

Why Do Acquiring Firms Pay High Premiums To Takeover Target Shareholders: An Empirical Study

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ABSTRACT

The purpose of this paper is to explore empirically the relationship between several factors reported in the literature to affect the premium received by takeover target shareholders. Using a sample of 190 successful takeovers during the period 1995-2005, our results suggest that high leveraged target firms' shareholders receive, on average, 13.34 percent more premium than stockholders of low leveraged target firms. Controlling for leverage, target firms which have high leverage and oppose the takeover receive significantly larger premiums than those with high leverage but do not oppose the takeover. Moreover, controlling for the size of managerial ownership in target firms, the association between leverage and premiums becomes more significant when managerial ownership is high and less significant when it is low.

Keywords: Takeover Target Shareholders; Target Firm Leverage; Acquiring Firm Premiums

I. INTRODUCTION

This study examines the relationship between target firms' capital structure prior to the takeover announcement and the takeover premiums paid by bidding firms. Evidence shows that stockholders of target firms earn substantial excess returns around the announcement of takeovers.¹ In the past, premiums paid by bidders to target firms' stockholders averaged between 35 to 47 percent.² The literature reports several reasons, which motivate acquiring firm's management to pay more than the market value for the target's equity.³

Stulz (1988) and Israel (1991) suggest that the leverage ratio of the takeover target firm and the premium it receives from the bidder are related. Stulz argues that management, who values control and has limited personal wealth, uses leverage to increase its ownership and its power in the target firm during takeover contests. Management accomplishes this by issuing debt and using the proceeds to repurchase shares of stock from outsiders. The increase in power enables management to defeat the takeover and remain in control of the firm or extract higher premiums from the bidder. Therefore, we expect to find that, in successful takeovers, high leveraged targets are offered larger premiums than low leveraged target.

Israel (1991) develops a model of an optimal capital structure with no ownership role. He argues that the gains generated by the acquisition go to shareholders of both the targets and bidders and to debtholders of target firms. Debtholders' proportion of the gains increases with target leverage while that of shareholders decrease. Consequently, if bidder's shareholders capture a smaller portion of the gain when their firms acquire high leveraged targets, value-maximizing bidders would offer lower premiums to target shareholders, and we should observe a negative relationship between debt levels in the target firm's capital structure and the premium paid by the bidding firm.

¹ For rigorous and excellent summaries of studies that examine target firms' excess returns see Jensen and Ruback (1983), and Jarrell et al. (1988).

² These figures are obtained from the *Mergerstat Review* which is published annually by Merrill Lynch Business Brokerage and Valuation.

³ For a summary of the motives behind mergers and acquisitions see Halpern (1983) and Roll (1986).

The contribution of our study is to reconcile the conflicting predictions of Stulz (1988) and Israel (1991) models by empirically investigating the extent to which the target firm's capital structure explains these premiums.

The rest of the paper is organized as follows: Section I reviews the related literature review; Sections II and III discuss data and methodology; empirical results are presented in Section IV; and Section V completes the paper with a summary.

II. RELATED LITERATURE REVIEW

The literature includes other studies of the link between capital structure and premiums paid to target firms' shareholders. Jensen and Ruback (1983), show that shareholders of target firms gain from takeovers. Jarrell, Brickley, and Netter (1988) provide an overview of the evidence of shareholder gains in successful tender offers. Lewellen (1971) argues that bidders acquire firms with low leverage to benefit from their unused debt capacity. This model implies that value-maximizing bidders are willing to pay a higher premium for low leveraged targets. Consistent with this prediction, Kim and McConnell (1977) report that total debt in the merged firms is greater than what was used by the two independent firms.

Winslow, Lane, and Yang (1983), Hang and Walking (1987), Kaufman (1988), and Peterson and Peterson (1991) document a positive relationship between premiums paid to target firms' shareholders and the utilization of cash as the method of payment in an acquisition.

Walking and Edmister (1985) report a negative relationship between the three-year trend in the target's debt levels prior to the takeover announcement and the premiums paid by bidding firms. Examining debt levels instead of the trend in debt levels, Kaufman (1988) finds no relationship between premiums and the target's debt-to-equity ratio at the end of the year that precedes the announcement.

Israel (1991) suggests that the capital structure of the target firm affects the method bidders use to finance the acquisition. While bidders acquiring high leveraged targets tend to use stock as a medium of payment, those acquiring low leveraged targets tend to use cash. There is also evidence of some correlation between the medium of exchange and premiums paid to target firms. Wansley et al. (1983) and Peterson and Peterson (1991) report that, because of tax considerations, stock exchange is associated with low premium and cash exchange with high premium.

III. DATA

Our initial sample of tender offers is constructed from the *Mergers and Acquisitions* database on the *Securities Data Corporation (SDC)* tape during the period 1995-2005. To keep the tender offer in the sample, we use the following criteria:

1. The takeover target must be independent from the bidder. This criterion eliminates target firms in which the bidder might have had some bargaining power prior to the announcement of the takeover.
2. Both target and bidding firms must be publicly owned.
3. Both the target and bidding firms must have data on:
 - (a) The *COMPUSTAT Industrial Tapes* for leverage ratios for two years prior to the announcement date and
 - (b) The *Center for Research in Security Prices (CRSP)* tapes daily rates of returns from 120 days before the takeover announcement to 10 days after.
4. Both the target and the bidding firms must have data on management ownership at the end of the year prior to the announcement of the takeover. Management ownership data are obtained from Forms 3 and 4 filed with the SEC and from proxy statements filed with the SEC at the end of the year prior to the announcement date.
5. The method of payment must be either 100 percent cash or 100 percent stock. We use this condition to be able to control for the effect of the method of payment because evidence shows that premiums differ in cash versus stock acquisitions.

6. The target firm must have received only one tender offer bid to eliminate the impact of multiple bids on the premium and must not have had any other announcement from 120 days before the tender offer announcement to 10 days after.
7. The takeover offer must not be made by private groups that include target firm's management.

A sample of 190 target firms met the above conditions. A statistical description of the sample of target and bidding firms is presented in Table 1, Panels A and B. Data in Panel A indicate that the average of debt ratios for the sample of target firms increases slightly from 52.37 percent to 53.82 percent during the year, which precedes the announcement date. This increase is not significant. Panel B indicates that while the change in debt ratios in the entire sample of target firms is not significant, ninety-three firms have significantly increased their debt ratios and ninety-seven have significantly decreased their debt ratios. The difference between the average increase and the average decrease in debt ratios is statistically significant using both parametric and non-parametric tests. Table 3 shows that both target firms which increased their debt ratios and those which reduced their debt ratios end up having approximately equally leveraged. This finding is not consistent with the models of Stulz (1988) and Israel (1991) which predict an increase in target leverage during takeover contests. The capital structure of the bidding firm is essentially unchanged during this period. Data also show that target firms are significantly smaller than bidding firms and within the sample of target firms sizes are widely dispersed; management ownership in target firms is greater than that in bidding firms.

Table 1

Descriptive statistics of 190 targets and 190 bidders used in the study. **Debta-T** equals [(book value of total assets - book value of common equity) / book value of total assets] at the end of the Year T, (T = -2 and -1; where year 0 is the year in which the announcement occurs); **Asset** represents the book value of total assets at the end of the year that precedes the announcement date; and **Mnghol** represents the fraction of shares outstanding held by management at the end of the year that precedes the announcement date.

Panel A

Variable	Targets		Bidders	
	Mean	Standard Deviation	Mean	Stand. Deviation
Debta-2 %	52.37	18.35	56.80	17.36
Debta-1 %	53.82	18.39	56.67	17.59
Asset (millions)	589.53	1735.14	5912.20	14923
Mnghol %	31.36	30.67	13.16	20.17

Panel B

This table shows the number of target firms, which increased or reduced their debt ratios during the year that precedes the announcement date. It also displays the mean and the standard deviation of the change and the results of parametric and non-parametric tests of the difference between the two means.

Chdebta*	Number of targets	Mean	Standard Deviation	T and K statistics	Significance Level
Positive	93	0.07	0.12	8.20	0.001
Negative	97	-0.04	0.06	136.46	0.001

*Chdebta is equal to (Debta-1 - Debta-2);

Table 2 displays the average premiums paid by the bidder in excess of the stock price of the target on day t (t=-30,-15,-10,-1, and 0). The premium is calculated as follows: $(P_0 - P_t)/P_t$

Where, P_0 is the price per share offered by the bidding firm, and P_t is the market price per share of the target firm's common stock t trading days prior to the takeover announcement.⁴ Average premiums are high and are in line with those reported in the literature. Table 2 also shows that the cumulative average returns gained by target shareholders are significant.

⁴ Cumulative average excess returns are estimated using the standard event study methodology.

IV. METHOD OF ANALYSIS

We divide the sample of 190 firms into several groups based on 1) target firms' debt levels at year-end prior to the takeover announcement, 2) change in debt levels during the year that precedes announcement, 3) management ownership of target firms at year-end prior to the announcement, and 4) method of payment. To examine the differences among premiums in these groups⁵ we perform several t-tests and non-parametric Kruskal-Wallis tests.

To investigate the joint effects of those variables on the target premiums, an ordinary least square regression analysis is conducted using the following model:

$$\text{PREMIUM}_i = \lambda_0 + \lambda_j \theta_j \quad (j=1\dots n)$$

where, **Premium_i** is the premium paid to the *i*th target's shareholders, **θ_j** is a vector of independent variables representing proxies for target firm's capital structure (**Debt_a-1**), management ownership

(**Manghold**), opposition to the takeover offer (**Opposed**), method of payment (**Method**), and **λ_j** is the vector of coefficients.

V. EMPIRICAL RESULTS

A. Target Premiums and Cumulative Excess Returns

In this section, we examine target premiums and excess returns around the announcement day of the takeover. Several average premiums are calculated relative to the target's stock price on several days prior to the announcement date and are reported in Table 2. The data indicate that bidders paid significant premiums to targets' shareholders. For example, the average offer purchase price per share of the target firm is 36.22 percent higher than the market price per share ten days prior to the takeover announcement date. Because our sample consists of only successful takeovers, our results suggest that bidders offered a high premium to make sure the takeover would be successful. The interesting point is that the average premium over the market stock price on the announcement day is 24.93 percent. This result is consistent with the hypothesis that at the time of the announcement of the takeover offer the market views the eventual success of the tender offer with uncertainty.

Table 2

Average premium, $(P_o - P_t)/P_t$, paid to target shareholders in excess of the market stock price of the target firm, where P_o is the price per share offered by the bidding firm, and P_t is the market price per share of the target firm's common stock *t* trading days prior to the takeover announcement ($t=-30,-15,-10,-1$, and 0) and cumulative excess returns for the period day -30 to day 0 where, day 0 is the announcement day.

Day	Average Premium %	Period	CAR*
-30	44.90	(-30, -21)	-0.0031
-15	41.61	(-20, -11)	0.0100
-10	36.22	(-10, -6)	0.0136 ^a
-1	28.76	(-5, -2)	0.0173 ^a
0	24.93	(-1, 0)	0.0895 ^b

*Sample size = 190.

a Significant at the 1 percent level;

b Significant at the 0.01 percent level;

Results in table 2 also indicate that while our findings do not show any significant cumulative average excess returns from day -30 to day -11 for target shareholders, we report significant cumulative average excess returns from day -10 to day 0. During this eleven-day period, target firms' stockholders gain an average of 12.04 percent. These results are consistent with what has been reported elsewhere in the literature.⁶

⁵ We use non-parametric tests because in some cases distributions of variables deviate from normality.

⁶ For rigorous and excellent summaries of studies that examine target firms' excess returns see Jensen and Ruback (1983), and Jarrell et al. (1988).

B. Capital Structure and Premiums

The focus of the Stulz (1988) and Israel's (1991) models is on the change in the target firm's capital structure during takeover periods to extract high premiums from bidders. In this section, we investigate both the effect of the average change in target debt ratios during the year that precedes the announcement date of the takeover and the level of those ratios on the premiums paid by acquirers. Results in Table 1 (Panel A) indicate that for the whole sample, target firms on average do not significantly increase their leverage during the takeover contests. However, results in Panel B, show that 93 of the 190 target firms in our sample significantly increase their leverage and 97 firms reduced their leverage. We further investigate which of the targets did in fact increase and which did decrease their debt ratios during the year prior to the takeover announcement date. Our findings indicate that it is firms with relatively low debt ratios (mean = 45.07 percent) two years before the announcement date that add debt to their capital structure. Target firms that already had relatively high debt ratios (mean = 55.40 percent) either reduce or do not change their debt ratios.

Next, we investigate the extent to which both the change in target debt ratios and the level of target debt ratios are correlated with premiums paid by bidding firms. Our findings are presented in Table 3. As shown in Panel A, there is no significant difference between the average premiums of 37.87 percent paid to target firms that increased their debt ratios and that of 35.05 percent paid to target firms that either maintained or reduced their debt ratios. However, the results in Panel B show that the level of debt ratios in the year prior to the announcement of the tender offer is correlated with target premiums. We observe a significant difference between the average premiums of 43.17 percent paid to shareholders of the target firms in the high leverage group and the average premium of 29.83 percent paid to shareholders in the low leverage group.

These results suggest that the target premium is related only to the size of debt ratios immediately prior to the announcement and not the change in leverage. These results are consistent with that aspect of Stulz's (1988) model that implies a positive correlation between target firms' leverage and premiums. However, our results are inconsistent with that aspect of his model, which implies a positive correlation between the direction of the change in leverage and target premiums. In his model, Stulz (1988) does not mention what magnitude of the change in leverage is necessary to extract higher premiums. Our findings do not support Israel's (1991) hypothesis of a negative correlation between the level of target debt ratios and premiums. Furthermore, these findings are inconsistent with the findings of Walking and Edmister (1985) and Kaufman (1988).

C. Capital structure, Management Opposition, and Premiums

Harris and Raviv (1988) and Stulz (1988) argue that during takeover periods target's management increases its proportional ownership and voting power to either defeat the takeover attempt or extract higher premiums from the bidders. We expect to find that target firms with high management ownership receive higher premiums than those with low management ownership. In addition, because all tender offers in our sample are successful, we expect to observe a positive relationship between opposition to the takeover and premiums. Opposition was not intended to defeat the offer but to extract higher premiums.

Data in Table 4 show that of the sample of 190 target firms, 94 target firms had debt ratios higher than the median (55.58%) at the end of the year prior to the announcement date. Only 49 of these firms opposed the takeover. However, only 27 out of 96 target firms with low leverage ($\leq 55.58\%$) opposed the offer. This observation suggests that the size of the target debt ratios and target management opposition to tender offers are not related. In this section, we control for the size of target debt ratios and examine the effect of management opposition on the premiums.

Our results, displayed in Table 4, show that of the 94 target firms in the high leverage sample, 49 firms oppose the tender offer and 45 firms do not. The shareholders of targets that opposed the tender offer received an average premium of 53.69 percent while those of targets which did not oppose the tender offer received an average premium of 31.47 percent; a difference of 22.22 percent which is significantly different from zero. However, the average premium of 33.01 percent paid to those target firms in the low leverage group that opposed the tender offer is not significantly different from the 28.7 percent paid to those in that group that did not oppose the tender offer.

Table 3

Parametric and non-parametric tests of the significance of average premiums paid to target shareholders controlling for the change in the debt ratios of target firms (**Chdebta**) during the year that precedes the announcement date (**Panel A**) and for the level of the debt ratios (**Debta-1**) at year-end prior to the takeover announcement date (**Panel B**).

Panel A

Premium					
Chdebta	N	Mean %	Standard Deviation%	T and K Statistics	Significance Level
Positive	93	37.87	29.35	T = 0.661	0.51
Negative	97	35.05	29.77	K = 0.197	0.66

Panel B

Premium					
Debta-1	N	Mean %	Standard Deviation%	T and K Statistics	Significance Level
> 55.58%	94	43.17	31.49	T = 3.20	0.002
<=55.58%	96	29.83	25.06	K = 6.78	0.010

Premium is the [price per share paid to target's stockholders divided by the price of the target's share ten business days before the announcement date] - 1.

Chdebta is equal to (**Debta-1 - Debta-2**); where **Debta-1** equals [(book value of total assets - book value of common equity) divided by book value of total assets] at the end of the year that precedes the announcement date. **Debta-2** equals [(book value of total assets - book value of common equity) divided by book value of total assets] at the end of the second year that precedes the announcement date.

Note: the median of **Debta-1** (55.58 percent) is used as a cut-off point.

Table 4

Parametric and non-parametric tests of the significance of average premiums paid to target shareholders controlling for the level of the target firm debt ratios (**Debta-1**) at year-end prior to the takeover announcement date and for whether the takeover attempt was opposed or not.

	Debta-1 > 55.58%		Debta-1 <= 55.58%	
	Opposed N = 49	Unopposed N = 45	Opposed N = 27	Unopposed N = 69
Debta-1				
Mean %	68.45	65.50	40.74	39.46
SD %	8.75	10.11	9.38	11.01
Premium				
Mean %	53.69 ^{a,b}	31.47 ^a	33.01 ^b	28.70
SD %	33.13	21.16	28.86	23.33

N is the sample size. SD is the standard deviation.

Debta-1 equals [(book value of total assets - book value of common equity) divided by book value of total assets] at the end of the year that precedes the announcement date.

Premium is the [price per share paid to target's stockholders divided by the price of the target's share ten business days before the announcement date] - 1.

a For the high leveraged sample, the average premium paid to targets which oppose the takeover is significantly different from the average premium paid to targets which do not oppose the takeover at the 0.0001 level (t=5.34). Using a non-parametric Kruskal-Wallis test, K = 26.82; Significance level = 0.0001.

b For the sample of opposed tender offers, the average premium paid to targets which have high leverage is significantly different from the average premium paid to targets which have low leverage at the 0.05 level (t=2.20). Using a non-parametric Kruskal-Wallis test, K = 2.91; Significance level = 0.10.

Target firms in the high leverage sample that contest the tender offer receive a premium of 53.69%, while target firms that contest the tender offer in the low leverage sample receive a premium of 33.01%. This difference of 20.68% is significantly different from zero at the 0.01 level. These findings suggest that neither opposition nor high leverage alone explains the high premiums, but that it is the combined effect of both opposition and high leverage that has a significant effect on premiums. These results support the models of Stulz (1988) and Harris and Raviv (1988) which imply that debt is not an effective means to extract high premiums from bidders unless it is used in conjunction with management's opposition to the tender offer. The results are inconsistent with Israel's (1991) model in which opposition plays no role

and only capital structure affects the size of the premiums through its effects on the profitability of the acquisition to the acquiring firm.

D. Management Ownership, Capital Structure and Premiums

Stulz (1988) and Harris and Raviv (1988) argue that high management ownership in target firms implies that bidders would have to pay high premiums for the bid to be successful. These models contrast with Israel's (1991) model in which only leverage and not management ownership affects target premiums. In this section, we explore the joint effects of both managerial ownership and leverage on target premiums. To examine these effects, the total sample is first divided into two subsamples based on the level of management ownership. The median management ownership of 0.181 is used as the cut-off point and two subsamples of 95 firms each are constructed. These subsamples are further divided into two groups based on debt levels in the year that precedes the takeover announcement.

The results of this analysis are presented in Table 5. First, the average premium of 35.24 percent paid to those firms with high management ownership (Panel A) is not significantly different the 37.61 percent paid to target firms with low management ownership (Panel B). Thus, management ownership alone is not sufficient to distinguish between premiums paid by bidding firms. However, when management ownership is combined with leverage the effect on premiums become significant. When management ownership is high, as displayed in Panel A, our findings show that there is a significant difference between the average premium of 42.66 percent paid to target firms with high debt ratios and the 27.64 percent paid to firms with low debt ratios. On the other hand, when management ownership is low, as displayed in Panel B, the difference in target premiums is not significant.

These results indicate that the addition of a proxy for managerial ownership adds insight into the association between capital structure and target premiums. When managerial ownership is low, the impact of leverage on target premiums is less clear than when management ownership is high. These results are consistent with the implications of the Stulz (1988) and Harris and Raviv (1988) models in which capital structure is associated with management's ability to use its control to increase bargaining power and extract higher premiums from bidders. These results suggest that unless changes in debt are accompanied by greater management ownership, the effects on premiums of changes in leverage are not significant. These results are not consistent with implications of Israel's (1991) model in which management ownership is not important and a negative relationship between debt levels and target premiums is predicted.

Table 5

Parametric and non-parametric tests of the significance of average premiums paid to target shareholders controlling for management ownership in targets and for the level of the target firm debt ratios (**Debta-1**) at year-end prior to the takeover announcement date.

Panel A (management equity ownership > median = 18.1%)

Premium					
Debta-1 %	N	Mean %	Standard Deviation%	T and K Statistics	Significance Level
> 54.25	48	42.66	27.67	2.67	0.009
<= 54.25	47	27.64	23.62	8.97	0.003
Total	95	35.24	26.61 ^a		

Panel B (Management equity ownership <= median = 18.1%)

Premium					
Debta-1	N	Mean %	Standard Deviation%	T and K Statistics	Significance Level
> 55.81%	46	41.70	34.61	1.42	0.16
<= 55.81%	49	33.78	27.32		0.61
Total	95	37.61	29.17 ^a		

Note: to create two sub-samples we use the median of management equity ownership of 18.1 percent as a cut-off point.

Premium is the [price per share paid to target's stockholders divided by the price of the target's share ten business days before the announcement date] - 1.

Debta-1 equals [(book value of total assets - book value of common equity) divided by book value of total assets] at the end of the year that precedes the announcement date.

a For the high management ownership sample, the average premium paid to targets is 35.24 percent is not significantly different from the average premium paid to targets with low management ownership.

E. Method of Payment, Leverage Level, and Premium Size

Because of the interrelationship between the medium of exchange, capital structure and the premium paid to target firm, we investigate their joint effects on target premiums.

Our results, presented in Tables 6 and 7, indicate no significant relationship between leverage and the method of payment (Panel A). In cash takeovers, the debt ratios (mean=0.5403) are not significantly different from those in stock takeovers (mean=0.5314). Moreover, the premiums paid to shareholders of target firms in cash transactions (mean =0.3733) is not significantly different from the premium (mean =0.3350) paid to target shareholders in stock transactions.

Table 6

Parametric and non-parametric tests of the significance of the relationship between the method of payment and the level of debt ratio (**Debta-1**) in the acquired firm.

Debta-1					
Method of Payment	N	Mean %	Standard Deviation%	T and K Statistics	Significance Level
Cash	146	54.03	17.76	0.21	0.84
Stock	44	53.14	27.00	1.087	0.30

Table 7

Parametric and non-parametric tests of the significance of average premiums paid to target shareholders controlling for the method of payment cash or stock.

Premium					
Method of Payment	N	Mean %	Standard Deviation%	T and K Statistics	Significance Level
Cash	146	37.33	28.98	0.76	0.45
Stock	44	33.50	29.55	1.06	0.30

Premium is the [price per share paid to target's stockholders divided by the price of the target's share ten business days before the announcement date] - 1.

Debta-1 equals [(book value of total assets - book value of common equity) divided by book value of total assets] at the end of the year that precedes the announcement date.

However, we report in Table 8 that high leverage is associated with high premiums in both cash and stock transactions. These findings are inconsistent with those of Wansley et.al. (1983) and Peterson and Peterson (1991).

Table 8

Parametric and non-parametric tests of the significance of average premiums paid to target shareholders controlling for the method of payment and leverage.

Panel A (method of payment is cash) size is 146

Premium					
Debta-1 %	N	Mean %	Standard Deviation%	T and K Statistics	Significance Level
< 55.38	74	31.88	23.89	2.30	0.023
>=55.38	72	42.94	32.65	4.62	0.031

Panel B (method of payment is stock) size is 44

Premium					
Debta-1 %	N	Mean %	Standard Deviation%	T and K Statistics	Significance Level
< 55.44	22	23.10	28.07	2.47	0.018
>=55.44	22	43.90	27.80	4.48	0.04

Note: the median of **Debta-1** is 55.38 percent when cash is used as the method of payment and 55.44 percent when stock is used. The median is used as a cut-off point to create the subsamples.

Premium is the [price per share paid to target's stockholders divided by the price of the target's share ten business days before the announcement date] - 1.

Debta-1 equals [(book value of total assets - book value of common equity) divided by book value of total assets] at the end of the year that precedes the announcement date.

F. Cross-Sectional Analysis

To investigate the joint effects of several variables hypothesized to affect target premiums, the following two ordinary least square regressions are performed:

$$Premium_i = \alpha + \beta_1 Debta - 1 + \beta_2 Mnghol + \varepsilon_i$$

and

$$Premium_i = \alpha + \beta_1 Debta - 1 + \beta_2 [Debta - 1 * Opposed] + \beta_3 Mnghol + \beta_4 [Mnghol * Opposed] + \beta_5 Meth + \varepsilon_i$$

where *Debta-1* is the debt ratio of the target firm in the year preceding the year in which the tender offer is announced; *Debta-1*Opposed* is an interaction variable between leverage and whether or not the tender offer is opposed. *Opposed* takes the value of 1 if the takeover is contested and 0 otherwise; *Mnghol* is the fraction of common shares outstanding owned by management at the year-end prior to the announcement; *Mnghol*Opposed* is an interaction variable between management ownership and opposition to the tender offer; and *Meth* is the method of payment used in the acquisition (*Meth* = 1 for stock and *Meth* = 0 for cash).

The results of our cross-sectional analysis are presented in Table 9. The first regression model is significant the 0.0014 level (F=4.158) with an R² of 11% (adjusted R²=9%). Both target leverage and management ownership do not significantly affect the level of target premiums. However, in the second regression model, which is significant the 0.0004 level (F=7.37) with an R² of 17.14 % (adjusted R²=14.82%), the only significant variable affecting target premiums is the interaction between leverage and opposition. It has a coefficient of 0.33 which is significant at the .02 level (t=2.39). This result is consistent with the predictions of the Stulz (1988) model. Moreover, this result is consistent with the results of our univariate test in Table 4. Our finding that the method of payment and management ownership is not significant is consistent with the results of our univariate analysis.

Table 9

Results of an ordinary least square regression using the following model:

$$Premium_i = \lambda_0 + \lambda_j \theta_j \quad (j=1...n)$$

Where, *Premium_i* is the premium paid to the *i*th target’s shareholders, *θ_j* is a vector of independent variables representing proxies for target firm’s capital structure (*Debta-1*), target management ownership (*Mnghol*), opposition to the takeover offer (*Opposed*), method of payment (*Meth*), and *λ_j* is the vector of coefficients.

Variable	1 st regression		2 nd regression	
	Coefficients	t-statistic	Coefficients	t-statistic
Intercept	0.38	4.09 ^a	0.290	3.81 ^a
Debta-1	0.18	1.07	0.034	0.26
Mnghol	-0.17	-0.94	0.015	0.20
Debta-1*Opposed			0.330	2.39 ^b
Mnghol*Opposed			-0.043	-0.28
Meth			-0.040	-0.79

Sample Size = 190

Sample Size = 190

Model R² = 11 percent
 Model adjusted R² = 9 percent
 Model F-statistic = 4.16
 Prob > F = .0014

Model R² = 17.14 percent
 Model adjusted R² = 14.82 percent
 Model F-statistic = 7.37
 Prob > F = 0.0001

Debta-1 equals [(book value of total assets - book value of common equity) divided by book value of total assets] at the end of the year that precedes the announcement date; **Premium** is the [price per share paid to target's stockholders divided by the price of the target's share ten business days before the announcement date] – 1; and **Opposed** is a proxy variable which is equal to 1 if the takeover offer is opposed or 0 otherwise.

a Significant at the 0.001 level.

b Significant at the 0.02 level.

VI. SUMMARY

Stulz (1988) and Israel (1991) develop models of managerial capital structure decisions in the market for corporate control. Stulz's model implies a positive relationship between target firms' debt ratios and the premiums they receive from bidders. Israel's model suggests the opposite. The purpose of this paper is to empirically explore this relationship. Our study is done on a sample of 190 firms that were takeover targets during the period 1995-2005. The results suggest the following:

1. High premiums are associated with high leverage ratios. High leveraged target firms' shareholders receive, on average, 13.34 percent more premium than stockholders of low leveraged target firms. The mere increase in the debt ratios in the target firms' capital structure is not associated with high premiums unless that increase is large and subsequently results in a high level of debt ratios.
2. Controlling for leverage, target firms which have high leverage and oppose the takeover receive significantly larger premiums than those with high leverage but do not oppose the takeover.
3. Controlling for the size of managerial ownership in target firms, the association between leverage and premiums becomes more significant when managerial ownership is high and less significant when it is low.

In summary, our results support the Stulz (1988) model of a positive correlation between target firms' leverage ratios and premiums paid by bidders in the market for corporate control. Our results are inconsistent with Israel's (1991) model.

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