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Do Bond Holders Lose From Junk Bond Covenant Changes?

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Abstract

This paper documents that firms can and do change the covenants of their public debt indentures through consent solicitations. A game theoretic model of these solicitations shows that they can be coercive, i.e. bondholders who cannot coordinate their actions may consent to covenant changes even when it is not in their collective interest to do so. Despite this theoretical finding, abnormal bondholder returns around the announcements of consent solicitations are significantly positive. Further analysis of the data indicates that bondholders can, in fact, coordinate their actions to modify or defeat disadvantageous proposals. As a result, bondholders obtain a portion of the gains resulting from covenant modifications. The public policy implication of these findings is that bondholders do not need additional regulatory or judicial protection in the solicitation process.

It has long been recognized that financial debt covenants can reduce the agency costs of debt and thereby increase the value of the firm.[1] But there is no guarantee that covenants which were optimal when the debt was issued remain optimal over time.[2] As a firm's economic environment changes and as its investment opportunities vary, the renegotiation of covenants may be desirable. Most researchers have assumed that it is not cost-effective to renegotiate the covenants of diffusely-held public debt securities and, as a result, have focused on the renegotiation of bank or privately-placed debt.[3]

The first goal of this paper is to document that firms can and do change the covenants of their public debt securities through consent solicitations. Section I describes the mechanics of soliciting bondholder consents and presents summary statistics on a sample of solicitations which took place during the years 1988 and 1989. The following conclusions are reported and explained: 1) Consent solicitations rarely involve investment grade debt and usually seek to modify more than one bond issue at a time. 2) Some firms ask for covenant changes alone while others

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[1] See, for example, Jensen and Meckling (1976), Myers (1977), and Smith and Warner (1979).

[2] See, for example, Kalay and John (1982), who analyze the optimal structure of covenants which restrict dividend payments.

[3] See, for example, Berlin and Loeys (1988), Berlin and Mester (1992), Bulow and Shoven (1978), or Lummer and McConnell (1989). The plight of distressed firms has focused some attention on the restructuring of public debt, but work in the distressed context naturally emphasizes interest reduction and principal forgiveness rather than protective covenant changes. See Asquith, Gertner, and Scharfstein (1991), Gertner and Scharfstein (1991), and Gilson, John, and Lang (1991).

combine consent solicitations with exchange offers or tender offers. 3) Consent solicitations generally propose to remove or relax covenants that are thought to prevent stockholder expropriation of bondholder wealth, e.g. covenants that restrict a company's ability to pay dividends, to incur additional debt, to engage in transactions with a controlling shareholder, or to sell assets without forcing the purchaser to assume the company's obligations with respect to the bonds. 4) Most solicitations are ultimately successful, although many of the original proposals require modification before receiving bondholder approval.

Section II begins with a game-theoretic analysis of consent solicitations and concludes that there exists a trembling hand perfect Nash equilibrium in which bondholders who cannot coordinate their actions will consent to covenant changes even when it is not in their collective interest to do so. For the sake of clarity, solicitations that support such an equilibrium will be called "structurally coercive." The analysis then shows that a particular change in the rules of these solicitations can make them even more coercive in the sense that the *unique* trembling hand perfect equilibrium is characterized by bondholders' consenting to disadvantageous indenture modifications. Other changes in the rules of these solicitations, however, completely remove their coercive force. The former changes might be of interest to firms contemplating covenant modifications while the latter would be of interest to regulators seeking to prevent coercion or to drafters of debt covenants

seeking to protect bondholders. Section II concludes by revisiting the data to reveal that almost all of the solicitations in the sample were structurally coercive.

While this theoretical discussion argues that firms have an incentive to propose covenant eviscerations through coercively structured solicitations, only an empirical analysis can determine whether observed solicitations are, in fact, coercive. In other words, do firms expropriate bondholder wealth by proposing and enacting covenant modifications without offering adequate compensation? The answer to this question has significant policy implications. Both legal scholars[4] and representatives of large mutual funds[5] have advocated reforming the solicitation process to eliminate its coercive elements while the SEC has considered burdening consent solicitations with the requirements of a new security offering.[6] With this debate in mind, section III studies abnormal bondholder returns around the announcements of structurally coercive consent solicitations. These abnormal returns turn out to be significantly positive, indicating that firms cannot, or do not, exploit the coercive nature of their solicitations.

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[4] See, for example, Coffee and Klein (1991), Bab (1991), and Roe (1987).

[5] See letter by Robert C. Pozen, General Counsel and Managing Director of FMR Corp. to Jonathan G. Katz, Secretary of Securities and Exchange Commission, dated November 16, 1990.

[6] See Greenslade (1991). We would like to thank Matthew Haiken for bringing this point to our attention.

The finding of abnormally positive returns can be explained by the hypothesis that the ability of bondholders to act in concert, through the emergence of bondholder groups or through less formal channels of communication, prevents coercion. More precisely, bondholders approve only those offers which are in their collective interest while they defeat or require modification of deleterious proposals. Section IV provides some direct evidence in support of the bondholder coordination hypothesis. In short, the consent solicitation process more closely resembles an attempt to balance the interests of stockholders and bondholders than an attempt to dictate terms to bondholders.

The conclusion that firms cannot dispose of covenants without compensating bondholders is consistent with the Asquith and Wizman (1990) and Cook, Easterwood, and Martin (1992) findings that bondholders without significant covenant protection were hurt by leveraged buyouts while those with strong covenant protection prospered. The policy implication of these findings is that bondholders do not need more regulatory or judicial protection in the consent solicitation process.[7]

Section V summarizes the paper and briefly concludes.

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[7] An earlier version of this paper has been cited by Chancellor Allen in an opinion of the Delaware Court of Chancery. See Feldbaum v. McCrory Corp. (1992).

I. The Mechanics of Consent Solicitations: Description and Summary Statistics

The Trust Indenture Act of 1939 and most indentures prohibit the alteration of interest or principal provisions without the consent of each bondholder affected by the changes. Other terms of the indenture, however, may be changed with less than unanimous approval. In fact, most indenture agreements provide for covenant modifications with the consent of either a majority or 2/3 of the outstanding face value of the bond issue.

In the simplest form of a consent solicitation, the issuer mails a solicitation statement to each holder of a certain bond issue. This statement describes the proposed modifications to the indenture under which the bonds were issued and asks bondholders to consent to these modifications on or before a particular date. The firm usually offers a "consent payment" as an inducement to consent, e.g. $10 for every $1000 principal amount owned. If the issuer receives the requisite number of consents, it executes a supplemental indenture incorporating the modifications and sends consent payments to those bondholders who consented before the deadline. Note, however, that these covenant changes bind *all* bondholders, consenting or not.

If the issuer does not receive a sufficient number of consents, or does not anticipate that it will receive a sufficient number, it can terminate the solicitation or extend the deadline. If it chooses to extend the deadline, it may also sweeten the solicitation by raising the consent payment or by

proposing a more appealing set of modifications. No consent payments are made, however, if the solicitation ultimately fails.

Consent solicitations are often combined with exchange or tender offers. Consents in such offers are called "exit consents" because bondholders vote on the modifications immediately before tendering their securities. In these situations firms usually allow only consenting bondholders to participate in the exchange or tender offer, i.e. firms *require* exit consents. As a result, if a sufficient number of bondholders tender their securities and consent to the terms of the solicitation, dissenting bondholders suffer a loss of covenant protection without receiving any form of compensation. These solicitations may or may not offer consent payments in addition to the opportunity to tender securities.

From the description of the various forms of consent solicitations the reader may have already sensed their coercive nature. The analysis of coercion, however, is postponed until the following section. The rest of this section discusses the data set collected for this paper and presents some summary statistics with respect to the practice of consent solicitations.

A preliminary sample of solicitation events was collected by searching through 1988 and 1989 news wires. The sample was then pared down in two ways. First, since this article focuses on the modification of diffusely-held public debt, solicitations that followed negotiations between the firm and its bondholders were discarded as more closely resembling privately-placed debt renegotiation. Second, because the primary purpose of distressed

solicitations[8] is not to modify covenants, but to obtain immediate relief in the form of interest deferral and principal forgiveness, these were also removed from the sample. After these two cuts, there remained 58 solicitations by 55 distinct issuers with respect to 148 debt issues.

Because press releases usually did not contain sufficient information about the terms of the consent solicitations and because solicitation documents are often not filed with the SEC, all of the issuers and the two major solicitation agents (D.F. King & Co. and Georgeson & Co.) were asked to furnish solicitation statements. Some of the information gathered from these documents and from the press releases is reported below.

Appendix 1 lists the issuers of the bonds for which modifications were sought. Only 4 of the 55 sported investment grade ratings (i.e. BBB and above by S&P, Baa and above by Moody's). The most obvious reason that investment grade debt did not make much of an appearance is that highly-rated debt rarely carry protective covenants.[9]

Of the 58 events, 25 were simple consent solicitations, 24 were accompanied by tender offers, 8 were accompanied by exchange offers, and 1 was accompanied by both a tender offer and an exchange offer.

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[8] Solicitations were classified as distressed if 1) the issuer mentioned the possibility of filing under Chapter 11 in its press releases, 2) the issuer filed under Chapter 11 before or immediately after the solicitation, 3) the issuer had difficulty meeting scheduled interest or principal payments, or 4) the issuer sought interest deferral or principal forgiveness.

[9] See Brook (1990).

Many of the solicitations sought to modify more than one bond issue: 28 sought to modify 1 issue, 20 sought to modify 2 issues, and 10 sought to modify 3 or more issues. Since different issues of a single issuer often contain similar covenants, amending one issue may be insufficient to free the issuer from cumbersome covenants. Also, to the extent that formalizing a proposal and contacting bondholders involve fixed costs, issuers can be expected to lump their solicitations together.

Table 1 lists the transactions that issuers sought to consummate upon receiving the requisite number of consents. Many of these, particularly leveraged acquisitions, payments to stockholders, asset sales, and issues of additional debt, seem to be taken from an academic survey on the ways in which stockholders can expropriate bondholder wealth. So, covenants supposed to prevent this sort of behavior are not written in stone. In fact, of the 52 solicitations for which the requisite data could be obtained, 43, or 83%, were successful in amending the indentures of at least one of the targeted issues.

The fact that companies seek to modify indentures by removing or diluting protective covenants is not, in itself, a cause for concern. As long as the terms of the solicitation adequately compensate bondholders for the loss of covenant protection, bondholders will not experience losses and shareholders will seek only modifications that increase firm value. However, as shown in the next section, the structure of consent solicitations may coerce bondholders into consenting even

if they are not adequately compensated. Consequently, shareholders may seek modifications that reduce the value of the firm as a whole so long as enough value can be expropriated from the bondholders.

II. A Game-Theoretic Analysis of Consent Solicitations

If bondholders can coordinate their actions, the analysis of consent solicitations is simple: bondholders will accept an issuer's proposal if and only if they benefit from the changes. Consequently, firms will propose only those changes that increase the value of the firm as a whole and share at least some of this increased value with the bondholders. This section, therefore, focuses on situations in which bondholders cannot coordinate their actions.[10]

Let there be N+1 bondholders, $N \geq 2$. Each bondholder owns one bond and may consent, C, or not consent, NC, to the proposed indenture amendments. Let $M+1 \epsilon ([N+1]/2, N]$, be the approval threshold. If M or less of the holders consent, the amendments are not adopted and each bond is worth B dollars. If M+1 or more of the holders consent, the amendments are adopted and each consenting holder receives, in exchange for his old bond, a package of new securities and cash worth a total of B_n. In addition, each consenting holder receives a consent payment of $\$p \geq 0$. At the same time, each nonconsenting holder keeps his old

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[10] For similar models in other contexts, see, for example, Bebchuk (1985), Comment and Jarrell (1987), Diamond and Dybvig (1983), and Gertner and Scharfstein (1991).

bond which, because of the covenant eviscerations, is now worth $B' < B$.[11] Note, by the way, that a solicitation without an exchange or tender offer reduces to the special case $B_n = B'$.

Let S denote the vector of actions by the N+1 players and let S_{-i} denote the vector of actions of all players but player i. The payoff functions of the game, following directly from the rules described above, are as follows:

$$\pi_i(C, S_{-i}) = \begin{cases} B_n+p & \text{if at least } M+1 \text{ other holders consent} \\ B_n+p & \text{if exactly } M \text{ other holders consent} \\ B & \text{if at most } M-1 \text{ other holders consent} \end{cases}$$

$$\pi_i(NC, S_{-i}) = \begin{cases} B' & \text{if at least } M+1 \text{ other holders consent} \\ B & \text{if exactly } M \text{ other holders consent} \\ B & \text{if at most } M-1 \text{ other holders consent} \end{cases}$$

If $B_n+p \geq B$, i.e. if the bondholders weakly benefit from the solicitation, the weakly dominant strategy equilibrium has everyone consenting. This inequality would hold if the stockholders are willing at least to compensate bondholders for the losses suffered from the removal or weakening of the protective covenants. In that case, stockholders benefit from the solicitation only if the modifications increase firm value.

Assume now that $B_n+p < B$. That is, assume that a successful solicitation and exchange would lower the value of bondholder positions. There are two possible cases here. If $B_n+p < B'$, so

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[11] One might argue that the transaction proposed by the firm would increase the value of the firm to such an extent that B′ would exceed B. In other words, the rise in firm value would more than compensate for the loss of covenant protection. It is unlikely, however, that firms which make consent payments or exchange and tender offers are contemplating such transactions: if B′>B, each bondholder, acting independently, would readily agree to the covenant changes. Firms would not need to offer any other inducements. Consents would be theirs for the asking.

that bondholders are better off holding their original bonds even if the solicitation is successful, NC weakly dominates and the solicitation is doomed to fail. If, on the other hand, $B_n+p > B'$, bondholders prefer to be in the consenting majority rather than be caught in the nonconsenting minority. This is the most interesting case: since $B > B_n+p > B'$, bondholders *as a group* dislike the terms of the solicitation. Nevertheless, an *individual* bondholder might consent for fear of receiving only B′ should the solicitation succeed despite his vote.

Let Game I be the game described above when parameter values are such that $B > B_n+p > B'$.[12] It can be easily verified that Game I has many Nash equilibria. In order to focus on the most sensible set of these equilibria, the analysis turns to trembling hand perfection. Loosely stated, a Nash equilibrium is trembling hand perfect (THP) if no player will change his Nash strategy even when there is some small possibility that other players will deviate from their Nash strategies.[13]

Proposition 1: Game I supports two THP Nash equilibria. In one all players consent and in the other all players withhold consent.■

Proof: See Appendix 2.

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[12] So long as this inequality is maintained, B′ may be taken as a decreasing function of the number of consenters without altering proposition 1. This generalization can be important for exchange offers in which the newly issued bonds are senior to the old ones.

[13] See Selton (1975).

Proposition 1 shows that the fear of being caught in the nonconsenting minority can dominate the desire to vote against a harmful proposal. The fact that all players consenting is a THP Nash equilibrium means that bondholders who cannot coordinate their actions may consent to covenant changes that make them worse off as a group. This finding implies that equity holders may find it profitable to propose modifications that lower the value of the firm as a whole so long as enough bondholder wealth can be expropriated in the process.

The indeterminate solution to Game I suggests a change in the rules that would make the solicitation more likely to succeed: strengthen the incentive to consent by offering consenters $p>0$ *whether or not* the amendments pass. This game will be called Game II.

Proposition 2: The unique THP Nash equilibrium of Game II is one in which all players consent.

Proof: See Appendix 2.■

The analysis of this section reveals that requiring bondholders to consent in order to receive consent payments *or* requiring that they consent in order to participate in the exchange or tender offer can lead to coercive outcomes. Absent both these requirements, bondholders can vote against covenant changes without forfeiting either consent payments or the right to participate in the exchange offer. In other words, they may assure themselves of the payoffs available in the event of the solicitation's success without having to contribute to that

success.[14] Formally stated, it is easy to show that without these two requirements bondholders would never approve disadvantageous covenant changes.

One may now return to the data and ask whether or not firms structure their consent solicitations in a coercive way. Table 2 answers this question in the affirmative. Of the 48 solicitations for which sufficient information was available, 44 either made consent payments available only to consenting bondholders, required exit consents, or did both.

III. Bond and Stock Returns Around Solicitation Events

i) Hypotheses

When a firm announces a proposed transaction and consent solicitation, three kinds of information are revealed: 1) the change in expected firm value due to the anticipated transaction, 2) the change in the expected division of firm value across equity and debt claims due to the terms of the solicitation, and 3) the change in firm value signalled through the transaction and solicitation proposal. Consider, for example, an announcement to sell assets subject to bondholder approval. To the extent that the sale allows cash and managerial effort to flow towards more profitable endeavors, firm value will tend to rise. To the extent that the terms of the solicitation fail to compensate bondholders adequately for the removal of assets from their reach, debt claims will tend to fall in value. Finally, to the extent that

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[14] Bebchuk (1985) makes a similar argument in the context of takeovers.

the announcement of a sale price reveals that investors had previously misestimated the value of the assets to be sold, firm value would change to reflect this news about asset values.

Because proposals are assumed to reflect stockholder interests, the announcement of potential changes in firm value and in the division of firm value should result in abnormally positive stock returns. The impact of any signalling effect may, however, be positive or negative.

The theory of section II showed that bondholders who cannot coordinate their actions may approve disadvantageous covenant changes. And, as noted earlier, firms need only offer inducements to consent if bond values stand to fall as a result of the proposed indenture modifications and related transactions. Therefore, if coercion occurs in practice, and if the average signalling effect is not overwhelmingly positive, the sample of bonds subjected to coercively structured solicitations should exhibit abnormally negative announcement returns.

Despite these theoretical predictions with respect to bondholder returns, there are grounds to doubt that issuers will, or even can, in practice, exploit coercion. First, proposals at unfair terms may result in litigation with and liability to injured bondholders.[15] Second, such proposals may hurt the issuer's reputation and increase its future costs of raising capital. Third, contrary to the assumptions of the theoretical model, it may be the case that bondholders can coordinate their

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[15] See Coffee and Klein (1991).

actions. Absent a signalling effect, the first two considerations imply zero abnormal bond returns: firms will not expropriate bondholder wealth, but they need not share any gains which result from the ensuing transaction. The third consideration, on the other hand, implies abnormally positive returns since bondholder coordination, actual or threatened, would force stockholders to give up some of their gains in exchange for bondholder consents.

ii) Data and Methodology

To examine the hypotheses outlined above empirically, stock and bond price data were collected for as many of the solicitation events as possible. The event dates, isolated from press releases, were the announcements of transactions which required bondholder consents. Because many firms in the sample were either privately owned or were subsidiaries of public companies, stock price data were available for only 29 of the 54 coercively structured solicitations. Returns from the day before to the day after the event date were adjusted by subtracting, alternately, the return on the S&P 500 index and on the Nasdaq Composite index over the same time period. Stock and index prices were collected from the CRSP data base and the NYSE, ASE, and OTC Daily Stock Price Record.

Bond prices could be found, at daily or monthly frequencies, for 42 of the 54 events. If daily prices were available, the analysis focused on the narrowest window around the event date for which prices could be found. Sources of daily price data were the Salomon Brothers High Yield Department, the Bear Stearns High

Yield Department, Interactive Data Corporation, and Bloomberg. If daily prices were not available, the analysis focused on a window from the month-end before the event to the month-end after the event. Sources for monthly price data were Moody's and S&P. In order to adjust for interest rate risk, each corporate bond was matched with a Treasury bond of a similar maturity and, if possible, of a similar coupon. Then, on every date for which a corporate bond price was collected, the price of its matched-maturity Treasury was collected. In order to adjust for credit risk, average monthly yields for corporate bonds in different rating classes were collected. Treasury bond data were taken from Salomon Brothers quote sheets and from The Wall Street Journal. Yield data across ratings were provided from investment banking sources by Edward Altman.

To be more specific about the adjustments of bond returns for interest rate risk, define the following variables:

a: the abnormal return of the bond around the event date

P_{-1}: the price of the bond before the event date

y_{-1}: the yield-to-maturity of the bond before the event date

P_{+1}: the price of the bond after the event date

y_{+1}: the yield-to-maturity of the bond after the event date

Δy_T: the change in a matched-maturity Treasury yield from before the event date to after the event date

Δs : the change in the credit spread between bonds of similar ratings and Treasuries over the event date

Let P(y) denote the standard pricing function for a given yield-to-maturity, y. For all monthly data, abnormal returns were defined as

$$a = \{P_{+1}/P_{-1}\} - \{ P(y_{-1} + \Delta y_T + \Delta s)/P_{-1} \}$$

This definition adjusts for both interest rate changes and credit spread changes over the event date. Since credit spread data were not available on a daily basis, daily abnormal returns were defined as

$$a = \{P_{+1}/P_{-1}\} - \{ P(y_{-1} + \Delta y_T)/P_{-1} \}$$

which controls only for interest rate changes. Since the window around the event was typically set between 3 and 5 days, the failure to control for credit spread changes should not have much of an effect on the results.

If a solicitation event involved more than one debt issue, the abnormal return for the event was taken as the average of the abnormal returns over the issues. Since the abnormal returns of different issues over the same event are likely to be highly correlated, the standard deviations of the abnormal returns from these conglomerate issues are comparable to those from individual issues. To the extent that the abnormal returns across issues for a given event are less than perfectly correlated, the tests of significance reported below would be conservative.

iii) Results

Table 3, panel a), reports that the average abnormal bond return around event dates was 2.34% for the monthly data and .75%

for the daily data.[16] The null hypothesis that these averages are negative can be rejected at the 5% level. These results are not driven by a few positive outliers; 29 of the 42, or 69%, of the abnormal returns are positive. Furthermore, one can easily reject the hypothesis that the median of these returns is negative.

Table 3, panel b), presents the results with respect to stock prices. The average abnormal stock return was about 9.5%[17] and significantly positive. Once again, the result is not driven by outliers; 22 of the 28 abnormal returns are positive, and one can reject the hypothesis that the median is negative.[18]

Positive abnormal stock and bond returns are consistent with the hypothesis that bondholders are able to act in concert and vote in blocks. In that case, the main results of section II do not apply: bondholder coordination limits the ability of shareholders to expropriate bondholder wealth. Furthermore, bondholders can demand a share of any gains which arise from the covenant modifications.

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[16] Raw returns were similar in magnitude: 2.00% monthly, and .81% daily.

[17] The average raw stock return was 10.03%.

[18] Trian Industries, which had an abnormal stock return of over 350%, was omitted in the calculations of this panel. Its inclusion would distort the average abnormal return to about 21.5%, but would not destroy its statistical significance. As an aside, the return of that firm's bonds were not outliers in the bond sample.

IV. Direct Evidence Against the Coercion Hypothesis

Abnormally positive stock and bond returns provide only indirect evidence in favor of the bondholder coordination hypothesis. This section reports direct evidence in support of this hypothesis. Direct evidence also serves to allay fears that the signalling effect, introduced in the previous section, dominates returns around the event dates. For if, on average, the signalling effect is positive and sufficiently large, abnormally positive bondholder returns are not inconsistent with the coercion hypothesis; abnormal returns might be positive, but less than they would have been in the absence of coercion. This possibility can be refuted by direct evidence against the coercion hypothesis.

i) Consent payments are not *de minimis*.

According to the theory of section II, consent payments of any magnitude can generate outcomes in which bondholders approve harmful indenture modifications. Therefore, "large" consent payments are more indicative of compensation for lost covenant protection and of gains sharing than of coercion. But, how large is "large"? While this question cannot be answered precisely, it is useful to note that consent solicitations which ask for very minor and technical changes usually offer bondholders $1 per $1000 face amount as payment for the time and effort expended in filling out the appropriate forms. (This paper's sample contained one solicitation of that type.) Therefore, one might argue that consent payments need not be much larger than $1 per $1000 to

generate coercive outcomes. But, across 23 solicitations that made consent payments,[19] the average and median payments were $20.51 and $15 per $1000 face amount, respectively. Only 2 of the 23 were below $5, and 9 of the 23 were above $20. The largest two consent payments were $60 and $95. Therefore, consent payments seem more indicative of efforts to satisfy bondholders than indicative of unnecessarily generous attempts at coercion.

As evident from the statistics reported in the previous paragraph, the size of the consent payments varied considerably across solicitations. This is also consistent with the gains sharing hypothesis. Each set of bondholders had to be persuaded to accept the unique set of risks and potential losses which arose from each firm's proposal.

ii) Bondholder groups emerge after the announcements of consent solicitations.

The mechanics of coercion require that bondholders not be able to coordinate their votes. Yet, for 12 of the sample events, press releases indicated that bondholder groups did form in reaction to consent solicitations. To the extent that press releases do not cover all bondholder meetings, this number might underestimate the true number of meetings generated by the solicitations in the sample. And furthermore, by establishing

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[19] The sample contained 30 solicitations that made consent payments. For 3 of them, the size of the consent payment could not be ascertained. Another four were made in combination with tender offers subject to the restriction that bondholders could not consent without agreeing to tender. It follows that, in those cases, bondholders receive compensation for covenant changes both through the tender price and through the consent payment. Therefore, these consent payments were omitted from the calculations reported in the text.

that bondholders can collude, it is not unreasonable to suppose that less formal communication among bondholders, or the possibility of such communication and coordination, tends to dissuade firms from launching solicitations at unfair terms.

iii) Bondholder groups do have the power to derail solicitations.

Of the 12 solicitations which were followed by the formation of bondholder groups, 11 either failed or had their terms modified before being approved. The fate of the remaining solicitation could not be ascertained. It seems clear, therefore, that colluding bondholders have a great deal to say about the terms of any successful covenant modification.

iv) The terms of solicitations that did not immediately receive bondholder approval are often modified and then resubmitted to bondholders.

In 55 events for which data were available, 23, or 42% of the issuers modified solicitation terms after an initial failure to obtain a sufficient number of bondholder consents. Of these modified solicitations, the following data were available about the changes proposed by the firms: 17 increased payment terms (i.e. the consent payment, the tender price, the promised interest rate, etc.), 3 requested more moderate covenant changes than initially sought, and 2 both increased payment terms and requested more moderate covenant changes. The relatively frequent improvement of terms supports the view that bondholders and

stockholders arrive at a mutually satisfactory division of the gains which would result from the proposed transaction.

v) The average increase in payment terms after the initial failure of a solicitation is relatively large.

Across 19 increases in payment terms after an initial, unsuccessful solicitation, the average and median increases were $40.28 and $18.40 per $1000 face amount, respectively. The range of the increases was $5 to $160. It seems highly unlikely that a median initial consent payment of $15 could not induce coercion while an addition of $18.40 could. And, the coercion hypothesis cannot explain the wide range of improvement in payment terms. The bondholder coordination hypothesis, however, easily explains these increases as efforts, in each particular instance, to satisfy bondholders.

In summary, the empirical evidence is inconsistent with the hypothesis that firms systematically coerce bondholders into consenting to modifications at disadvantageous terms. This evidence also supports the hypothesis that actual or potential coordination allows bondholders to realize some of the gains expected from covenant modifications.

V. Conclusion

The structure of consent solicitations seems to enable firms to coerce bondholders into accepting detrimental covenant modifications. If so, why don't bondholders demand covenants that prohibit coercive consent solicitations? This could easily be

done by requiring that any consent payment be made to all bondholders and by prohibiting firms from requiring exit consents as a condition for participating in an exchange or tender offer. Evidence from abnormal bondholder returns provides an answer to this question: firms have not systematically abused the coercive nature of these solicitations. But this answer raises another question. Why don't firms use their coercive power to transfer wealth from bondholders to their stockholders? The answer provided by more direct evidence of the solicitation process is that bondholders can coordinate their actions when faced with a disadvantageous proposal. Indeed, far from being taken advantage of, bondholders can extract a portion of the gains created by successful modifications. Thus, the empirical evidence does not demonstrate the need for the kind of protective measures that have been recently proposed.

The practice of consent solicitations also indicates that the terms of public debt can be renegotiated more easily than has been assumed in the academic literature. This has important implications for models of optimal security design that may not have incorporated the ability to modify the covenants of public debt after issuance.

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Appendix 1: List of Issuers

Alleco
Ambassador General
American Medical International
Andrews Group/Compact Video
Astrex
Bally Manufacturing
Beatrice
Best Products
Borg-Warner
BT Acquisition
Bucyrus-Erie
Cain Chemical
Catalyst Energy
Charter Medical
Circus Circus
Color Tile
Container Corp of North America
Continental Cablevision
Cooper Companies
Days Inns of America
Dr Pepper/Seven Up
E-II Holdings
E.F. Hutton Group
Farley
Fiber Industries
Foodmaker
Forstmann
GAF
Hammond
Harvard Industries
Holiday
Lamson & Sessions
Lear Petroleum
Levi Strauss Associates
Magma Copper
Memorex Telex International
Nichols (S.E.)
NRM Energy
P&C Food Markets
Pay'n Save/PNS
Peebles
Ramada
Revlon
SCI Holdings
Servico
Sterling Software
Tele-Communications
Texstyrene
Thermadyne Industries
Triangle Industries/Trian Holdings
Triangle Pacific
Union Bancorp
Union Valley
U.S. West
Western Co. of North America

Appendix 2: Proofs of Propositions 1 and 2

There are N+1 players with an approval threshold of M+1. From the point of view of any player, the strategies of other players can be described by the number who plan to consent, Y, and the number who plan to withhold consent, N-Y. Let q be the probability that a particular player errs, i.e. that he does not play his Nash strategy. Let λ be the probability that at least M+1 of the other N holders consent. Let θ be the probability that exactly M of the other N holders consent. Let μ be the probability that at most M-1 of the other N players consent.

Lemma: If $Y \geq M+1$, then $\theta/\lambda \to 0$ as $q \to 0$. If $Y \leq M$, then $\theta/\lambda \to \infty$ as $q \to 0$.

Proof: The probabilities θ and λ are given by the following expressions:

$$\theta = \Sigma_{i+j=M} \binom{Y}{i}\binom{N-Y}{j} q^{Y-i+j}(1-q)^{i+N-Y-j}$$
$$\lambda = \Sigma_{k=M+1}^{N} \Sigma_{i+j=k} \binom{Y}{i}\binom{N-Y}{j} q^{Y-i+j}(1-q)^{i+N-Y-j}$$

As $q \to 0$, only terms with the smallest exponents of q contribute to the summations. Therefore, as $q \to 0$

$$\theta \approx \begin{cases} \binom{N-Y}{M-Y} q^{M-Y}(1-q)^{N-M+Y} & M \geq Y \\ \binom{Y}{M} q^{Y-M}(1-q)^{M+N-Y} & M < Y \end{cases}$$

$$\lambda \approx \begin{cases} \binom{N-Y}{M+1-Y} q^{M+1-Y}(1-q)^{N-M-1+Y} & M+1 > Y \\ (1-q)^{N} & M+1 \leq Y \end{cases}$$

Finally, taking the ratio θ/λ leaves a positive power of q in the numerator when $Y \geq M+1$ and a positive power of q in the

denominator when $Y \leq M$. Hence the ratio approaches 0 when $Y \geq M+1$ and the ratio approaches ∞ when $Y \leq M$.■

Proposition 1: Game I supports two THP Nash equilibria. In one all players consent and in the other all players withhold consent.

Proof: It is easily verified that the following strategy vectors constitute Nash equilibria: all players consent and at most M of the players consent while the rest withhold consent.

First consider the Nash equilibrium in which all players consent. A sufficient condition for trembling hand perfection is that, as $q \to 0$, C is the preferred strategy.

The expected value of consenting is

$$\lambda(B_n+p) + \theta(B_n+p) + \mu B \qquad (1)$$

The expected value of not consenting is

$$\lambda B' + \theta B + \mu B. \qquad (2)$$

Therefore, C may be chosen so long as

$$B_n+p-B' > (\theta/\lambda)[B-(B_n+p)] \qquad (3)$$

Note that the inequality conditions of the problem ensure that $B_n+p-B' > 0$ and that $B-(B_n+p) > 0$. Since all players consent in the Nash equilibrium under consideration, the lemma reveals that $\theta/\lambda \to 0$ as $q \to 0$. So, in the limit, (3) is satisfied and all consenting is THP.

Now consider the Nash equilibria in which at most $Y \leq M$ of the N+1 players consent. In this case the lemma reveals that $\theta/\lambda \to \infty$ so that (3) is not satisfied. In other words, consenters will switch to NC for small q. This implies that all NC is THP. (To show that

the other Nash equilibria with Y≤M are not THP, one must allow the tremble probabilities to differ across players and then, as in this proof, show that consenters will switch to NC as the tremble probabilities get small.)■

Proposition 2: The unique THP Nash equilibrium of Game II is one in which all players consent.

Proof: The payoff functions of the game are:

$$\pi_i(C, S_{-i}) = \begin{cases} B_n+p & \text{if at least } M+1 \text{ other holders consent} \\ B_n+p & \text{if exactly } M \text{ other holders consent} \\ B+p & \text{if at most } M-1 \text{ other holders consent} \end{cases}$$

$$\pi_i(NC, S_{-i}) = \begin{cases} B' & \text{if at least } M+1 \text{ other holders consent} \\ B & \text{if exactly } M \text{ other holders consent} \\ B & \text{if at most } M-1 \text{ other holders consent} \end{cases}$$

It is easy to verify that the only Nash equilibrium of this game has all players consenting. The expected value of consenting is

$$\lambda(B_n+p) + \theta(B_n+p) + \mu(B+p).$$

Using (2), the expected value of not consenting, players will consent so long as

$$B_n+p-B' > (\theta/\lambda)[B-(B_n+p)] - (\mu/\lambda)p \qquad (4)$$

From the probability expressions given in the proof of the lemma, it follows directly that all consenting implies that $\theta \to 0$, $\lambda \to 1$, and $\mu \to 0$. Therefore, the right hand side of (4) goes to 0. Since the conditions of the problem ensure that $B_n+p-B' > 0$, (4) is satisfied and all consenting is THP.■

Table 1: Transactions to be Consummated if Bondholders Consent to the Proposed Covenant Modifications

Issuers in the sample asked bondholders to modify protective covenants in order to permit the following transactions.

Proposed Transactions	Number in sample	Percent of solicitations in sample	Percent of solicitations with known purposes
Leveraged Acquisitions	18	31.0	37.5
Payments to Stockholders	8	13.8	16.7
Internal Restructuring; No Financial Distress.	6	10.3	12.5
Asset Sales without Debt Assumption by the Purchaser	5	8.6	10.4
Issues of Additional Debt	4	6.9	8.3
Avoidance of Mandatory Repurchases	2	3.4	4.2
Other	5	8.6	10.4
Purpose of Solicitation Unknown	10	17.2	--

"Other" includes the acquisition of another company, a merger of equals, a defensive recapitalization, the curing of non-payment defaults, and the settlement of a lawsuit.

Table 2: The Coercive Nature of Consent Solicitations
Theoretical analysis shows that paying only those bondholders who consent to covenant modifications (i.e. making 'consent payments') or conditioning participation in an exchange or tender offer on consenting to covenant modifications (i.e. requiring 'exit consents') may lead individual bondholders to consent to wealth-reducing changes. This table shows the number of consent solicitations that made these consent payments or required exit consents. Solicitations for which the terms could not be obtained are not included.

	# in sample with known terms	# with consent payments alone	# with exit consents alone	# with consent payments and exit consents	# with consent payments or exit consents
Consent Solicitations alone	21	18	--	--	18
Consent Solicitations with Exchange or Tender Offers	27	6	14	6	26
Totals	48	24	14	6	44

Table 3: Abnormal Returns Around Potentially Coercive Solicitation Events
Potentially coercive solicitations include any that offered consent payments or that required exit consents.

a) **Abnormal Bondholder Returns**
Bond returns were adjusted for changes in the level of interest rates and, in the case of monthly data, for changes in credit spreads as well.

	Monthly Data	Daily Data
No. of Observations	21	21
Average Abnormal Return	2.34%	0.75%
Standard Deviation	2.89%	1.81%
t-statistics	3.71	1.91

b) **Abnormal Stockholder Returns**
All stock returns were computed using daily data. Returns were adjusted, alternately, for changes in the level of the S&P 500 index and Nasdaq Composite index. One outlier, with an abnormal return of about 360%, was omitted from this table.

	S&P-adjusted Return	Nasdaq-adjusted Return
No. of Observations	28	28
Average	9.48%	9.68%
Standard Deviation	16.63%	16.46%
t-statistics	3.02	3.11

Note: For one-sided tests, $t_{.05}(21) = 1.721$, $t_{.05}(28) = 1.701$.