free cash flow suffer higher costs of shareholder-management conflict. The positive relationship between undistributed cash flow (a proxy for free cash flow) and ERC probability can be interpreted as support for the MEH.

Bae, Klein, and Padmaraj [1994] offer no hypothesized relationship between firm leverage and ERC probability.

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[36]Bae, Klein, and Padmaraj do not state how many firms are in their final sample. They do state that the sampled ERC-protected bonds were issued during the period 1982-1990. No other authors of published or unpublished research reviewed in this study report evidence of ERCs prior to 1986. Lehn and Poulsen [1991] specifically state that they can find no evidence of ERCs prior to 1986.

Firm leverage is included as a control variable and the authors draw no conclusions from the observed relationship that firms with greater leverage are less likely to use ERCs. They suggest that insider ownership is a proxy for agency conflict. They conclude that firms with higher agency costs (evidenced by low insider holdings) are more likely to use ERCs. Bae, Klein, and Padmaraj offer no further interpretation of this finding. An alternative interpretation of their finding is that firms with low insider holdings have greater shareholder-management conflict. Furthermore, these managers are less able to resist hostile takeover attempts. Consequently, managers with low share ownership are more likely to use ERCs to entrench. Bae, Klein, and Padmaraj do not interpret their results in this manner. They conclude that the evidence supports the "Stockholder Wealth Enhancement Hypothesis" over the "Managerial Entrenchment Hypothesis."

Neither Bae, Klein, and Padmaraj [1994] nor Kocher [1993] focus on the determinants of *poison put* use. These studies examine the factors influencing the probability that a firm will use ERCs of any type. In this dissertation it is argued that coupon resets are less likely to be used for entrenchment purposes. Also, neither of these studies matches control firms on the basis of industry, or otherwise controls for industry effects. Demsetz and Lehn [1985] argue that ownership structure varies across industries in ways that are consistent with firm value maximization. Bae,

Klein, and Padmaraj [1994] do not control for a firm size effect in their logistic specifications. Other researchers (e.g. Mikkelson and Partch [1989]) have found a relationship between firm size and ownership structure. Consequently, drawing an inference from these studies regarding managerial motives and poison put use could be misleading.

To summarize, this section has presented direct evidence on the wealth effects of ERCs and the factors determining ERC use. There is evidence to support both the SIH and the MEH. Researchers find that ERCs (at least stronger ERCs) reduce the agency costs of debt. This is a necessary but not a sufficient condition for ERCs to benefit shareholders. ERCs must decrease *net* agency costs to increase shareholder wealth. If ERCs increase the agency costs of shareholder-management conflict, then they might not benefit shareholders. Bae, Klein, and Padmaraj [1994] find that shareholders react more favorably to debt announcements when the debt is ERC-protected. Cook and Easterwood [1994] find that shareholders react less favorably to debt announcements when the debt is ERC-protected. Cook and Easterwood [1994] find that, on average, shareholder wealth decreases at announcements of ERC-protected debt. Kocher [1993] and Bae, Klein, and Padmaraj [1994] investigate the firm-specific factors that determine ERC use. These researchers do not agree on how some factors influence ERC probability. However, they do agree that the evidence does not support the MEH. This

study presented alternative interpretations to the findings of Kocher [1993] and Bae, Klein, and Padmaraj [1994]. These alternative interpretations are consistent with the MEH.

CHAPTER THREE

DATA AND RESEARCH METHODS

3.1 INTRODUCTION

In this chapter the data and the research methods used in addressing the research questions are discussed. Two research questions are addressed in this study. First, what are the shareholder wealth effects of ERCs? Second, is shareholder-management conflict related to poison put use? Evidence that ERCs increase shareholder wealth would be consistent with the SIH, while evidence that ERCs decrease shareholder wealth would favor the MEH. Evidence that debt-issuing firms which suffer greater shareholder-management conflict are more likely to use poison puts would also be consistent with the MEH.

In this study six hypotheses are tested, the first four hypotheses relate to research question one, the last two hypotheses relate to research question two. First, the hypotheses, the data, and the event-study methods that address the first research question are discussed. Then, the hypotheses, the data, and the econometric model that address the second research question are discussed.

3.2 HYPOTHESES RELATED TO QUESTION ONE

The MEH states that managerial use of ERCs decreases shareholder wealth because managers use ERCs to entrench. The SIH states that managerial use of ERCs increases shareholder wealth because managers use ERCs to lower true borrowing costs or to negotiate greater takeover premiums for shareholders.

The first hypothesis tested in this study is stated as follows:

> H1: Issuing ERC-protected debt has no effect on shareholder wealth, on average.

Cook and Easterwood [1994], Eckbo [1986], and Mikkelson and Partch [1986] all find that, on average, no significant shareholder-wealth changes occur at announcements of publicly issued straight debt. In general, we do not expect negative shareholder reactions to debt issues. If negative shareholder reactions to announcements of ERC-protected debt are observed, that evidence would be consistent with the MEH.

To test Hypothesis One the announcement date will be defined as the date at which the first *definitive*, public announcement is made that the firm will issue ERC-protected debt. If the ERC-protected debt is issued pursuant to a regular registration, the announcement date (day zero) is defined as the day the security registration was filed with the SEC. In the case of an issue pursuant to a regular registration, the ERC appears in the prospectus that is contained in the SEC filing. The filing is typically

available to the public on the file date. In some cases, such as when the registration is filed late in the day, the filing may not be available to the public until the first business day after the file date.[37]

If the ERC-protected debt issue is issued pursuant to a shelf registration the announcement date will be defined as the issue date. The issue date is used for shelf-related issues because of the many uncertainties surrounding shelf registrations. First, a shelf registration is simply an option to issue securities.[38] Second, a shelf registration only sets a tentative upper bound on the dollar amount of debt that the firm can issue. In some instances less than the maximum amount available under the shelf is issued. In other instances a firm will amend a shelf registration (with a subsequent SEC filing) to increase the amount available under the shelf registration. Third, often ERC language is not included in the shelf registration, yet it appears in the issue. Fourth, even if ERC language appears in the shelf registration, the issuing firm often reserves the right to change the ERC language (and other material features of the issue) in any takedown. Thus, in the case of shelf registrations there is a considerable amount of uncertainty that is resolved at the issue date.

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[37]See Goff and Keasler [1993].

[38]As an example of this uncertainty note that in eight instances Standard and Poor's gave preliminary rankings to ERCs contained in shelf registrations. For half of these shelf registrations no bonds were ever issued.

The second hypothesis tested in this study is stated as follows:

> H2: The shareholder wealth effects of ERCs are not a function of covenant type.

Hypothesis Two is tested to determine whether shareholders react differently to announcements of waivable poison puts, nonwaivable poison puts, and coupon resets. This study compares shareholders' reactions to the different types of ERCs. As explained above, nonwaivable poison-put bonds could impose more costly barriers to takeover than do waivable poison-put bonds. Because waivable poison puts offer the board the flexibility to waive bondholders' exercise rights these puts could be more beneficial (or less harmful) to shareholders.[39] Also noted earlier, poison-put bonds are likely to impose more costly barriers to takeover than are coupon-reset bonds.

The proposed test of H2 suffers from an important theoretical limitation. Most waivable poison puts were issued prior to the RJR/Nabisco takeover in October of 1988. Most nonwaivable poison puts were issued after the RJR/Nabisco takeover. Some writers have suggested that the increased popularity of nonwaivable poison puts was the result of bondholders' heightened event-risk concerns caused

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[39]The validity of this claim is not immediately obvious. Because waivable poison puts extend less protection to bondholders, they are less able to decrease the costs of shareholder-bondholder conflict. Therefore, nonwaivable poison puts could be more beneficial to shareholders because these puts are more effective at decreasing the costs of shareholder-bondholder conflict.

by the RJR takeover.[40] Evidence that shareholder reactions are, on average, lower for nonwaivable poison puts would also be consistent with the hypothesis that shareholders perceived a higher probability of takeover following the RJR takeover and thus were more disappointed by poison-put announcements in the wake of the RJR takeover.[41]

The third hypothesis tested in this study is stated as follows:

> H3: There is no difference in the mean shareholder reactions to shelf registrations that contain and those that do not contain ERCs.

To test Hypothesis Three the announcement date will be defined as the shelf registration (file) date in all cases. In their analysis of the shareholder wealth effects of ERCs, Bae, Klein, and Padmaraj [1994] choose the file date as the announcement date for all ERC-protected issues. However, there is too much uncertainty surrounding a shelf registration to interpret the shelf registration date as the announcement date. Nevertheless, when ERC language appears in the shelf registration, shareholders could believe that the registration significantly increases the probability

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[40]See Fields, Kidwell, and Klein [1994].

[41]This interpretation assumes the MEH dominates the SIH. Suppose instead that managers use ERCs to benefit shareholders. Arguing from this position, shareholder-bondholder conflict should have increased after the RJR takeover. In this environment, strong ERCs should have benefited shareholders more than weak ERCs because the costs of shareholder-bondholder conflict were very high and nonwaivable ERCs were better able to reduce these costs. Bae, Klein, and Padmaraj [1994] argue, "According to the Stockholder Wealth Enhancement hypothesis, the presence of stronger ERCs will result in both lower coupon rates and lower levels of monitoring costs. Hence, stronger ERCs would enhance stockholder wealth to a greater degree."

that the firm will issue ERC-protected debt. Additionally, shareholders may value managements' *option* to issue ERC-protected debt.

A shelf registration of ERC-protected debt can be used as a bargaining tool in takeover negotiations. If shareholders react more favorably, on average, to shelf registrations that contain ERCs, this would suggest that shareholders value management's option to use ERCs (either to decrease true borrowing costs or to negotiate a higher takeover bid). Alternatively, if shareholders react less favorably, on average, to shelf registrations that contain ERCs, this would suggest that shareholders do not value managements' option to use ERCs.

The fourth hypothesis tested in this study is stated as follows:

> H4: For firms that ultimately use ERCs, there is no difference in the mean shareholder reaction to shelf registrations of unprotected debt and the mean shareholder reaction to ERC-protected debt issuances.

Testing Hypothesis Four helps to isolate shareholder reactions to ERCs, as opposed to debt issuances. Bae, Klein, and Padmaraj [1994] and Cook and Easterwood [1994] attempt to isolate shareholder reactions to ERCs by comparing returns for ERC-protected debt announcements to returns for unprotected debt announcements by a control group of firms. One weakness of this approach is that it does not control for the type of firm issuing the debt. There could be some characteristic common to ERC-using firms

that causes shareholders to respond negatively (or positively) when these firms issue debt.

For example, ERC-using firms could be in industries with overcapacity that requires exit, not additional financing. If so, shareholders could systematically exhibit negative responses to debt issuances by these firms, even if the issuances were not ERC-protected. Because an ERC-protected debt announcement is an announcement of both debt and an ERC we cannot be sure that the shareholder response observed is driven by managers' decision to use ERCs. The shareholder response could be driven by managers' decision to issue debt.

To address this problem, shareholder reactions to shelf registrations of unprotected debt are observed.[42] These reactions are compared to shareholder reactions when the firms subsequently issue ERC-protected debt. If shareholders respond more favorably, on average, to shelf registrations of unprotected debt than they do to issuances of ERC-protected debt, this would suggest that shareholders are harmed by ERCs.

The main weakness of this testing procedure is that shelf registrations of unprotected debt obviously do not guarantee that unprotected debt will be issued. However, shareholders are likely to view shelf registrations as events that increase the probability that the firm will soon

[42]Shelf registrations that contain no mention of an ERC in the prospectus are considered to be registrations of unprotected debt.

issue debt. Furthermore, the majority of debt issuances are not ERC-protected.[43] Thus, shareholders are more likely to expect the shelf registration of unprotected debt to result in unprotected debt issuances than ERC-protected debt issuances. The advantage of using this approach is that the best possible control sample of firms is gathered. The same firms observed registering unprotected debt are subsequently be observed issuing ERC-protected debt.

3.3 DATA AND METHODS USED TO ADDRESS QUESTION ONE

The sample used for testing H1, H2, H3, and H4 includes announcements of ERC-protected debt issues. Only ERC-protected debt that has been ranked by Standard and Poor's are considered for these tests. Standard and Poor's began publishing ERC rankings in the publication *CreditWeek* in July of 1989. Standard and Poor's published rankings of ERC-protected bonds retroactively so that bonds issued as early as 1986 have been ranked. The sample for this study includes ERC-protected bonds that were issued from 1986 through 1990. The corporate control market was active during this period, therefore ERC announcements during this window could be expected to affect shareholders' wealth.

All issues by financial firms or electric utilities are discarded. Takeovers and mergers of firms in these industries require the approval of government regulators.

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[43]Lehn and Poulsen [1991] find that during 1989 two-thirds of all nonconvertible debt issuances by nonfinancial firms were not ERC-protected.

Consequently, takeover defenses erected by these firms might have little effect on shareholders. All issues of convertible debt are discarded. Convertible debt issues are contingent equity issues. Including announcements of ERC-protected convertible bonds in the final sample would likely bias the calculated announcement returns downward.[44] All privately placed issue announcements are discarded. The announcement dates for these issues are particularly difficult to identify. Privately placed issues are not subject to SEC registration requirements so there are no registration dates for these issues. Additionally, private placements of securities could release confounding information that is unrelated to ERC protection.[45] Finally, for an issue announcement to be included in the sample, the issuer must be listed on the Center for Research in Security Prices (CRSP), NYSE/AMEX, or NASDAQ daily returns files. An investor-relations representative at each firm remaining in the sample is contacted in an attempt to obtain each ERC-protected debt issue's file date, issue date, and final prospectus. These representatives are asked which (if any) of the ERC-protected issues were sold pursuant to shelf registrations. For the issues that are

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[44]For evidence that equity-related issue announcements have a negative impact on existing shareholders' wealth, see Dann and Mikkelson [1984], Smith [1986], and Cornett and Travlos [1989], for example.

[45]Fields and Mais [1991] find that private placements of convertible debt release positive information to shareholders. Wruck [1989] finds that shareholders react positively to private placements of equity. However, James [1987] finds an insignificant shareholder reaction to private placements of straight debt.

shelf-related the representatives are asked to provide a copy of the "preliminary prospectus" that is included in the shelf filing. These preliminary prospectuses are inspected to determine whether they contain ERCs. Final prospectuses, when available, are inspected to determine if poison puts are waivable or nonwaivable. When the final prospectus is not available, a Standard and Poor's ranking of E-5 is used to identify the put as waivable.[46]

If an issuer fails to respond the next step taken is to determine whether the issue is shelf-related. *CreditWeek* and databases available on *Lexis/Nexis* are used, when possible, to make this determination. If these sources do not have the information an attempt is made to purchase the information from Research Information Services, a Washington D.C. research firm. This firm routinely performs customized research of SEC filings.[47]

If the issue is covered under a regular registration the filing does contain an ERC (because complete details of the issue must be reported to the SEC) and it is not necessary to examine the filing. For shelf-related issues

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[46]A representative who ranks bonds for Standard and Poor's states that Standard and Poor's assigns an E-5 ranking to all waivable poison puts. He states that Standard and Poor's views waivable poison puts as providing seriously flawed protection. He indicates that all nonwaivable poison puts and all coupon resets are ranked above E-5. Still, the reader should be warned that the E-5 ranking could be an imperfect proxy for the type of poison put.

[47]The firm is asked to look up filings, determine whether they are shelf filings, determine whether shelf filings contain ERCs, and report this information. Specifically, if a particular filing is a shelf registration Research Information Services is asked to send a photocopy of the prospectus cover and, if the prospectus contains an ERC, a photocopy of the ERC.

it is not immediately obvious whether the shelf contains an ERC. When it cannot be determined whether an issue is shelf-related, then the ERC-protected debt issue announcement is not included in the final sample because the appropriate announcement date cannot be identified.

Moody's Industrial Manual, *Standard and Poor's Bond Guide*, *Investment Dealers' Digest*, and various databases available through *Lexis/Nexis*, are also used to gather file dates and issue dates. These dates are used to supplement the file dates and the issue dates gathered from the issuing firms themselves and from Research Information Services. When these sources differ on the announcement date, and when a wire date is available, the date of the first wire report concerning the announcement is used. Debt announcements are eliminated if some other material, firm-specific announcement appears on one of the wire services or in a major newspaper during the three-day period centered around the announcement date.[48]

To summarize, the following ten conditions must be met for the announcement of an ERC-protected debt issue to be included in the final sample used to test the first hypothesis.

1. The ERC must be ranked by Standard and Poor's.
2. The debt must have been issued from 1986 through 1990.
3. There must be no other material, firm-specific announcements around the time of the announcement date.

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[48]Proquest's *Newspapers Abstracts Ondisc* is searched for firm-specific stories appearing in major U.S. and British newspapers.

4. The firm cannot be a financial firm or an electric utility.
5. The debt issue cannot be a convertible issue.
6. The debt issue must be publicly placed.
7. The firm must be listed on the CRSP tape.
8. It must be known whether the issue is shelf-related.
9. If the issue is shelf-related then the issue date must be known (because this is the announcement date).
10. If the issue is not shelf-related then the file date must be known (because this is the announcement date).

To test Hypothesis Two the same ten conditions must be met that were required to test Hypothesis One. Additionally, it must be known whether the ERC is a waivable poison put, a nonwaivable poison put, or a coupon reset ERC. For a shelf filing announcement to be included in the sample used to test Hypothesis Three, the file date must be known and conditions one through eight above must be met. In addition to these requirements, whether an ERC appears in the shelf registration must be determined. To test Hypothesis Four, conditions one through nine above must be met. Again, whether an ERC appears in the shelf registration must be determined.

To measure the shareholder wealth effects of the announcements described above, an event-study method is employed. The method used in this study is similar to Mikkelson and Partch [1988]. The market model will be used during the estimation period t = -180 to t = -31:

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + e_{i,t}, \qquad (1)$$

where $R_{i,t}$ is the actual daily return including dividends for firm i on date t found in the CRSP daily return files, $R_{m,t}$

is the CRSP equally weighted market index return on day t, α_i and β_i are the regression parameters, and $e_{i,t}$ is the disturbance term.

The market model is estimated over the period beginning 180 trading days before and ending thirty-one trading days before the announcement date. The test period is the two-day period [0, 1] where day zero is the announcement date and day one is the first trading day following the announcement date.[49] Prediction errors are calculated for each of the days t = 0 and t = 1 using equation (2):

$$PE_{i,t} = R_{i,t} - \hat{\alpha}_i - \hat{\beta}_i R_{m,t}, \tag{2}$$

where $PE_{i,t}$ is the prediction error for firm i on day t, and $\hat{\alpha}$ and $\hat{\beta}$ are ordinary least squares estimates. The mean prediction errors across all firms in a particular sample are computed using equation (3):

[49]This window is used because in most cases the announcement date is the date of the first wire report. Wire reports usually predate newspaper reports by one day. But these wire reports are only date-stamped (not time-stamped), making it impossible to determine whether the report was released before trading had ceased for that day on the NYSE. Also, many announcements are wire reports of debt filings. Goff and Keasler [1993] argue that when file dates are used in event studies a [0, 1] event interval is necessary. The SEC usually places filings in the SEC reading room for public view within thirty minutes after receiving the filing. From here it is picked up immediately by the wire services that choose to carry the news. Goff and Keasler state that the SEC will accept filings for up to thirty minutes after trading on the NYSE has ceased for the day. Therefore, markets often do not have an opportunity to react to wire reports (of issuances or filings) until one day after the wire report.

$$MPE_t = \sum_{i=1}^{N} PE_{i,t}/N, \qquad (3)$$

where MPE_t is the mean prediction error across firms on day t, and N is the number of observations in the sample.[50] The CMPEs are computed using equation (4):

$$CMPE_{a,b} = \sum_{t=a}^{b} MPE_t, \qquad (4)$$

where a and b are the beginning and ending day of the interval of accumulation (i.e., a = 0 and b = 1). Prediction errors calculated per equation (2) are standardized by the estimated standard errors calculated using equation (5):

$$S_{i,a,b} = s_i \left[I + I^2/T + \frac{\left(\sum_{a}^{b} (R_{m,t} - \bar{R}_m)^2 \right)}{\sum_{t=-180}^{-31} (R_{m,t} - \bar{R}_m)^2} \right]^{1/2}, \qquad (5)$$

where S^2_i is the mean square error of the market model, $\bar{R}_m$ is the mean market return over the estimation period, T is the number of days in the estimation period, and I is the length of the interval of interest (I = b - a + 1).

Standardized prediction errors (SPEs) are calculated using equation (6):

[50]Some firms will appear more than once because they are associated with multiple ERC announcements.

$$SPE_{i,t} = PE_{i,t}/S_{i,t}. \quad (6)$$

The mean cumulative standardized prediction errors (MCSPEs) are calculated using equation (7):

$$MCSPE_{a,b} = (1/N)\sum_{i=1}^{N}\left[\frac{\left(\sum_{t=a}^{b} PE_{i,t}\right)}{S_{i,a,b}}\right]. \quad (7)$$

Assuming that the prediction errors are distributed multivariate normal and that $PE_{j,t}$ is independent from $PE_{k,t}$ (for all j not equal to k), then the following Z Statistic is asymptotically distributed standard normal (N[0,1]):

$$Z = N^{1/2}MCSPE_{a,b}. \quad (8)$$

3.4 HYPOTHESES RELATED TO QUESTION TWO

The SIH states that managers use poison puts to benefit shareholders. This hypothesis assumes that managers who use poison puts have interests that are aligned with those of their shareholders. In contrast, the MEH states that managers use poison puts to benefit themselves and that poison puts harm shareholders by increasing the cost of shareholder-management conflict. This hypothesis assumes that managers who use poison puts have interests that are not aligned with those of their shareholders. Evidence that an increase in shareholder-management conflict is associated with an increase in poison put use would support the MEH.

The two remaining hypotheses tested in this study concern the relationship between shareholder-management conflict and poison put use. The fifth hypothesis tested in this study is stated as follows:

> H5: Shareholder-management conflict does not influence the probability that a debt issuer will use a poison put.

Shareholder-management conflict cannot be measured directly. Therefore, this study relies upon proxy variables to measure shareholder-management conflict. The variables considered are undistributed cash flow, Tobin's Q[51], insider ownership, outsider representation on the board, outside block ownership, and CEO pay-performance sensitivity. An interaction variable using undistributed cash flow and an estimate of Tobin's Q is used to estimate free cash flow. An increase in shareholder-management conflict is likely to be associated with an increase in free cash flow. A decrease in shareholder-management conflict is likely to be associated with an increase in insider ownership, outsider representation on the board, outside block ownership, and CEO pay-performance sensitivity. The MEH predicts that poison-put probability is positively related to estimated free cash flow and negatively related to insider ownership, outsider representation on the board, outside block ownership, and CEO pay-performance sensitivity.

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[51]Tobin's Q is the ratio of the market value of the firm to the replacement cost of the firm's assets.

The sixth and final hypothesis tested in this study is stated as follows:

> H6: Shareholder-management conflict does not influence the probability that a debt issuer will use a nonwaivable poison put.

Hypothesis Six is a refinement of Hypothesis Five. The ability to waive bondholders' exercise option is an important distinguishing characteristic. As such, it may be useful to consider the factors influencing the decision to use nonwaivable poison puts separately, rather than pooling all poison puts together as is done in the test of Hypothesis Four.

As noted earlier, nonwaivable poison puts could be more harmful to shareholders. Once barriers to takeover are erected by issuing nonwaivable poison-put debt, they are not easily removed. Because the barriers to takeover imposed by nonwaivable puts could be more costly to remove, they could be more likely to entrench management. Assuming that the current managers wish to entrench, they may prefer to impose barriers to takeover that cannot be easily removed at a latter date by a majority board vote. By issuing nonwaivable poison-put debt, the current management team does not have to rely on the cooperation of future board members in maintaining the takeover barrier.

Hypothesis Six is tested using the same proxy variables for shareholder-management conflict described above for Hypothesis Four. The MEH predicts that nonwaivable poison-put probability is positively related to estimated free cash

flow and negatively related to insider ownership, outsider representation on the board, outside block ownership, and CEO pay-performance sensitivity.

3.5 DATA AND METHODS USED TO ADDRESS QUESTION TWO

A logit model is used to test Hypothesis Five. Two samples of firms are used in this part of the study. The first sample includes firms that issued put-protected debt from 1986 through 1990 and whose poison puts are ranked in *CreditWeek*. Firms that use poison puts with convertible debt only do not appear in the put sample. The second (control) sample consists of a set of firms that are matched to the put-using firms by industry and that issued unprotected, nonconvertible, investment-grade debt from 1986 through 1990. Firms that are found to have used ERCs of any type during the sample period are not included in the control sample. One control firm is matched to each put-using firm.

Firms are matched on the basis of four-digit SIC codes when possible, when this is not possible three-digit codes are used, if this is not possible two-digit codes are used. When multiple firms with the same SIC codes are available as potential matches, then the control firm is chosen at random from those firms available.

As stated, the sample of issuers that used poison puts are drawn from *CreditWeek*. *Moody's Industrial Manual* and *Moody's Utility Manual* are used to verify that matched firms

issued nonprotected, nonconvertible, investment-grade debt from 1986 through 1990.[52] To be included in either sample of issuers a firm must be listed on the Compustat tapes, if Compustat does not list a particular firm or if necessary information (described below) is not available for the firm, then it is dropped from the sample. Financial firms and electric utilities are dropped from both samples.[53]

In summary, to be included in the sample of debt issuers that use poison puts, the following five conditions must be met.

1. The issuer's poison put must be reviewed in Standard and Poor's *CreditWeek*.
2. The issuer cannot be a financial firm or an electric utility.
3. The issuer must publicly issue the put-protected debt.
4. The issuer must be listed on the Compustat tape.
5. The issuer must have issued put-protected nonconvertible debt from 1986 through 1990.

To be included in the control sample of issuers (matched to put-using firms by industry), the following five conditions must be met.

1. The issuer must have publicly issued nonconvertible debt from 1986 through 1990.
2. The issuer's debt must be reviewed in *Moody's Industrial Manual* or *Moody's Utility Manual*.
3. The issuer cannot be a financial firm or an electric utility.

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[52]Moody's sources are used to verify that a debt issue does not contain an ERC. Some ERCs were never ranked by Standard and Poor's but are reviewed in Moody's reports.

[53]*Moody's Utility Manual* is used to gather information on firms in the natural gas transmission industry. These firms operate under a different regulatory climate than do other utilities. Natural gas firms were hostile takeover targets during the sample period and firms in this industry appear in both the put-using sample and the control sample.

4. The issuer must be listed on the Compustat tape.
5. The issuer must not have issued ERC-protected debt from 1986 through 1990.

Each issuer appears in a sample only once. Some issuers used poison puts with several debt issues. Including firms in the put sample each time they issue put-protected debt is tempting. However, there are two problems with this approach. First, if observations on a firm's explanatory variables are used more than once with the same dependent variable, the residual terms from the logit regression are likely to be positively correlated. A correlation among residuals is likely to bias test statistics upwardly. Second, the dollar amount of ERC-protected debt is of more significance than the number of times a firm issues ERC-protected debt. Suppose firm A and firm B have the same market value. Let firm A issue one $500 million ERC-protected debt issue and let firm B issue five $100 million ERC-protected debt issues. Giving firm B five times more weight than firm A in the logit analysis is arbitrary and difficult to justify.

The reference point in time for each issuer in the logit analysis is the first issue date during the sample period. All firm-specific data gathered for an ERC-using firm is obtained from the relevant time period just prior to the firm's first ERC-protected debt announcement. The identical procedure is applied for issuers not using ERCs. Each matched firm appears in the control sample only once. All firm-specific data gathered for a firm in the control

sample is obtained from the relevant time period just prior to the firm's first debt issue during the sample period.

Compustat data are used to calculate standardized undistributed cash flow and Tobin's Q for each sampled firm. Undistributed cash flow is calculated by modifying Lehn and Poulsen's [1989] method. Lehn and Poulsen use annual data to calculate undistributed cash flow. In this study Compustat quarterly data are used, if available. If quarterly data are not available, then annual data are used. Undistributed cash flow is calculated according to equation (9):

$$CF_i = \sum_{t=-1}^{-4} (INC_{i,t} - TAX_{i,t} - INTEXP_{i,t} - PFDDIV_{i,t} - COMDIV_{i,t}), \quad (9)$$

where for firm i, t is the quarter relative to the quarter in which the first issue date occurred, $INC_{i,t}$ is operating income before depreciation, total income taxes less changes in deferred taxes from the previous quarter, $INTEXP_{i,t}$ is gross interest expense on short-term debt and on long-term debt, $PFDDIV_{i,t}$ is the preferred dividend requirement on cumulative preferred stock, and $COMDIV_{i,t}$ is the dividends declared on common stock. To account for variations in firm size, CF_i is divided by the market value of stock.[54]

[54]The market value is measured as of the end of the most recent quarter, if quarterly data are available. If quarterly data are not available, then annual data are used. Using the stock price just prior to issuance could bias results because poison puts may be used in response to a present takeover threat. If the firm is the target of a takeover, the expected premium is likely to be impounded in the stock price.

For each firm, Tobin's Q is the ratio of market value over replacement cost. In this study Tobin's Q is estimated using equation (10):

$$q_i = [CS_i + LTD_i + PFD_i]/TA_i, \qquad (10)$$

where for firm i, CS_i is equal to the market value of common stock, LTD_i is the book value of long-term debt, PFD_i is the book value of preferred stock, and TA_i is the book value of total assets.[55]

Compustat data are also used to measure firm size and firm leverage. Firm size is measured as the market value of common stock. Firm leverage is calculated according to equation (11):

$$LEV_i = (LTD_i + CL_i)/(LTD_i + CL_i + PFD_i + CS_i) \qquad (11)$$

where CL_i is equal to the ith firm's current liabilities.

Information on insider ownership is gathered for each firm from SEC proxy statements and from 10-K filings. Specifically, the percentage of total firm shares beneficially owned by officers and directors before the first issue date is gathered. This information is gathered from the last annual meeting proxy statement or 10-K filing before the issue date.

Information on outside block ownership is also gathered for each firm from the same SEC proxy statements and 10-K filings. Outside block ownership is calculated as the total

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[55]Amit, Livant, and Zarowin [1989] find this measure to have a high correlation with q ratios using the Lindenberg and Ross [1981] procedure.

percentage of firm ownership held by outside five percent blockholding individuals and institutions that are not otherwise affiliated with the firm. Outsiders not affiliated with the firm are considered individuals or institutions that do not conduct business with the firm.[56]

Information on board composition is gathered for each firm from its last SEC proxy statement before the issue date. This study uses the same taxonomy for directors that appears in Brickley, Coles, and Terry [1994]. Inside directors are defined as directors who work for the firm and their immediate families. Grey directors are defined as directors who do business with the firm. This classification includes investment bankers, bankers, insurers, and any other individuals who do extensive business with the firm.

CEO pay-performance sensitivity estimates are gathered from Murphy [1993]. Murphy [1993] estimates the CEO pay-performance sensitivities for 768 firms. Specifically, Murphy estimates the dollar change in a CEO's wealth given a $1000 change in the total market value of his or her firm's common stock. Murphy [1993] follows the method of estimation developed in Jensen and Murphy [1990]. To estimate a CEO's pay-performance sensitivity, Murphy [1993] incorporates changes in the CEO's cash compensation

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[56]Individuals and institutions that conduct business with the firm may be less effective monitors because they derive benefits from the current management team. For more on this see Brickley, Lease, and Smith [1988], Bhagat and Jefferis [1991], and Brickley, Coles, and Terry [1994].

(including salary and bonuses), stock options, stockholdings, and dismissal-related wealth consequences.

Murphy [1993] estimates pay-performance sensitivities as of 1992. Ideally this study would use pay-performance sensitivities calculated immediately prior to the issue date. These estimates are not available. However, executive compensation structures are likely to be relatively static over a few years. Assuming this is the case and that changes in pay-performance sensitivities are evenly distributed across firms in the put and control samples, using the 1992 estimations should not bias the results. In theory, pay-performance sensitivity is likely to be a better measure of shareholder-management bonding than is CEO stock ownership alone. Nevertheless, the lag between the issue date and the date pay-performance sensitivities are estimated could result in a noisy measure of shareholder-management conflict.

The following logit model is estimated (using maximum likelihood estimation) to determine whether shareholder-management conflict affects the probability that a firm issuing debt will use poison puts:

$$\ln[(P_i)/(1-P_i)] = B_0 + B_1(CF_i/SIZE_i)(Q_i) + B_3MGT_i + B_4BOARD_i + B_5BLOCK_i + B_6CEO_i + B_7\ln(SIZE_i) + B_8LEV_i' \quad (12)$$

where for firm i, CF_i is undistributed cash flow, $SIZE_i$ is the total market value of firm stock, Q_i is the estimate of Tobin's Q, MGT_i is the percentage of common shares beneficially held by officers and directors, $BOARD_i$ is the

percentage of board members who are outside directors, $BLOCK_i$ is the percentage of voting shares held by outside blockholders, CEO_i is the estimate of CEO pay-performance sensitivity, $ln(SIZE_i)$ is the natural log of *SIZE*, and LEV_i is firm leverage. The dependent variable takes a value of one if the issuer uses poison puts. Otherwise, the dependent variable is set equal to zero.[57]

The explanatory variable $CF_i/SIZE_i$ is used to measure standardized undistributed cash flow. This variable is multiplied by an indicator variable, Q_i, that is set equal to one if estimated Tobin's Q is less than one. Firms with estimated Tobin's Q less than one are less likely to have positive net present value (NPV) investment opportunities. For these firms, undistributed cash flow is likely to be free cash flow.[58] Therefore, the variable $(CF_i/SIZE_i)(Q_i)$ is an estimate of free cash flow.

An alternative estimate of free cash flow is also used. This estimate is defined as the interaction variable $(CF_i/SIZE_i)(1/Q_i)$, where Q_i is estimated Tobin's Q. Because there is likely to be measurement error in estimated Tobin's Q, assuming that only firms with estimated Tobin's Q less than one have free cash flow (and that all undistributed cash flow for these firms is free cash flow) is somewhat

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[57]This model is shown with all variables included in a "base case" form. Because most of the explanatory variables proxy for shareholder-management conflict, correlation among explanatory variables is expected. Consequently, the effects of these variables on poison put probability are estimated in isolation and in various combinations.

[58]This is the same interpretation of Tobin's Q adopted in Lang, Stulz, and Walkling [1991].

arbitrary. However, as a firm's estimated Tobin's Q decreases along its continuum it is less likely that the firm has positive NPV investment opportunities. Using the alternative estimate of free cash flow inflates undistributed cash flow as Q decreases and deflates undistributed cash flow as Q increases. In this study estimated free cash flow is viewed as a proxy of shareholder-management conflict. Therefore, a positive relationship between estimated free cash flow and poison-put probability would be interpreted as evidence consistent with MEH.

Jensen [1986] states that managers who fail to pay out free cash flow are not maximizing shareholder wealth. He argues that managers who hoard or otherwise abuse free cash flow will become vulnerable to takeovers. Because the corporate control market imposes costs on managers, Jensen argues, managers will pursue entrenchment strategies that include using takeover defenses. According to Jensen, these takeover defenses harm shareholders and society by impeding the efficient transfer of assets to their most valuable use. Jensen claims that free cash flow abuse was a motivating factor behind many hostile takeovers of the 1980s. Following Jensen [1986], the MEH predicts that managers who abuse free cash flow are more likely to use poison puts (as a takeover defense).

The influence of Tobin's Q on poison-put probability is also analyzed in isolation, that is, separated from the

interaction variable just described. Lang, Stulz, and Walkling [1989] argue, "Tobin's q is an increasing function of the quality of a firm's current and anticipated projects under existing management." They suggest that high Q firms are well-managed and low Q firms are poorly-managed. Additional support for this interpretation can be found in Morck, Shleifer, and Vishny [1988a]. They argue that managers of low Q firms are more likely to entrench and they find that managers of low Q firms are more likely to resist takeovers. In this study Tobin's Q is viewed as an estimate of management efficiency. Firms with less efficient managers are assumed to suffer more severe shareholder-management conflict. Accordingly, the MEH predicts a negative relationship between the Tobin's Q estimate and the probability of a poison put.

The explanatory variable MGT_i is included to test the hypothesis that insider ownership is related to poison-put probability. In this study insider ownership is interpreted as a proxy for shareholder-management conflict. Jensen and Meckling [1976] argue that shareholder-management conflict increases as the percentage of firm equity held by the owner-manager falls. Following this argument, the MEH predicts a negative relationship between insider ownership and the probability of a poison put.[59] The explanatory

[59]There is another reason why poison-put probability could fall as insider ownership increases. When insider ownership is high managers might be able to defeat a hostile takeover without a takeover defense.

variable $BOARD_i$ is included to test whether the proportion of board seats held by outsiders is related to poison-put probability. Directors must approve securities issues and outside directors could assist shareholders by monitoring the type of securities that the firm issues. Fama [1980] argues that outside directors are particularly helpful in monitoring management. He contends that outsiders value their human capital as "referees" and therefore serve the interests of shareholders.

Brickley, Coles, and Terry [1994] find that shareholder returns at announcements of poison pill adoptions are positive and significant when outside directors comprise a majority of the board. They find shareholder returns are negative and significant when insiders comprise a majority of the board. This evidence supports the view that outside directors align the interests of managers and shareholders. In this study shareholder-management conflict is assumed to decrease as outsider board representation increases. The MEH predicts that a negative relationship exists between $BOARD_i$ and poison-put probability.

The explanatory variable $BLOCK_i$ is included to test the hypothesis that outside block ownership is related to poison-put probability. Outside blockholders could help in aligning the interests of managers and shareholders. When outside block ownership is low, a lower level of external monitoring is likely to exist. In a diffusely held corporation the public good problem (or the free-rider

problem) can prevent any outside shareholder from spending resources to monitor management effectively. Yet blockholding individuals or institutions might be able to capture sufficient gains to justify costly monitoring. Consequently, when outside blockholders are in place, effective external monitoring is more likely to occur.

Several researchers find evidence to support the above assertion. Aggrawal and Mandelker [1990] find that shareholder returns at antitakeover charter amendment (ATCA) announcements are positively related to the proportion of equity held by institutions and five percent blockholders. Brickley, Lease, and Smith [1988] find that institutional investors and other outside blockholders vote more actively on ATCA amendments than do nonblockholders. They find a strong, positive relationship between the level of institutional ownership and the level of "no" votes cast.[60] Szewcyk and Tsetsekos [1992] find that Pennsylvania firms which chose not to be covered by new state antitakeover legislation had higher institutional ownership than did firms that chose to be covered by the new law. In this study shareholder-management conflict is assumed to be lower when outside block ownership is higher. The MEH predicts that a negative relationship exists between outside block ownership and poison-put probability.

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[60]They also find that institutions which do business with the firm (e.g., banks, insurance companies, and trusts) are less likely to oppose management.

The explanatory variable CEO_i is included to test the hypothesis that CEO pay-performance sensitivity is related to poison-put probability. Jensen and Murphy [1990] argue that low pay-performance sensitivity is inconsistent with agency models of optimal contracting. When pay-performance sensitivity is high, managers are more likely to act in the interests of shareholders. Evidence to support Jensen and Murphy [1990] is found in DeFusco, Johnson, and Zorn [1990]. DeFusco, Johnson, and Zorn [1990] find that after approval of an executive stock option plan, stock return variance typically increases. They find that both implicit stock variance (using Black and Scholes' [1976] model) and accounting return on assets increase after stock option plans are approved. Not surprisingly, they also find that shareholders earn positive returns at plan announcements while bondholders suffer negative returns at these announcements. DeFusco, Johnson, and Zorn [1990] argue that the market anticipates the increased level of management risk-taking at the plan announcements. This evidence suggests that when managers' wealth is closely correlated with shareholders' wealth managers will take actions that benefit shareholders, even at the expense of bondholders. In this study firms with high CEO pay-performance sensitivity are assumed to suffer less shareholder-management conflict. The MEH predicts a negative relationship between pay-performance sensitivity and poison-put probability.

The explanatory variable $ln(SIZE_i)$ is included as a control variable. Firm size has consistently been shown to be negatively related to takeover probability.[61] Because smaller firms are more likely to be taken over, firm size is likely to be negatively related to poison-put probability, in general. However, in this study the sample of put users is drawn from ERC rankings appearing in *CreditWeek*. *CreditWeek* states that in assigning ERC rankings it focuses on the debt issues of larger firms. Therefore, the mean size of put users appearing in this study may not be representative of the population of put users.

In any event, failure to control for firm size could create an omitted variables bias. For example, as firm size decreases it is easier for managers to hold a greater percentage of firm shares because less wealth is required to hold a given percentage. Assuming that insider ownership is negatively related to firm size, a difference in average firm size between the poison put sample and the control sample could result in finding a spurious correlation between insider ownership and poison-put probability.

The explanatory variable LEV_i is also included as a control variable. It is unclear whether firm leverage is related to poison-put probability. Firms with little debt could provide the greatest gains from leveraged transactions and therefore be more vulnerable to takeover. On the other

[61]See Comment and Schwert [1993], Mikkelson and Partch [1989], and Palepu [1986], for example.

hand, firms with substantial debt are more likely to suffer a debt downgrading to speculative grade. This type of downgrading triggers many poison puts. However, a finding that firms more likely to experience a debt downgrading are more likely to use poison puts does not help to distinguish between the SIH and the MEH.[62] In this study firm leverage is included as a control variable because it could be systematically related to poison-put probability. If this is the case, failure to consider firm leverage could lead to an omitted variables bias.

Empirical methods (described above) for testing Hypothesis Five are also used to test Hypothesis Six. The only difference in the test of Hypothesis Six is that the samples are restricted to the issuers that used nonwaivable poison puts and their matched firms. Thus, the analysis conducted to test Hypothesis Five is repeated for a subsample of firms from the original data set. In all other respects the data and empirical methods used to test Hypothesis Six are identical to those used to test Hypothesis Five.

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[62]Fields, Kidwell, and Klein [1992] suggest that poison puts are more valuable to bondholders when the debt is just above speculative grade. Many puts are triggered by a downgrading to speculative grade. The poison-put option has a higher probability of being exercised when the debt only has to fall one grade classification. Yet for similar reasons entrenching managers may value poison puts more highly when the firm is highly leveraged. That is, managers may view poison puts as more valuable entrenching tools if they are more likely to be triggered and thereby impose additional costs on hostile bidders.

CHAPTER FOUR

EMPIRICAL RESULTS

4.1 INTRODUCTION

The data gathered to test the competing hypotheses are described in this chapter. The results of the tests are also presented in this chapter. First, tests of the shareholder wealth effects of ERCs are conducted. Second, tests examining shareholder-management conflict in firms using poison puts are conducted.

The findings of this study suggest that, on average, nonwaivable poison puts have a negative effect on shareholder wealth. Because only a small number of waivable poison puts and coupon resets are observed in this study, a powerful test of their differential effects on shareholders is not possible. Likewise, because firms are seldom observed including ERCs in their shelf registrations, tests concerning shareholder reactions to shelf registrations of ERC-protected debt lack power. The study does find that, on average, shareholders react significantly more favorably to shelf registrations of unprotected debt than they do to subsequent ERC-protected debt issuances. This suggests that, on average, shareholders are not harmed by the use of debt, but rather by the use of ERCs.

Using the full sample of poison put users and their matched firms, the study finds evidence that management ownership is negatively related to poison-put use. Also, tests on the subset of nonwaivable poison-put users and their matched firms suggest that an increase in estimated free cash flow increases the probability that firms will use nonwaivable poison puts.

This chapter proceeds as follows. In the next section the data used to examine the shareholder wealth effects of ERCs is described. Evidence on the shareholder wealth effects of ERCs is presented in Section 4.3. The data used to analyze shareholder-management conflict in firms using poison puts is described in Section 4.4. The results of this analysis are presented in Section 4.5.

4.2 DATA USED TO ANALYZE THE SHAREHOLDER WEALTH EFFECTS OF ERCS

First, to obtain a sample of ERC-protected debt announcements, all issues of Standard and Poor's *CreditWeek* dated from 7/24/89 through 12/24/90 are examined. This search results in an initial sample of 120 issues of nonconvertible ERC-protected debt.[63]

Next, for each issue in the sample, an attempt is made to determine whether the issue was sold pursuant to a shelf

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[63]This initial sample excludes ERC-protected revenue bonds and ERC-protected preferred stock. The initial sample also excludes issues that were privately placed and issues that were sold by privately held firms. One issue of $18 million (sold by Ryland Corporation) was excluded from the initial sample because it was deemed too small to include. This $18 million worth of debt was sold over a period of time as a series of smaller issues.

(Rule 415) registration. This is done so that the appropriate announcement date can be assigned for each issue. For reasons stated in Chapter Three, the announcement date is defined as the issue date for shelf-related issues. The announcement date is defined as the file date for issues pursuant to regular registrations. The databases NEWS/WIRES and COMPNY/REGIS on the *LEXIS/NEXIS* data retrieval system are searched to obtain information on the types of registrations that led to the sample issues. When available, copies of registration statements and prospectuses are also obtained, partly, to determine registration status. However, in three cases the registration status of an issue cannot be determined. These three issues are excluded from the final sample.

After the registration status of an issue is determined, an attempt is made to determine the appropriate announcement date. For issues sold pursuant to regular registrations, file dates are gathered using *Investment Dealers' Digest*, the *LEXIS/NEXIS* databases NEWS/WIRES and COMPNY/REGIS, and copies of registration statements and prospectuses. In some cases these sources do not agree on the file date. In such cases (and when a wire report is available) the date of the first wire report concerning the filing is chosen as the announcement date. A wire report is found for most registrations; however when no wire report is available the date used is the date reported by the following sources (in order of preference): (1)

COMPNY/REGIS, (2) registration statements and prospectuses, and (3) *Investment Dealers' Digest*.

For issues pursuant to shelf registrations, issue dates are gathered using the LEXIS/NEXIS database NEWS/WIRES, prospectus supplements, *Moody's Industrial Manual (or Moody's Utility Manual)*, and *Standard and Poor's Bond Guide*. In some cases these sources do not agree on the issue date. In such cases (and when a wire report is available) the date of the first wire report concerning the issuance is chosen as the announcement date. A wire report is found for most issuances; however when no wire report is available the date chosen is the date reported by the following sources (in order of preference): (1) prospectus supplements, (2) *Moody's Industrial Manual*, and (3) *Standard and Poor's Bond Guide*. For nineteen debt issues the relevant announcement date cannot be determined. Therefore, these nineteen announcements are not included in the final sample.

In several cases multiple issuances or multiple filings of ERC-protected debt took place on the same day, by the same firm. For example, Becton, Dickinson, and Company issued $50 million of 8 3/4% ERC-protected notes and $100 million of 9 1/4% ERC-protected debentures on the same day. These issues are both pursuant to shelf registrations, so the issue date is taken as the announcement date. In such cases the issue date is considered only one announcement of ERC-protected debt. That is, the announcement of these two issues is treated as one observation. Similarly, if

multiple issues result from the same regular registration (or if separate regular registrations occur on the same day), the filing date is taken as the announcement date, but that date is treated as a single observation. This procedure causes the initial sample size to shrink further because the number of ERC-protected debt announcements is less than the number of ERC-protected debt issues. Specifically, sixteen ERC-protected debt issues are collapsed into eight ERC-protected debt announcements because either multiple issues were filed on the same day or multiple issues were sold on the same day.

The above procedure results in a sample of eighty-eight announcements of ERC-protected debt. These eighty-eight announcement are then screened for confounding announcements. If a likely contaminating, firm-specific announcement is found within the three-day window centered on the ERC-protected debt announcement date, the debt announcement is excluded from the final sample. The NEWS/WIRES database and Proquest's *Newspapers Abstracts Ondisc* (which includes abstracts of articles appearing in the *Wall Street Journal* and other major newspapers) are searched for potentially contaminating announcements. This screening procedure results in the removal of thirteen ERC-protected debt announcements.

The final sample consists of seventy-five announcements of ERC-protected debt made by fifty-nine firms. Of these seventy-five ERCs, fifty are nonwaivable poison puts,

seventeen are waivable poison puts, and eight are coupon reset covenants. Fifty-seven announcements of ERC-protected debt are issue dates. In other words, fifty-seven of these announcements are announcements of debt issues sold pursuant to shelf registrations. The remaining eighteen announcements are file dates for regular registrations of ERC-protected debt.

Firms in the initial sample are contacted and asked to provide registration statements and prospectuses. When these firms do not provide the required documents, copies of the prospectuses are purchased (when available) from Research Information Services. This procedure results in a sample of forty-six prospectuses that appeared in shelf registrations. Thus, it is possible to determine in forty-six cases whether a shelf filing (that led to the issuance of ERC-protected debt) includes an ERC. In only nine of these forty-six cases does an ERC appear in the original shelf registration. In thirty-seven cases there is no ERC in the shelf registration.[64] Furthermore, when the shelf prospectus (the prospectus appearing in the shelf registration) does contain an ERC, the cover of the prospectus typically states that the specific details of any

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[64]In two cases it is discovered that an original shelf registration that does not include an ERC is subsequently amended to include (among other changes) an ERC. Shelf registrations are sometimes amended to increase the amount of debt available under the shelf, or to modify the shelf in any number of ways. Research Information Services is requested to "follow the trail" of amendments (if any) from the original filing to the debt issuance to identify amendment filings that first introduce an ERC to an existing shelf filing. However, only two such cases are found.

debt issue (including the holder's right to force debt redemption) will appear in a subsequent prospectus supplement.[65]

To summarize, from this sample of prospectuses appearing in shelf registrations that lead to ERC-protected debt issuances it appears that firms typically do not include ERCs in the shelf registrations that lead to issuances of ERC-protected debt. Even when the ERC does appear in the shelf prospectus the firm usually explicitly reserves the right to modify the details of the covenants in any subsequent issue. These data support the use of the issue date rather than the file date in the case of shelf registrations. If the ERC does not appear in the shelf filing then it is difficult to defend the file date as the date information concerning the ERC was made public.

Summary statistics for the final sample appear in Tables 1, 2, 3, and 4. As shown in Table 2, ERCs are used by firms in many industries. The final sample contains seventy-five debt announcements by fifty-nine firms from twenty-seven industries (defined by their two-digit SIC codes). While there is no severe concentration of ERC use within any particular industry, the paper products industry

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[65]Prospectus supplements describe the features of the debt that is actually issued. They are distributed by issuers at the time the debt is sold. In most cases the date on the prospectus supplement is the same date as the first wire report concerning the issuance and the same date that appears as the issue date in *Moody's Industrial Manual* and *Standard and Poor's Bond Guide*.

Table 1
Composition of ERC-Protected Debt Sample
Used in the Event Study

ERC Type	Number of Announcements
Nonwaivable Poison Puts	50
Waivable Poison Puts	17
Coupon-Reset Covenants	8
Total	75
Registration Type	
Shelf Registration (Announcement Date = Issue Date)	57
Regular Registration (Announcement Date = File Date)	18
Total	75

Table 2
Distribution of ERC-Using Firms in the Event Study Across Industries

SIC Code	Industry Name	Frequency
10	Mining	1
13	Oil and Gas	1
20	Food Products*	4
24	Wood Products and Wood Buildings	2
26	Paper, Paper Mills, Paper Products*	6
27	Printing and Publishing	1
28	Chemicals, Plastics, Pharmaceuticals, and Related Products*	4
29	Petroleum Refining	2
30	Rubber and Plastics	1
32	Glass, Cement, Concrete, and Misc. Materials	2
33	Blast Furnaces, Steel Works, and Smelting	3
34	Metal Containers, Fixtures, and Hardware	2
35	Machinery and Equipment*	4
36	Electronic Equipment	2
37	Automobiles, Aircrafts, and Related Parts	2
38	Measuring, Regulating, Testing, Surgical, and Photographic Instruments	3
42	Trucking	1
45	Air Transportation	3
47	Transportation Services	1
49	Natural Gas Transmission and Distribution*	6
50	Wholesale Vehicles, Metals, Electronics, Machinery, and Durable Goods	1
51	Wholesale Paper Products, Drugs, Apparel, Groceries, Chemicals, and Petroleum	2
53	Department and Variety Stores	1
59	Sewing, Mail Order, and Misc. Retail	1
72	Personal Services	1
73	Advertising	1
79	Racing, Amusement, and Misc. Recreation	1

*Industries with four or more announcements.

Table 3
Distribution of ERC-Protected Debt Issues
by Year of Announcement

Year	Number of Announcements
1986	8
1987	2
1988	10
1989	35
1990	20

Table 4
Distribution of ERC-Protected Debt Issues
by Year and Quarter of Announcement and by ERC-Type

Year	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
1986	WWW	WWWW		W
1987				WS
1988	WWW	WWS		WSSS
1989	S	SSSSSSSSSSC	SSSSSSSSSS	SSSSSSSSSSSCC
1990	SSSSSC	WSSSSCCCC	SS	WSS

W = Waivable Poison Put Announcement
S = Nonwaivable (or Super) Poison Put Announcement
C = Coupon Reset Announcement

(SIC code 26) and the natural gas industry (SIC code 49) are most heavily represented in the final sample, with six announcements each. Both of these industries were experiencing takeover activity during the sample period.

The distribution of ERC announcements over time is presented in Table 3 and Table 4. The majority of the announcements in the final sample occurred during 1989 and 1990. Also, the majority of the announcements occurring during 1986, 1987, and 1988 are announcements of waivable poison-put debt. The majority of announcements occurring during 1989 and 1990 are announcements of nonwaivable poison-put debt. All announcements of coupon resets appearing in the final sample occurred during 1989 and 1990.[66]

4.3 EVIDENCE ON THE SHAREHOLDER WEALTH EFFECTS OF ERCS

To test Hypothesis One, cumulative prediction errors (CPEs) are calculated for each firm's stock over the period [0, 1]. Day zero is the issue date for debt issues pursuant to shelf registrations. Day zero is the file date for issuances pursuant to regular registrations. For the final sample of seventy-five announcements of ERC-protected debt, the mean CPE is -0.5245% (Z = -2.61). Fifty of these

[66]Fields, Kidwell, and Klein [1992] argue that firms shifted to stronger covenants in response to the RJR/Nabisco takeover that occurred in October 1988. This argument is consistent with the observation that most nonwaivable put announcements occur after the RJR/Nabisco takeover.

returns are negative and twenty-five are positive.[67] The median return for the full sample is -0.626%. The Wilcoxon sign rank test reveals that the median is significantly less than zero at the 0.005 level. The evidence suggests that ERCs decrease shareholder wealth, on average. The finding is consistent with the MEH, but not with the SIH.

Next, the full sample of seventy-five announcements is divided into announcements of nonwaivable poison puts, waivable poison puts, and coupon-reset covenants. Returns are calculated for each of these subsamples. For the fifty announcements of nonwaivable poison-put debt, the mean CPE is -0.69% (Z = -2.76).[68] Thirty-three of these returns are negative and seventeen are positive.[69] The median return for the nonwaivable poison put announcements is -0.631%. The Wilcoxon sign rank test indicates that this return is significantly less than zero at the 0.005 level.

For the seventeen announcements of waivable poison put debt the mean CPE is -0.24% (Z = -0.656). Twelve of these returns are negative and five are positive.[70] The median

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[67]The probability of twenty-five or fewer positive CPEs (given n = 75 and p = .5) is .00261.

[68]Note that the mean return for this sample is very similar to the one found in Cook and Easterwood [1994]. They find a mean CPE of -0.70% (Z = 2.76) for announcements of ERCs. While their sample is not drawn from *CreditWeek*, it is composed almost entirely of nonwaivable poison puts. Therefore, the findings of this study are consistent with those of Cook and Easterwood [1994].

[69]The probability of seventeen or fewer positive CPEs (given n = 50 and p = .5) is .01642.

[70]The probability of five or fewer positive CPEs (given n = 17 and p = .5) is .07173.

return for the sample of waivable poison puts is -0.655%. This return is not significantly different from zero according to the Wilcoxon sign rank test. For the eight announcements of coupon-reset debt the mean CPE is -.052% (Z = -0.119). Five of these returns are negative and three are positive.[71] The median return for the sample of coupon resets is -0.414%. This return is not significantly different from zero according to the Wilcoxon sign rank test.

To test Hypothesis Two, weighted least squares (WLS) regression is used to determine whether shareholders react differently to announcements of different types of ERCs. First, CPEs for waivable poison put announcements and nonwaivable poison put announcements are regressed on an indicator variable that takes a value of one if the poison put is nonwaivable.[72] Although the mean CPE for nonwaivable announcements is lower than the mean CPE for waivable announcements, the difference between these mean returns is not statistically significant (t = -0.725, p = 0.471).[73] This evidence suggests that shareholders do

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[71]The probability of three or fewer positive CPEs (given n = 8 and p = .5) is .36328.

[72]WLS is used because the standard errors associated with one sample of announcements could be significantly larger or smaller, on average, than the standard errors associated with another sample of announcements. The weights are set equal to w_i, where $w_i=(SE_i)^{-2}$, and SE_i is the standard error. The calculation of the standard error is shown as equation five in Chapter Three.

[73]More precisely, it is the difference in the weighted mean CPEs that is tested using WLS. The weighted mean CPEs for announcements of waivable puts and nonwaivable puts are -0.437% and -0.784%, respectively. Because weighted mean wealth effects have less intuitive appeal, the discussions and the tables (that are associated with tests of differences in means)

not value the board's option to waive bondholders' exercise rights. However, there are only seventeen waivable poison-put announcements in the final sample, so caution should used in interpreting this result. Likewise, no significant difference is found between the mean return for the coupon-reset sample and the mean return for the nonwaivable poison put sample ($t = -1.061$, $p = 0.293$).

Next, the sample of eight coupon reset announcements is pooled with the sample of seventeen waivable poison put announcements. This is done because coupon resets and waivable poison puts are less likely than nonwaivable poison puts to impose costly barriers to takeover. No significant difference is found between the mean return for nonwaivable poison puts and the mean return for the pooled sample of other ERC types ($t = -1.135$, $p = 0.2602$).[74] In short, this study finds no evidence to suggest that shareholders, on average, react differently to different types of ERCs. However, the samples of waivable poison puts and coupon resets are small, so no generalizations can be made regarding their effects on shareholders. A summary of the findings relating to Hypothesis One and Hypothesis Two appears in Table 5 and Table 6, respectively.

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focus on the unweighted mean CPEs. However, the reader should note that while the unweighted means are reported, the t-statistics and the p-values associated with all difference in means tests are based upon the differences in weighted mean CPEs.

[74]The Mann-Whitney test is also applied for all tests relating to Hypothesis Two. In each case the Mann-Whitney test confirms the conclusion of no significant difference in returns.

Table 5
Mean Cumulative Prediction Errors (CPEs)
Calculated at Announcements of ERC-Protected Debt

(Returns are calculated for the period [0,1].
Day zero is the filing date for issues pursuant to regular registrations. Day zero is the issue date for issues pursuant to shelf registrations.)

ERC Types	N	Mean CPE
Full Sample of ERCs	75	-0.52%* (z = -2.61)
Nonwaivable Poison Puts	50	-0.69%* (z = -2.76)
Waivable Poison Puts	17	-0.24% (z = -0.65)
Coupon Resets	8	-0.05% (z = -0.12)

*Returns are significantly less than zero at the 0.005 level according to the Wilcoxon sign rank test.

Table 6

Differences in Mean CPEs Calculated for
Different Types of ERCs

(Returns are calculated for the period [0,1].
Day zero is the filing date for issues pursuant to regular registrations. Day zero is the issue date for issues pursuant to shelf registrations.)

ERC Types (Number of Observations)	**Difference in Mean CPEs**	**T Statistic**
Nonwaivable Poison Puts (50) vs Waivable Poison Puts (17)	0.45%	-0.725* (p = 0.471)
Nonwaivable Poison Puts (50) vs Coupon Resets (8)	0.64%	-1.061* (p = 0.293)
Nonwaivable Poison Puts (50) vs Pooled Sample of Waivable Poison Puts and Coupon resets (25)	0.51%	-1.135* (p = 0.263)

*The conclusion of no significant difference in returns is verified using the Mann-Whitney test.

Hypothesis Three states that including ERCs in shelf registrations does not affect shareholder wealth. To test this hypothesis CPEs are calculated over the period [0, 1] for all uncontaminated announcements of shelf filings. WLS is used to test whether shareholders react differently, on average, to shelf registrations that contain ERCs versus shelf registrations that do not contain ERCs. One shelf filing including an ERC is removed because of a confounding announcement. Four shelf filings that do not contain ERCs are removed because of confounding announcements. For the eight shelf registrations that contain ERCs the mean CPE is 0.399% (Z = 0.468). For the thirty-three shelf filings that do not contain ERCs the mean CPE is 0.422% (Z = 1.342). The difference between the mean returns for the two samples is not statistically significant (t = -0.172, p = 0.864).[75] Because firms that issue ERC-protected debt are rarely observed including ERCs in shelf registrations, no generalizations can be drawn from these results. A summary of the findings relating to Hypothesis Three appears in Table 7.

The mean negative shareholder reaction observed for announcements of ERC-protected debt suggest that shareholders, on average, are harmed by ERCs. Yet it could be that managers issuing ERC-protected debt harm their shareholders simply by issuing debt. In other words, the

[75]This conclusion of no significant difference in returns is verified using the Mann-Whitney test.

Table 7
The Difference in Mean CPEs
for Shelf Registrations That Contain ERCs
and Shelf Registrations That Do Not Contain ERCs

(Returns are calculated for the period [0,1].
Day zero is the filing date.)

Shelf Types	N	Mean CPE
Shelfs with ERCs	8	0.40% (z = 0.47)
Shelfs without ERCs	33	0.42% (z = 1.34%)
Difference in Mean CPEs		0.02%* (t = 0.028, p = 0.98)

*The conclusion of no significant difference in returns is verified using the Mann-Whitney test.

observed shareholder reactions could be responses to debt announcements rather than to ERC announcements. There may be some characteristic common to firms using ERCs that causes shareholder wealth to decrease, on average, at debt announcements.

Because an ERC-protected debt announcement is an announcement of both debt and an ERC it is difficult to disentangle the cause of the shareholder reaction. Cook and Easterwood [1994] calculate the difference in returns for a sample of debt issuers that did not use ERCs and a sample of debt issues that did use ERCs. They find that shareholder reactions are significantly lower, on average, for announcements of ERC-protected debt than for announcements of unprotected debt. However, this testing method does not control for differences in the types of firms issuing debt. This test only controls for the differences in the types of debt that firms issue.

To address the possibility that ERC-using firms decrease shareholder wealth simply by issuing debt, a final test of the shareholder wealth effects is conducted. As noted, thirty-three uncontaminated announcements of shelf filings known not to contain ERCs are identified. These filings can be considered shelf filings of unprotected straight debt (or shelf filings of debt with a high probability of being issued unprotected). Additionally, fifty-seven ERC-protected debt issuances pursuant to shelf

registrations are also identified as having uncontaminated announcement dates.

CPEs are calculated over the period [0, 1] for the filings sample and for the issuances sample. The mean CPE for the shelf filings of unprotected debt is 0.422% (Z = 1.342). The mean CPE for the ERC-protected debt issuances pursuant to shelf registrations is -0.478% (Z = -2.068). The difference between these two mean returns is 0.90%. WLS is used to test for a difference between the mean shareholder reaction to unprotected filings and the mean shareholder reaction to ERC-protected issuances. The mean return for the filings is significantly greater than the mean return for the issuances (t = -2.758, p = 0.007). Using the Mann-Whitney test the (unweighted) mean CPE for the filings is significantly greater than that for the issuances at the 0.015 level (using a one-tailed test). This evidence suggests that shareholders of firms that use ERCs are not disappointed, on average, at the prospect that the firm may soon issue debt. However, shareholders are disappointed, on average, when they learn that the firm has issued ERC-protected debt. The source of the wealth loss for shareholders does not appear to be the use of debt, per se, but rather the use of the ERC.

An alternate construction of this test is conducted using only firms known to have made shelf registrations of unprotected debt and to have issued ERC-protected debt from those same shelf filings. As noted, thirty-three

announcements of shelf filings are identified in which the shelf is known not to contain an ERC. For thirty of these thirty-three cases the firm filing the shelf registration subsequently issued ERC-protected debt such that the issue date is identified and uncontaminated.

Using these data two samples are formed. The first sample contains thirty announcements of shelf filings of unprotected debt. The second sample contains thirty announcements of ERC-protected debt issuances. Each issuance in the second sample was sold pursuant to one of the filings in the first sample. Thus, the identical firms that made shelf registrations of unprotected debt are subsequently observed issuing ERC-protected debt. Mean returns are calculated over the period [0, 1] for both samples. The mean CPE for shelf filings of unprotected debt is 0.583% ($Z = 1.757$). The mean CPE for issuances of ERC-protected debt is -0.657% ($Z = -1.888$). The difference between these two mean returns is 1.24%. WLS is used again to test for a difference between the shareholder reactions to unprotected filings and the shareholder reactions to ERC-protected issuances. The mean returns are significantly different ($t = -2.746$, $p = 0.008$). Using the Mann-Whitney test the (unweighted) mean CPE for the filings is significantly greater than that for the issuances at the 0.01 level (using a one-tailed test). This evidence suggests that managers of these ERC-using firms would not have harmed their shareholders, on average, had they issued

unprotected debt. However, these managers did harm their shareholders, on average, by issuing ERC-protected debt. The evidence relating to Hypothesis Four is summarized in Table 8 and Table 9.

One criticism of the tests just described is that shelf registrations of unprotected debt are not necessarily announcements of unprotected debt. To the extent that shareholders can predict which firms will actually issue ERC-protected debt, the returns calculated at unprotected shelf registrations should reflect investors' probability assessments of ERC-protected debt.[76]

However, if shareholders can predict (on average) which unprotected registrations will result in ERC-protected issuances, the effect of this anticipation is likely to weaken the reported test results. If shareholders can predict the use of ERCs at unprotected shelf registrations, we should observe no significant difference in reactions to unprotected registrations and ERC-protected debt issuances. Alternatively, if shareholders have little ability to predict ERC-protected issuances, then the "surprise" reflected in the difference between the mean returns at unprotected registrations and at ERC-protected issuances should be greater. Consequently, the difference observed between mean reactions to unprotected shelf registrations

[76]Although investors may be more likely to expect unprotected debt issuances because the majority of issuances (in the population) are not ERC-protected.

Table 8
The Difference in Mean CPEs
for Shelf Registrations of Unprotected Debt
and Issuances of ERC-Protected Debt

(Returns are calculated for the period [0,1].
Day zero is the filing date for shelf registrations.
Day zero is the issue date for issuances.)

Announcement Type	N	Mean CPE
Shelf Registration of Unprotected Debt	33	0.422% (z = 1.342)
Issuance of ERC-Protected Debt	57	-0.478% (z = -2.068)
Difference in Mean CPEs		0.90%* (t = 2.758, p = 0.007)

*Returns are significantly different at the 0.015 level according to the Mann-Whitney test.

Table 9
The Difference in Mean CPEs for Shelf Registrations
of Unprotected debt and the Subsequent Issuances of
ERC-Protected Debt by the Same Firms

(Returns are calculated for the period [0,1].
Day zero is the filing date for shelf registrations. Day zero
is the issue date for issuances. Note that the identical firms
observed registering unprotected debt are subsequently observed
issuing ERC-protected debt.)

Announcement Type	N	Mean CPE
Shelf Registration of Unprotected Debt	30	0.583% (z = 1.757)
Issuance of ERC-Protected Debt	30	-0.657% (z = -1.888)
Difference in Mean CPEs		1.24%* (t = 2.746, p = 0.008)

*Returns are significantly different at the 0.01 level according to the Mann-Whitney test.

and ERC-protected issuances could underestimate the true effect of ERCs on shareholders. The reported test results could underestimate the impact of ERCs on shareholders because shareholders, to some extent, anticipate ERC-protected issuances at shelf registrations of unprotected debt.

4.4 DATA USED TO ANALYZE SHAREHOLDER-MANAGEMENT CONFLICT IN FIRMS USING POISON PUTS

To conduct the logit analysis, a sample of firms that used poison puts from 1986 through 1990 is gathered. All issues of Standard and Poor's *CreditWeek* dated from 7/24/89 through 12/24/90 are searched to identify put-using firms. This search results in an initial sample of seventy-two firms issuing nonconvertible ERC-protected debt.[77] Nine of these firms used only coupon-reset ERCs, so they are excluded from the final sample. One of the seventy-two firms is removed because it issued only $18 million worth of put-protected debt. Compustat data is unavailable for an additional four firms, so they are also removed.

Next, an attempt is made to match each of the fifty-eight remaining firms to a control firm in the same industry that issued straight debt during the sample period, but that did not use an ERC. Compustat firm listings are used to identify potential matches so that Compustat data is

[77]This initial sample excludes firms whose only ERC-protected issuances were revenue bonds or preferred stock. The initial sample also excludes firms that privately placed issues and firms that are privately held.

available for all control firms. For eight put-using firms no matching firm is found that has the same two-digit SIC code and that also issued nonconvertible unprotected debt during the sample period.[78] Because no suitable match can be located for these eight put-using firms they are omitted from the final sample.

The final sample contains 100 firms that issued straight debt during the sample period. Fifty of these firms issued put-protected debt and the other fifty issued only unprotected debt. Because of different data requirements, some firms examined in the logit analysis are not included in the event study.[79] Likewise, some firms whose debt announcements are examined in the event study are not included in the logit analysis.

Descriptive data for firms used in the logit analysis appear in Tables 10 and 11. Recall from Chapter Three that for each firm measurements on explanatory variables are taken from the period immediately prior to the firm's initial debt issuance.[80] Table 10 shows the distribution of initial debt announcements over the sample period. As

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[78]In some of these cases it is apparent that a firm in the same industry did issue debt during the sample period, but information in *Moody's Industrial Manual* and in other sources is insufficient to conclude that the debt is unprotected. If sufficient details are not available concerning the firm's debt, the firm is not included in the control sample.

[79]For example, a firm's poison-put announcement could be omitted from the event study because of a contaminating firm-specific announcement. This competing announcement would not prevent a firm from appearing in the logit analysis.

[80]For example, when quarterly data are available, undistributed cash flow is measured for the one-year period ending with the last quarter prior to the initial debt announcement.

Table 10
Distribution of Initial Debt Issues
by Year and Quarter of Announcement
for Firms Used in the Logit Analysis

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
1986	PPPP UUUUU 1	PPPPP UUUUUUUU 2	UUU 3	UUUUUUUUUU 4
1987	UUUU 5	PP UUU 6	UUUUU 7	PP UU 8
1988	PP U 9	PPP U 10	UUU 11	PPP U 12
1989	P 13	PPPPPP 14	PPPPPP U 15	PPPPPPPP U 16
1990	PPPPPP 17	P 18	U 19	P U 20

P = put-protected debt announcements
U = unprotected debt announcements

The median Quarter for unprotected debt announcements is the fourth Quarter of 1986.

The median Quarter for put-protected debt announcements is the second Quarter of 1989.

Table 11
Distribution of Sampled Debt Issuers
In the Logit Analysis Across Industries

	SIC Code	Industry Name	Frequency
1	13	Oil and Gas	2
2	20	Food Products*	8
3	26	Paper, Paper Mills, Paper Products*	10
4	27	Printing and Publishing	2
5	28	Chemicals, Plastics, Pharmaceuticals, and Related Products*	8
6	29	Petroleum Refining	6
7	30	Rubber and Plastics	2
8	32	Glass, Cement, Concrete, and Misc. Materials	4
9	33	Blast Furnaces, Steel Works, and Smelting	2
10	34	Metal Containers, Fixtures, and Hardware	6
11	35	Machinery and Equipment	6
12	36	Electrical Equipment*	8
13	37	Automobiles, Aircrafts, and Related Products	4
14	38	Measuring, Regulating, Testing, Surgical, and Photographic Instruments	6
15	45	Air Transportation	4
16	49	Natural Gas Transmission and Distribution*	10
17	50	Wholesale Vehicles, Metals, Electronics, Machinery, and Durable Goods	2
18	51	Wholesale Paper Products, Drugs, Apparel, Groceries, Chemicals, and Petroleum	2
19	59	Sewing, Mail Order, and Misc. Retail	2
20	72	Personal Services	2
21	73	Advertising	2
22	79	Racing, Amusement, and Misc. Recreation	2

*Industries with eight or more sampled firms.

illustrated in this table, most control firms made their initial debt issuances during the earlier part of the sample period and most put-using firms made their initial debt issuances during the latter part of the sample period. The median quarter for initial unprotected debt announcements is the fourth quarter of 1986. The median quarter for initial put-protected debt announcements is the second quarter of 1989. Table 11 shows the distribution of sampled firms across industries. Twenty-two industries are represented in the sample used for the logit analysis. As in the event-study sample, in the logit sample the food products industry and the natural gas transmission industry appear relatively frequently.

4.5 EVIDENCE ON SHAREHOLDER-MANAGEMENT CONFLICT IN FIRMS USING ERCS

Hypothesis Five states that shareholder-management conflict has no influence on the probability of poison-put use. To test Hypothesis Five the full sample of put-using firms and their matched firms is used. Summary statistics for the individual explanatory variables (discussed in Chapter Three) appear in Table 12.[81] This table also reports detailed information on board composition, including

[81]For each firm in the final sample, full information is available on all explanatory variables except for *CEO*. Pay-performance sensitivity estimates are available for only thirty-eight put-using firms and twenty-eight control firms.

Table 12
Summary Statistics for the Full Sample of
Put-Using Firms and their Matched Firms

Debt Issuers Using Poison Puts

Variable	N	Median	Mean	Std. Dev.	Minimum	Maximum
SIZE	50	1631.076	2370.98	2295.75	238.2000000	12265.36
MGT	50	0.0175	0.0529400	0.0805252	0.0010000	0.3860000
CF	50	0.107551	0.1241365	0.0841620	-0.0743314	0.3272435
LEV	50	0.3895	0.4056320	0.1612415	0.1335000	0.7631000
Q	50	0.9522	1.0803420	0.4951618	0.4115000	2.5439000
BLOCK	50	0	0.0619400	0.1044282	0	0.4800000
CEO	38	4.535	10.0592105	18.2439029	0.5000000	90.3900000
BOARD	50	0.4	0.4170770	0.1757431	0	0.9000000
OUTSIDERS	50	5.5	5.3400000	2.3699651	0	11.0000000
INSIDERS	50	4	4.2400000	2.0057061	1.0000000	10.0000000
GREYS	50	3	3.1400000	1.8517504	0	8.0000000
BOARD SIZE	50	13.5	12.7200000	3.0036712	7.0000000	18.0000000

Debt Issuers Not Using ERCs of any Type

Variable	N	Median	Mean	Std. Dev.	Minimum	Maximum
SIZE	50	1602.366	3466.94	6743.40	50.8900000	40359.04
MGT	50	0.026	0.1186800	0.1917419	0.0010000	0.8260000
CF	50	0.09627	0.1081884	0.0859309	-0.1242393	0.3715876
LEV	50	0.38605	0.3977820	0.1618140	0.1322000	0.7059000
Q	50	0.9228	1.1068880	0.4875971	0.5429000	2.4778000
BLOCK	50	0	0.0750800	0.1106264	0	0.4420000
CEO	28	4.085	6.4810714	9.0964667	0.7100000	49.2100000
BOARD	50	0.449495	0.4242946	0.1615850	0.0833333	0.7857143
OUTSIDERS	50	5.5	5.3200000	2.6529921	1.0000000	11.0000000
INSIDERS	50	4	4.3400000	2.6542996	0	16.0000000
GREYS	50	3	2.5400000	1.3881422	0	5.0000000
BOARD SIZE	50	11.5	12.2000000	4.0607630	5.0000000	28.0000000

SIZE = the total market value of common stock
MGT = the percentage of shares beneficially held by officers and directors
CF = undistributed cash flow
LEV = firm leverage
Q = estimated Tobin's Q
BLOCK = the percentage of shares held by outside 5% blockholders
CEO = estimated CEO pay-performance sensitivity
BOARD = the percentage of board members who are outsiders
OUTSIDERS = the number of outside board members
INSIDERS = the number of inside board members
GREYS = the number of grey board members
BOARD SIZE = the total number of board members

the mean and median values for board size, the number of outsiders on the board, the number of insiders on the board, and the number of "grey" members on the board.

As shown in Table 12, the mean total equity value for put users is less than that for control firms. However, the median total equity value for put users is greater than that for control firms. The mean Q is slightly higher for control firms, but the median Q is slightly higher for put users. Both mean and median values of standardized undistributed cash flow are lower for control firms. Both mean and median values of management ownership are higher for control firms.

Because most of the explanatory variables considered in this study are proxy variables for shareholder-management conflict, collinearity among these variables is anticipated. Also, the control variable firm size is likely to be related to other explanatory variables, notably Tobin's Q and the ownership structure variables. Leverage is considered as a possible control variable. However, as noted earlier, the effect, if any, of leverage on poison-put probability is unclear. The correlation matrix for the variables used to test Hypothesis Five is presented in Table 13.

From this table it is clear that several of the explanatory variables are correlated. In particular, the natural log of the total market value of common stock (a proxy variable for firm size) is negatively related to management ownership. The finance literature suggests that

firm size is strongly related to takeover probability, agency costs, and ownership structure. Therefore, firm size is included in all logit specifications used to test Hypothesis Five.

The first model specification used to test Hypothesis Five includes all individual explanatory variables discussed in Chapter Three. Model 1 in Table 14 shows the results of this estimation. The model chi-squared statistic (testing the joint hypothesis that the coefficients for all explanatory variables are equal to zero) indicates that Model 1 does not have significant explanatory power. Note that this estimation considers only the firms for which full information is available. Because information on the variable *CEO* is available for only sixty-six firms, only data for these firms are used in this estimation. A similar specification is used in Model 2, which includes all explanatory variables except the variable *CEO*. In this estimation information on all sampled firms is considered and the coefficient on *MGT* is negative and significant ($p = 0.0512$). However, this model also lacks significant explanatory power. (Note that as variables with little explanatory ability are added to the model specification the model loses power because of the change in the degrees of freedom associated with the chi-squared test.)

Table 13
Correlation Matrix for Explanatory Variables Using the Full Sample of Poison Put Users and Their Matched Firms
(Pearson's correlation coefficients are shown. P-values for each coefficient are shown in parentheses.)

	ln(SIZE)	MGT	CF	LEV	Q	BLOCK	BOARD	FREECF	FREECF(a)
ln(SIZE)	1.00000 (0.0)	-0.40348 (0.0001)	-0.01036 (0.9185)	-0.37602 (0.0001)	0.18109 (0.0714)	-0.22976 (0.0215)	0.21772 (0.0296)	-0.09786 (0.3328)	-0.06869 (0.4971)
MGT	-0.40348 (0.0001)	1.00000 (0.0)	-0.13829 (0.1703)	0.10094 (0.3177)	0.21445 (0.0321)	-0.00203 (0.9840)	-0.30546 (0.0020)	-0.12596 (0.2118)	-0.12907 (0.2006)
CF	-0.01036 (0.9185)	-0.13819 (0.1703)	1.00000 (0.0)	0.27463 (0.0057)	-0.40922 (0.0001)	0.06751 (0.5045)	-0.09274 (0.3587)	0.82113 (0.0001)	0.93914 (0.0001)
LEV	-0.37602 (0.0001)	0.10094 (0.3177)	0.27463 (0.0057)	1.00000 (0.0)	-0.71324 (0.0001)	0.12879 (0.2016)	-0.16758 (0.0956)	0.45980 (0.0001)	0.39825 (0.0001)
Q	0.18109 (0.0714)	0.21445 (0.0321)	-0.40922 (0.0001)	-0.71324 (0.0001)	1.00000 (0.0)	-0.18868 (0.0601)	-0.06788 (0.5022)	-0.57807 (0.0001)	-0.51779 (0.0001)
BLOCK	-0.22976 (0.0215)	-0.00203 (0.9840)	0.06751 (0.5045)	0.12879 (0.2016)	-0.18868 (0.0601)	1.00000 (0.0)	0.08851 (0.3812)	0.16541 (0.1001)	0.12673 (0.2090)
BOARD	0.21772 (0.0296)	-0.30546 (0.0020)	-0.09274 (0.3587)	-0.16758 (0.0956)	-0.06788 (0.5022)	0.08851 (0.3812)	1.00000 (0.0)	-0.08518 (0.3994)	-0.08336 (0.4096)
FREECF	-0.09786 (0.3328)	-0.12596 (0.2118)	0.82113 (0.0001)	0.45980 (0.0001)	-0.57807 (0.0001)	0.16541 (0.1001)	-0.08518 (0.3994)	1.00000 (0.0)	0.90449 (0.0001)
FREECF(a)	-0.06869 (0.4971)	-0.12907 (0.2006)	0.93914 (0.0001)	0.39825 (0.0001)	-0.51779 (0.0001)	0.12673 (0.2090)	-0.08336 (0.4096)	0.90449 (0.0001)	1.00000 (0.0)

SIZE = the total market value of common stock
MGT = the percentage of shares beneficially held by officers and directors
CF = undistributed cash flow
LEV = firm leverage
Q = estimated Tobin's Q
BLOCK = the percentage of shares held by outside 5% blockholders
BOARD = the percentage of board members who are outsiders
FREECF = estimated free cash flow, (CF/SIZE)(Q), where Q = 1 if estimated Tobin's Q is less than one, otherwise Q = 0
FREECF(a) = an alternative estimate of free cash flow, (CF/SIZE)(1/Q)

Table 14
Logit Analysis of Probability
That Issuer Used Poison Put
(P-values from Chi-squared Test in Parentheses)

	Model 1	Model 2
Intercept	3.1973 (0.3799)	-1.6366 (0.5142)
ln(SIZE)	-0.2769 (0.3451)	0.0776 (0.7063)
MGT	-6.2987* (0.0759)	-4.3252* (0.0512)
CF	2.2525 (0.8786)	1.5246 (0.8501)
LEV	-0.4816 (0.8786)	1.8197 (0.4074)
Q	0.6130 (0.5744)	0.6609 (0.3835)
BLOCK	-0.6538 (0.7995)	-0.8957 (0.6623)
BOARD	-3.0732 (0.1187)	-0.5655 (0.6914)
FREECF(a)	1.3186 (0.8920)	0.5971 (0.9142)
CEO	0.0127 (0.5621)	
N	66	100
P-value for Model Chi-Squared	(0.5412)	(0.4481)

SIZE = the total market value of common stock
MGT = the percentage of shares beneficially held by officers and directors
CF = undistributed cash flow
LEV = firm leverage
Q = estimated Tobin's Q
BLOCK = the percentage of shares held by outside 5% blockholders
BOARD = the percentage of board members who are outsiders
FREECF = estimated free cash flow, (CF/SIZE)(Q), where Q = 1 if estimated Tobin's Q is less than one, otherwise Q = 0
FREECF(a) = an alternative estimate of free cash flow, (CF/SIZE)(1/Q)
CEO = estimated CEO pay-performance sensitivity
N = number of observations
* significant at the 0.10 level.

Table 15
Logit Analysis of Probability
That Issuer Used Poison Put
(P-values from Chi-squared Test in Parentheses)

	Model 3	Model 4
Intercept	-0.1970 (0.8880)	-0.8267 (0.6056)
ln(SIZE)	0.0650 (0.7230)	0.1194 (0.5414)
MGT	-3.5383* (0.0698)	
MGT (0-5)		7.7359 (0.6825)
MGT (5-25)		0.3949 (0.9316)
MGT (25+)		-3.6203 (0.1133)
N	100	100
P-value for Model Chi-Squared	(0.0616)*	(0.1656)

SIZE = the total market value of common stock
MGT = the percentage of shares beneficially held by officers and directors
MGT(0-5) = management ownership in the range from zero to five percent
MGT(5-25) = management ownership in the range from five to twenty-five percent
MGT(25+) = management ownership in the range above twenty-five percent
N = number of observations

* significant at the 0.10 level

To examine further the influence of management ownership on the probability of poison-put use, the specification using only *ln(SIZE)* and *MGT* is used. The results of this estimation appear as Model 3 in Table 15. Using this specification, *MGT* is shown to be negatively related to the probability of poison-put use at the 0.0698 level of significance. The chi-squared statistic indicates that Model 3 has significant explanatory power at the 0.0616 level of significance.

This evidence provides support for the MEH. After controlling for firm size and industry effects, management ownership is found to be negatively related to the probability that a firm issuing debt will use poison-puts. If management ownership aligns the interests of shareholders and managers (as argued in Jensen and Meckling [1976]), then as management ownership decreases managers are less likely to act in shareholders' interests. Consequently, the negative relationship observed between management ownership and poison-put probability is consistent with the argument that managers use poison puts to entrench.

Some writers (e.g, Stulz [1988] and Wruck [1989]) suggest that a curvilinear relationship exists between management ownership and firm value. They argue that at low levels of management ownership, an increase in management ownership increases firm value. In a middle range of ownership, however, managers use their voting control to entrench. To examine whether managers in a middle range of

ownership are more likely to use poison puts, Model 4 is estimated using the variables *MGT(0-5)*, *MGT(5-25)*, and *MGT(25+)*. *MGT(0-5)* captures management ownership in the range from zero to five percent. *MGT(5-25)* captures management ownership in the range from five percent to twenty-five percent. *MGT(25+)* captures management ownership in the range above twenty-five percent. Model 4 in Table 15 shows that no significant evidence is found of a curvilinear relationship between management ownership and poison-put probability.

Next, several model specifications are used to examine the influence that the remaining explanatory variables have on the probability of poison-put use. Firm size remains in these specifications as a control variable and the other explanatory variables are considered one at a time. The remaining variables considered include estimated free cash flow, undistributed cash flow, Tobin's Q, outside block ownership, and CEO pay-performance sensitivity. For each of these variables, except CEO, the coefficient takes the sign predicted by the MEH, but none of the variables is found to have significant explanatory power. Also, no significant relationship is found between firm leverage and the probability of poison-put use. The results of these estimations appear in Tables 16 through 18.

Table 16
Logit Analysis of Probability
That Issuer Used Poison Put
(P-values from Chi-squared Test in Parentheses)

	Model 5	Model 6	Model 7
Intercept	-1.3154 (0.2931)	-1.7379 (0.1760)	-2.2167 (0.1716)
ln(SIZE)	0.2133 (0.2114)	0.2019 (0.2304)	0.2486 (0.1705)
CF		2.3441 (0.3373)	
LEV			1.0282 (0.4520)
Q	-0.2122 (0.6155)		
N	100	100	100
P-value for Model Chi-Squared	(0.4306)	(0.3053)	(0.3675)

SIZE = the total market value of common stock
CF = undistributed cash flow
LEV = firm leverage
Q = estimated Tobin's Q
N = number of observations

Table 17
Logit Analysis of Probability
That Issuer Used Poison Put
(P-values from Chi-squared Test in Parentheses)

	Model 8	Model 9
Intercept	-1.7506 (0.1720)	-1.6805 (0.1869)
ln(SIZE)	0.2113 (0.2107)	0.2118 (0.2093)
FREECF		1.7033 (0.4182)
FREECF(a)	1.5973 (0.3184)	
N	100	100
P-value for Model Chi-Squared	(0.2934)	(0.3512)

SIZE = the total market value of common stock
FREECF = estimated free cash flow, (CF/SIZE)(Q), where Q = 1 if estimated Tobin's Q is less than one, otherwise Q = 0
FREECF(a) = an alternative estimate of free cash flow, (CF/SIZE)(1/Q)
N = number of observations

Table 18
Logit Analysis of Probability
That Issuer Used Poison Put
(P-values from Chi-squared Test in Parentheses)

	Model 10	Model 11	Model 12
Intercept	-1.2839 (0.3209)	-1.3081 (0.2961)	1.4426 (0.4855)
ln(SIZE)	0.1834 (0.2836)	0.2156 (0.2086)	-0.1651 (0.5284)
BLOCK	-0.6832 (0.7256)		
BOARD		-0.6088 (0.6243)	
CEO			0.0158 (0.4504)
N	100	100	66
P-value for Model Chi-Squared	(0.4594)	(0.4332)	(0.4909)

SIZE = the total market value of common stock
BLOCK = the percentage of shares held by outside 5% blockholders
BOARD = the percentage of board members who are outsiders
CEO = estimated CEO pay-performance sensitivity
N = number of observations

To summarize, using the full sample of put users and their matching firms, no explanatory variables other than management ownership are found to have a statistically significant influence on poison-put probability. Management ownership is negatively related to the probability of poison-put use, but this relationship is significant only at the 0.07 level. The evidence presented thus far from the logit analysis provides some support for the MEH.

Hypothesis Six states that shareholder-management conflict has no influence on the probability of nonwaivable poison-put use. The ability to waive bondholders' exercise rights is an important distinguishing characteristic. As noted in Chapter Three, nonwaivable poison puts could be more harmful to shareholders than are waivable poison puts. Nonwaivable poison puts are more likely to impose costly barriers to takeover. The evidence presented earlier in this chapter suggests that nonwaivable poison puts decrease shareholder wealth, while no general inference can be made about the wealth effects of waivable poison puts. Consequently, there are both theoretical and empirical motivations to examine separately the agency costs in firms that use nonwaivable poison puts.

To test Hypothesis Six all firms issuing only waivable poison puts and their matched firms are removed from the sample. This screening procedure results in a subsample of seventy-six firms. Thirty-eight of these firms use nonwaivable poison puts and thirty-eight do not. Thus, the

subsample used to test Hypothesis Six consists of firms using nonwaivable poison puts during the sample period and matched firms issuing straight debt during the sample period, but not using ERCs of any type.

Summary statistics are presented in Table 19 for the subsample of firms used to test Hypothesis Six. Note that the nonwaivable put users are relatively larger than their matched firms.[82] Both mean and median values of Tobin's Q are higher for control firms. Both mean and median values of standardized undistributed cash flow are lower for control firms. Both mean and median values of management ownership are higher for control firms.

The correlation matrix for the explanatory variables used to test Hypothesis Six is presented in Table 20. As before, several of the explanatory variables are correlated. Firm size is included in all specifications used to test Hypothesis Six. Furthermore, firm size is a significant explanatory variable in most of these specifications.

The first specification used to test Hypothesis Six includes all explanatory variables mentioned in Chapter Three. The results of this estimation appear as Model 13 in Table 21. Several firms are discarded in this estimation because information on the CEO variable is only available

[82]Standard and Poor's states that it concentrates on larger issues and issuers in assigning ERC rankings. This study draws its sample of put users from *CreditWeek*. Therefore, the finding that nonwaivable put users are larger than their matched firms is not particularly surprising.

Table 19
Summary Statistics for the Subsample of
Nonwaivable Put Users and their Matched Firms

Debt Issuers Using Nonwaivable Poison Puts

Variable	N	Median	Mean	Std. Dev.	Minimum	Maximum
SIZE	38	1902.831	2629.41	2488.67	238.2000000	12265.36
MGT	38	0.0185	0.0568947	0.0879984	0.0020000	0.3860000
CF	38	0.109699	0.1301260	0.0799918	-0.0195898	0.2922334
LEV	38	0.3768	0.4030000	0.1592863	0.1335000	0.7524000
Q	38	0.9603	1.1237816	0.5224748	0.5417000	2.5439000
BLOCK	38	0	0.0751842	0.1158265	0	0.4800000
CEO	28	3.725	10.0907143	20.1199623	0.5000000	90.3900000
BOARD	38	0.414286	0.4327499	0.1877940	0	0.9000000
OUTSIDERS	38	5	5.4736842	2.4685792	0	11.0000000
INSIDERS	38	4	4.2368421	2.1987000	1.0000000	10.0000000
GREYS	38	3	2.8684211	1.7579326	0	7.0000000
BOARD SIZE	38	13	12.5789474	3.0811684	7.0000000	18.0000000

Debt Issuers Not Using ERCs of Any Type

Variable	N	Median	Mean	Std. Dev.	Minimum	Maximum
SIZE	38	1313.602	2167.78	2933.75	50.8900000	15858.54
MGT	38	0.0335	0.1367895	0.2111508	0.0040000	0.8260000
CF	38	0.089792	0.0990780	0.0905099	-0.1242393	0.3715876
LEV	38	0.3956	0.3874684	0.1549985	0.1322000	0.6319000
Q	38	0.97775	1.1571105	0.4885097	0.5429000	2.4778000
BLOCK	38	0	0.0721316	0.1109690	0	0.4420000
CEO	19	3.64	4.9021053	3.2056661	0.7100000	11.3000000
BOARD	38	0.440972	0.4145813	0.1478475	0.0833333	0.6153846
OUTSIDERS	38	5	4.9473684	2.2293784	1.0000000	9.0000000
INSIDERS	38	4	4.1315789	1.9475702	1.0000000	10.0000000
GREYS	38	3	2.6052632	1.3663816	0	5.0000000
BOARD SIZE	38	11.5	11.6842105	2.9601430	5.0000000	19.0000000

SIZE = the total market value of common stock
MGT = the percentage of shares beneficially held by officers and directors
CF = undistributed cash flow
LEV = firm leverage
Q = estimated Tobin's Q
BLOCK = the percentage of shares held by outside 5% blockholders
CEO = estimated CEO pay-performance sensitivity
BOARD = the percentage of board members who are outsiders
OUTSIDERS = the number of outside board members
INSIDERS = the number of inside board members
GREYS = the number of grey board members
BOARD SIZE = the total number of board members

Table 20
Correlation Matrix for Explanatory Variables
Using the Subsample of Nonwaivable Put Users and Their Matched Firms
(Pearson's correlation coefficients are shown. P-values for each coefficient are shown in parentheses.)

	BLOCK	BOARD	FREECF	FREECF(a)	lnSIZE	MGT	CF	LEV	Q
ln(SIZE)	-0.25815 (0.0244)	0.27204 (0.0174)	-0.19453 (0.0922)	-0.15751 (0.1742)	1.00000 (0.0)	-0.44440 (0.0001)	-0.05216 (0.6545)	-0.41855 (0.0002)	0.28657 (0.0121)
MGT	-0.06123 (0.5993)	-0.33463 (0.0031)	-0.13915 (0.2306)	-0.14499 (0.2114)	-0.44440 (0.0001)	1.00000 (0.0)	-0.15562 (0.1795	0.11595 (0.3185)	0.22340 (0.0524)
CF	0.03819 (0.7433)	-0.18373 (0.1121)	0.78655 (0.0001)	0.93945 (0.0001)	-0.05216 (0.6545)	-0.15562 (0.1795)	1.00000 (0.0)	0.35840 (0.0015)	-0.43917 (0.0001)
LEV	0.11634 (0.3169)	-0.12775 (0.2715)	0.54266 (0.0001)	0.51325 (0.0001)	-0.41855 (0.0002)	0.11595 (0.3185)	0.35840 (0.0015)	1.00000 (0.0)	-0.71713 (0.0001)
Q	-0.21467 (0.0626)	-0.09582 (0.4103)	-0.59035 (0.0001)	-0.56762 (0.0001)	0.28657 (0.0121)	0.22340 (0.0524)	-0.43971 (0.0001)	-0.71713 (0.0001)	1.00000 (0.0)
BLOCK	1.00000 (0.0)	0.04879 (0.6756)	0.15926 (0.1694)	0.12349 (0.2879)	-0.25815 (0.0244)	-0.06123 (0.5993)	0.03819 (0.7433)	0.11634 (0.3169)	-0.21467 (0.0626)
BOARD	0.04879 (0.6756)	1.00000 (0.0)	-0.16185 (0.1625)	-0.16262 (0.1604)	0.27204 (0.0174)	-0.33463 (0.0031)	-0.18373 (0.1121)	-0.12775 (0.2715)	-0.09582 (0.4103)
FREECF	0.15926 (0.1694)	-0.16185 (0.1625)	1.00000 (0.0)	0.89754 (0.0001)	-0.19453 (0.0922)	-0.13915 (0.2306)	0.78655 (0.0001)	0.54266 (0.0001)	-0.59035 (0.0001)
FREECF(a)	0.12349 (0.2879)	-0.16262 (0.1604)	0.89754 (0.0001)	1.00000 (0.0)	-0.15751 (0.1742)	-0.14499 (0.2114)	0.93945 (0.0001)	0.51325 (0.0001)	-0.56762 (0.0001)

SIZE = the total market value of common stock
MGT = the percentage of shares beneficially held by officers and directors
CF = undistributed cash flow
LEV = firm leverage
Q = estimated Tobin's Q
BLOCK = the percentage of shares held by outside 5% blockholders
BOARD = the percentage of board members who are outsiders
FREECF = estimated free cash flow, (CF/SIZE)(Q), where Q = 1 if estimated Tobin's Q is less than one, otherwise Q = 0
FREECF(a) = an alternative estimate of free cash flow, (CF/SIZE)(1/Q)

for a limited number of firms. The second specification considers all variables except CEO and these results appear as Model 14 in Table 21. Neither of these models is found to have significant explanatory power.

Next, the influences of Tobin's Q and undistributed cash flow are examined. The effects of these variables on nonwaivable put probability are considered in isolation. Then, the combined effects of these variables are considered. The results of these estimations appear as Models 15, 16, and 17 in Table 22. Although its coefficient takes the sign predicted by the MEH, Tobin's Q has an insignificant influence on nonwaivable put probability. In contrast, undistributed cash flow is shown to be positively related to nonwaivable put probability, but only at the 0.0848 level. When both variables are included in the specification simultaneously, neither has significant explanatory power.

Jensen's [1986] free cash flow theory suggests that firms that do not pay out free cash flow harm shareholders and become vulnerable to takeover. Jensen defines free cash flow as cash flow in excess of that required to finance positive net present value investments. The variable undistributed cash flow is not an estimate of free cash flow. Undistributed cash flow in the hands of firms with valuable investment opportunities can be used to increase shareholder wealth. To obtain an estimate of free

Table 21
Logit Analysis of Probability
That Issuer Used Nonwaivable Poison Put
(P-values from Chi-squared Test in Parentheses)

	Model 13	Model 14
Intercept	-3.959 (0.4373)	-6.4216** (0.0394)
ln(SIZE)	0.3923 (0.3825)	0.4620 (0.1007)
MGT	-4.0026 (0.3569)	-3.1297 (0.2024)
CF	-14.6353 (0.5505)	-5.3492 (0.5985)
LEV	2.2743 (0.6312)	2.9868 (0.2921)
Q	0.9104 (0.5461)	1.3026 (0.1840)
BLOCK	2.1329 (0.5183)	0.8372 (0.7194)
BOARD	-2.3558 (0.3617)	0.2099 (0.9030)
FREECF	15.9712 (0.3866)	8.8819 (0.2741)
CEO	0.0403 (0.2923)	
N	47	76
P-value for Model Chi-Squared	(0.2533)	(0.1102)

SIZE = the total market value of common stock
MGT = the percentage of shares beneficially held by officers and directors
CF = undistributed cash flow
LEV = firm leverage
Q = estimated Tobin's Q
BLOCK = the percentage of shares held by outside 5% blockholders
BOARD = the percentage of board members who are outsiders
FREECF = estimated free cash flow, (CF/SIZE)(Q), where Q = 1 if estimated Tobin's Q is less than one, otherwise Q = 0
CEO = estimated CEO pay-performance sensitivity
N = number of observations

** significant at the 0.05 level

cash flow, undistributed cash flow is multiplied by an indicator variable set equal to one if estimated Tobin's Q is less than one. This interaction variable is expressed as $(CF_i/SIZE_i)(Q_i)$ and is shown as *FREECF* in the model specifications. This estimate of free cash flow assumes that undistributed cash flow is free cash flow for firms with estimated Tobin's Q less than one.

To examine the influence of free cash flow on the probability of nonwaivable put usage, Model 18 is specified to include *ln(SIZE)* and *FREECF*. As shown in Table 23, estimated free cash flow is positively related to the probability of nonwaivable put use. The relationship between estimated free cash flow and nonwaivable put probability is significant at the 0.0563 level. This evidence is consistent with the MEH and the view that firms likely to suffer severe shareholder-management conflict are more likely to use nonwaivable poison puts.

Next, an alternative estimate of free cash flow is used to examine the influence of free cash flow on nonwaivable put probability. In the alternative estimate undistributed cash flow is divided by estimated Tobin's Q. Therefore, undistributed cash flow is inflated as estimated Tobin's Q decreases. Undistributed cash flow is deflated as estimated Tobin's Q increases. Using this construction, estimated free cash flow is again found to be positively related to nonwaivable put probability. This relationship is

Table 22
Logit Analysis of Probability
That Issuer Used Nonwaivable Poison Put
(P-values from Chi-squared Test in Parentheses)

	Model 15	Model 16	Model 17
Intercept	-2.9665* (0.0527)	-4.0221** (0.0170)	-3.9449** (0.0215)
ln(SIZE)	0.4886** (0.0268)	0.4718** (0.0285)	0.4877** (0.0311)
CF		5.3498* (0.0848)	5.0092 (0.1404)
Q	-0.4884 (0.3329)		-0.1335 (0.8133)
N	76	76	76
P-value for Model Chi-Squared	(0.0607)*	(0.0191)**	(0.0466)**

SIZE = the total market value of common stock
CF = undistributed cash flow
Q = estimated Tobin's Q
N = number of observations

* significant at the 0.10 level
** significant at the 0.05 level

Table 23
Logit Analysis of Probability
That Issuer Used Nonwaivable Poison Put
(P-values from Chi-squared Test in Parentheses)

	Model 18	Model 19
Intercept	-4.1714** (0.0129)	-4.4457** (0.0111)
ln(SIZE)	0.5233** (0.0172)	0.5318** (0.0173)
FREECF	5.1329* (0.0563)	
FREECF(a)		4.6465** (0.0388)
N	76	76
P-value for Model Chi-Squared	(0.0138)**	(0.0089)***

SIZE = the total market value of common stock
FREECF = estimated free cash flow, (CF/SIZE)(Q), where Q = 1 if estimated Tobin's Q is less than one, otherwise Q = 0
FREECF(a) = an alternative estimate of free cash flow, (CF/SIZE)(1/Q)
N = number of observations

* significant at the 0.10 level
** significant at the 0.05 level
*** significant at the 0.01 level

significant at the 0.0388 level. The results of this estimation appear as Model 19 in Table 23.

Next, several model specifications are used to examine the influences that the remaining explanatory variables have on nonwaivable put probability. Firm size remains in these specifications as a control variable and the other explanatory variables are considered one at a time. The remaining variables considered include management ownership, outside block ownership, CEO pay-performance sensitivity, and firm leverage. None of these variables is found to have significant explanatory power. In contrast to the findings reported for the full sample of poison-put users and their matched firms, the negative relationship between management ownership and nonwaivable put probability is not statistically significant ($p = 0.1621$). Additionally, no evidence of a curvilinear relationship between management ownership and nonwaivable put probability is found. The results of these estimations appear in Tables 24 and 25.

To summarize, after controlling for firm size and industry effects, the results of the logit analysis indicate that estimated free cash flow is positively related to nonwaivable poison put probability. This evidence is consistent with the MEH, suggesting that managers use nonwaivable poison puts primarily to entrench.

Finally, likelihood ratio tests are conducted to test the joint hypothesis that the explanatory variables (not including the control variables) have no influence on

poison-put probability. First, tests are conducted using the full sample of fifty poison put users and their fifty matched firms. Then, tests are conducted using the subsample of thirty-eight nonwaivable poison put users and their thirty-eight matched firms.

A restricted logit model that includes only the explanatory variables *ln(SIZE)* and *LEV* is estimated. Then, an unrestricted logit model that includes all explanatory variables (except *CEO*) is estimated.[83] The -2 LOG L value (for the intercept and the covariates) is obtained from the restricted model estimation. The -2 LOG L value is also obtained from the unrestricted model estimation. Taking the difference between these two values results in a statistic that has a chi-squared distribution. This statistic is used to test the joint (null) hypothesis that the variables appearing only in the unrestricted model have no influence on poison-put probability.

Using the specifications just described, this test fails to reject the null ($p = 0.4402$), suggesting that these variables have no predictive ability. However, when the restricted model is specified to include only the explanatory variable *ln(SIZE)* and the unrestricted model is specified to include only *ln(SIZE)*, *FREECF(a)*, and *MGT*, the null hypothesis is rejected ($p = 0.0979$). When the

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[83]Specifically, the following two logit models are estimated:
(1) Prob(Poison Put) = $B_0 + B_1 ln(SIZE) + B_2 LEV$; and
(2) Prob(Poison Put) = $B_0 + B_1 ln(SIZE) + B_2 LEV + B_3 FREECF(a) + B_4 MGT + B_5 CF + B_6 Q + B_7 BOARD + B_8 BLOCK$.

restricted model includes only *ln(SIZE)* and the unrestricted model includes only *ln(SIZE)* and *MGT*, the null hypothesis is rejected (p = 0.0418). This evidence suggests that some of the shareholder-management conflict variables do influence poison-put probability.

Next, similar tests are conducted for the nonwaivable poison put users and their matched firms. First, the restricted model is specified to include only *ln(SIZE)* and *LEV*. The unrestricted model is specified to include all explanatory variables (except *CEO*). Using these specifications, the test fails to reject the null hypothesis (p = 0.3999), suggesting that the variables appearing only in the unrestricted model do not influence nonwaivable poison put probability. However, when the restricted model includes only *ln(SIZE)* and the unrestricted model includes only *ln(SIZE)*, *FREECF(a)*, and *MGT*, the null hypothesis is rejected (p = 0.0474). When the restricted model includes only *ln(SIZE)* and the unrestricted model includes only *ln(SIZE)* and *FREECF(a)*, the null hypothesis is rejected (p = 0.0287). This evidence suggests that some of the shareholder-management conflict variables do influence nonwaivable put probability.

Table 24
Logit Analysis of Probability
That Issuer Used Nonwaivable Poison Put
(P-values from Chi-squared Test in Parentheses)

	Model 20	Model 21	Model 22
Intercept	-1.9519 (0.2509)	-2.3798 (0.2100)	-3.4930** (0.0350)
ln(SIZE)	0.3050 (0.1746)	0.3362 (0.1525)	0.4683** (0.0324)
MGT	-2.9048 (0.1621)		
MGT (0-5)		5.8869 (0.7875)	
MGT (5-25)		0.9018 (0.8735)	
MGT (25+)		-2.8819 (0.2211)	
BLOCK			1.5981 (0.4720)
N	76	76	76
P-value for Model Chi-Squared	(0.0307)**	(0.1117)	(0.0751)*

SIZE = the total market value of common stock
MGT = the percentage of shares beneficially held by officers and directors
MGT(0-5) = management ownership in the range from zero to five percent
MGT(5-25) = management ownership in the range from five to twenty-five percent
MGT(25+) = management ownership in the range above twenty-five percent
BLOCK = the percentage of shares held by outside 5% blockholders
N = number of observations

* significant at the 0.10 level
** significant at the 0.05 level

Table 25
Logit Analysis of Probability
That Issuer Used Nonwaivable Poison Put
(P-values from Chi-squared Test in Parentheses)

	Model 23	Model 24	Model 25
Intercept	-3.0343** (0.0477)	-5.1210** (0.0150)	-1.7218 (0.5431)
ln(SIZE)	0.4305** (0.0445)	0.5703** (0.0148)	0.2385 (0.5064)
LEV		2.5690 (0.1419)	
BOARD	-0.1602 (0.9137)		
CEO			0.0449 (0.3865)
N	76	76	47
P-value for Model Chi-Squared	(0.0973)*	(0.0316)**	(0.3494)

SIZE = the total market value of common stock
LEV = firm leverage
BOARD = the percentage of board members who are outsiders
CEO = estimated CEO pay-performance sensitivity
N = number of observations

* significant at the 0.10 level
** significant at the 0.05 level

CHAPTER FIVE

SUMMARY AND CONCLUSIONS

5.1 SUMMARY

Two competing hypotheses of event-risk covenants (ERCs) are tested in this study, the Shareholder Interest Hypothesis (SIH) and the Management Entrenchment Hypothesis (MEH). The SIH states that managers use ERCs to benefit shareholders by reducing the true costs of borrowing. The MEH states that managers use ERCs to raise costly barriers to takeover--that is, to entrench. To test these competing hypotheses, two research questions are addressed in this study. First, what are the shareholder wealth effects of ERCs? Second, is shareholder-management conflict related to the probability that debt issuers will use poison-put ERCs?

Only a few prior studies examine the shareholder wealth effects of ERCs and these studies find conflicting evidence. Cook and Easterwood [1994] find that ERCs decrease shareholder wealth, on average. They interpret this evidence as consistent with the entrenchment hypothesis. Bae, Klein, and Padmaraj [1994] find that, on average, shareholders experience no significant wealth changes at announcements of ERC-protected debt issues. They conclude that ERCs benefit shareholders. No studies examine whether

an increase in shareholder-management conflict increases the probability that a firm will use a poison put. In this dissertation it is argued that poison puts are the type of ERC most likely to deter takeovers.

The results of this study suggest that at least one type of ERC decreases shareholder wealth, on average. For the full sample of seventy-five announcements of ERC-protected debt, the two-day abnormal return is -0.52% (Z = -2.61). Of these seventy-five ERCs, fifty are nonwaivable poison puts (also called super poison puts), seventeen are waivable poison puts, and eight are coupon-reset covenants. For the fifty nonwaivable poison-put announcements, the two-day abnormal return is -0.69% (Z = -2.76). Because only a small number of waivable poison puts and coupon-reset covenants can be obtained for this study, no generalizations can be made regarding their effects on shareholders.

Prior studies attempting to isolate the wealth effects of ERCs have compared the mean shareholder return for ERC-protected debt announcements to the mean return for unprotected debt announcements made by a control sample of firms. This approach controls for the types of debt that firms issue, but it does not control for the types of firms that issue debt.

A different approach is taken in this study. The mean shareholder reaction for shelf registrations of unprotected debt is compared to the mean shareholder reaction for

issuances of ERC-protected debt by the same sample of firms. For thirty shelf registrations of unprotected debt the two-day mean abnormal return is 0.583% (Z = 1.75). For thirty subsequent issuances of ERC-protected debt by the same firms the two-day mean abnormal return is -0.657% (Z = -1.88). The 1.24% difference between these shareholder returns is statistically significant (t = -2.576, p = 0.0126).

This evidence suggests that shareholders of firms that ultimately use ERCs are not disappointed, on average, at the prospect that the firm may soon issue debt. However, these shareholders are disappointed, on average, when they learn the firm has issued ERC-protected debt. Thus, the source of the wealth loss for shareholders does not appear to be the use of debt, but rather the use of ERCs. The evidence on the shareholder wealth effects of ERCs presented in this study is consistent with Cook and Easterwood [1994], but not with Bae, Klein, and Padmaraj [1994].

Evidence is also found in this study that shareholder-management conflict is related to poison-put use. Fifty debt issuers that use poison puts and fifty debt issuers that do not use ERCs of any type are sampled. After controlling for the effects of industry and firm size, a negative relationship is found between management ownership and the probability of poison-put use. This relationship is significant at the 0.07 level.

Because nonwaivable poison puts are the type of ERC most likely to deter takeovers, the subset of firms using

nonwaivable poison puts is examined for evidence of shareholder-management conflict. Thirty-eight firms using nonwaivable poison puts and thirty-eight control firms are sampled. After controlling for the effects of industry and firm size, a positive relationship is found between estimated free cash flow and the probability that a debt issuer will use a nonwaivable poison put. This relationship is significant at the 0.04 level.

Overall, the evidence presented in this study is consistent with the MEH. However, the strongest evidence in support of the MEH is found concerning the use of nonwaivable poison puts, the type of ERC most commonly used. Nonwaivable poison puts appear to decrease shareholder wealth. Furthermore, nonwaivable poison puts appear to be motivated to some extent by shareholder-management conflict. As stated, the SIH and the MEH are not mutually exclusive, but the evidence presented in this study suggests that managers use nonwaivable poison puts primarily to entrench. This evidence adds to our knowledge of agency theory, security design, takeover defenses, and the shareholder wealth effects of debt financing.

5.2 FUTURE RESEARCH

The methods of analysis used in this study are by no means exhaustive. Furthermore, some interesting questions regarding ERCs are not addressed in this study. There are

many opportunities to increase our knowledge of ERCs. Some of these opportunities are discussed in this section.

First, the shareholder wealth effects of ERC-protected debt can be further explored. These wealth effects are likely to be a function of several factors. Two of the more important factors are the size of the firm and the relative size of the issue. Consider a large firm that issues put-protected debt representing thirty percent of its capital structure. The barriers to takeover for this firm are more costly than those imposed by a small firm that issues put-protected debt representing, for example, ten percent of its capital structure. This study draws its data from *CreditWeek*, which focuses on larger issues by larger firms. Whether the results of this study would hold for a sample of smaller firms selling smaller issues is unknown.

The question of whether the shareholder wealth effects of ERCs are a function of covenant type remains unanswered. If a larger sample of waivable poison puts and coupon resets can be obtained, more powerful tests of their wealth effects and underlying motivations can be made. It may be that nonwaivable poison puts serve primarily as a takeover defense that harms shareholders while coupon-reset covenants have a neutral or beneficial effect on shareholders.

Whether ERCs provide a significant takeover deterrence is unknown. That ERCs provide a costly barrier to takeover is an important premise of this study, but there is no empirical work examining the effects of ERCs on takeover

probability. Note that whether protected debt trades at a premium or at a discount before a takeover is likely to influence takeover costs imposed on a bidder. If the debt is trading at a deep discount, a forced redemption of the debt at par could be relatively costly to a bidder. However, if the debt trades at a large premium, rational bondholders would not chose to exercise their poison puts at par unless a very severe decline in the issuer's credit quality occurred as a result of the takeover. Several researchers (e.g. Comment and Schwert [1993]) examine whether poison pills decrease the probability of takeover. A similar type of study concerning poison puts might also be enlightening.

How waivable and nonwaivable puts affect the dynamics of takeovers is unknown. Bidders can be expected to structure takeovers in such a way as to avoid triggering poison puts. How successful they are in accomplishing this is not known. At the time of this study, only one poison put is known to have been triggered. This may suggest that takeovers can occur without triggering puts, or that poison puts are so onerous that they prevent takeovers.

Finance researchers will continue to be interested in ERCs if the covenants themselves continue to be used. *CreditWeek* stopped publishing new rankings in the early 1990s, citing decreased takeover activity and interest in event-risk protection. However, takeover activity has increased in the mid-1990s. This increase in activity and

some well-publicized bondholder losses (such as the huge losses suffered by Marriott's bondholders in the fall of 1992) may be responsible for reviving interest in ERCs. According to a 1994 Fitch study using the Fitch Investment Securities Database, 344 new ERC-protected issues were sold in 1993. The study also states that, as of September 1994, 121 ERC-protected issues had been sold in 1994. If ERCs continue to be used with this frequency, it seems inevitable that they will influence the dynamics of the corporate control market. If so, financial economists will continue to be interested in ERCs.

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