SHAREHOLDER WEALTH MAXIMIZATION UNDER LEVERAGED BUYOUTS

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ABSTRACT

This paper examines the possible excess returns to stockholders arising from leveraged buyout transactions in an effort to determine whether or not such transactions are consistent with shareholder wealth maximization. In addition, the excess returns generated through leveraged buyouts are compared to those associated with typical, non-leveraged acquisitions. The implications of these comparisons are discussed with a special emphasis on the impact of leveraged buyouts upon investors' wealth. The major finding of this study is that shareholder wealth is increased, but not necessarily maximized, under leveraged buyouts.

I. INTRODUCTION

The general level of merger activity in the U.S. has grown substantially during the past decade. As a part of this trend, the leveraged buyout has become an increasingly popular acquisition method of the 1980's. The two unique features distinguishing leveraged buyouts from other acquisitions are: 1) existing management usually "buys out" other stockholders in the process of taking the company private and 2) the purchase is financed almost entirely with debt.

The increasing trend in acquisition activity has given rise to substantial discussion and research. One area of investigation has focused on the gains or losses accruing to shareholders of the acquired firms. Previous research has addressed this question within the context of the non-leveraged acquisition. The studies by Dodd and Ruback [5], Jarrell and Bradley [8], Dodd [4], Eckbo [6], Asquith [1], and Asquith, Bruner and Mullins [2] which examined the effect of mergers on the acquired firms have found that the shareholders of these target firms have earned significantly above market returns. These results appear to support the contention

that non-leveraged acquisitions do serve to maximize shareholder wealth.

By contrast, there is reason to suspect that the leveraged buyout may not be consistent with this goal of the firm. As Brigham [3] points out, management interests would best be served by pursuing a policy of trying to minimize rather than maximize stock price prior to the offer. This would maximize management's post-buyout returns, and given management's control over the firm and the release of new information, pursuit of such policy seems quite feasible.

This study addresses this potential agency problem of shareholder wealth maximization (or minimization) under leveraged buyouts. Shareholder wealth is measured in terms of the abnormal gains accruing to the shareholders of the acquired firms. The key question, then, is whether or not investors in firms acquired under leveraged buyouts realize lesser gains than shareholders of firms acquired under traditional methods. To answer this question, two groups of acquired firms are considered: Group 1 consists of leveraged buyouts

and Group 2 is comprised of traditional or non-leveraged acquisitions. The analyses are performed in the following manner: (1) the gains or losses to these two groups are analyzed and (2) the gains or losses accruing to Group 1 are compared to those of Group 2 to test for significant differences in shareholder wealth due to the leveraged buyout.

The organization of this paper is as follows. Following this introduction, Section II describes the sampling procedures and identifies the sources of data. Section III describes our statistical methodology. Section IV reports the empirical results pertaining to the impact of leveraged buyouts and non-leveraged acquisitions in generating excess returns to shareholders of the sampled firms. Finally, Section V offers a brief summary and concluding comments regarding the wealth status of investors under leveraged buyouts.

II DATA

The time period selected for this study is from 1982 to 1984. This period is selected primarily because most leveraged buyout transactions have occurred during this period. Acquired firms and acquisition terms are identified from the *Mergers and Acquisitions Rosters*. The announcement dates, the monthly price, and dividend data are collected from the *Wall Street Journal*. This source is also used to confirm the acquisition terms. The raw data are collected during a period of 66 months prior, up to one month after the announcement date. The market returns, using the Standard & Poors 500 Monthly Average as a proxy, are also gathered from the *Wall Street Journal*.

Because of the limited number of firms in Group 2 (as compared to Group 1), an attempt is made to include the entire population of leveraged buyouts. In addition, a stratified sampling technique is employed in the sample selec-

tion procedure. This ensures a reduction in sampling error and systematic bias arising from the limited population of leveraged buyouts. This procedure involves pairing acquisitions on the basis of similar asset size, industry (same two digit SIC code), and method of payment (only cash offers). The choices of asset size, industry, and method of payment for the matching process are justifiable on the grounds that these factors affect such variables as rate of return, growth rate, profitability, and size of premium. Within the scope of these restrictions, a total of 60 acquired firms, with 30 in each group, qualify for the analysis.

III METHODOLOGY

The abnormal returns are analyzed using the average residuals and cumulative average residuals which are calculated from estimating the parameters of the market model. The model is:

$$R(jt) = a(j) + b(j)R(mt) + e(jt);$$

Where $R(jt)$ is the monthly rate of return on security j in event month t , $R(mt)$ is the monthly rate of return on the Standard & Poors 500 for the calendar month which corresponds to the event month for a particular security, $a(j)$ and $b(j)$ are parameters to be estimated using OLS regression, and $e(jt)$ is a random disturbance term for security j in period t .

The announcement month is the month the information about the acquisition first appears in the *Wall Street Journal*. This month is assigned a value of zero. Months prior to the announcement are negative and the months after are positive. Monthly data up to six months prior to the announcement month of the acquisition ($t = -66$ to $t = -7$) are used to calculate the regression parameters. These parameters are then used to calculate the abnormal residual (AR) on a security j at time t . Abnormal residual is defined as:

$$AR(jt) = R(jt) - [a(j) + b(j)R(mt)]$$

The abnormal residuals are then averaged across all securities (for each group of firms) for each month up to one month after the announcement date. These average residuals then are cumulated for the entire event period. The significance of the average abnormal residual (AAR) in any month and the significance of the cumulative average residual (CAR) through any month are tested by a standard t-statistic. In addition, a pairwise t-test is applied on the A.A.R.'s to determine whether the abnormal gains or losses to the shareholders of leveraged buyouts are significantly different from those of non-leveraged acquisitions.

IV RESULTS

The A.A.R.'s and C.A.R.'s distributions for both groups of acquired firms are reported in Table 1.

For the event period (-6 to +1), the leveraged buyout group realizes 21.03 percent excess return compared to 43.30 percent for the non-leveraged group. These two rates are significantly different from zero at the .001 level. The total gains of 43.30 percent found in this study for the sample of firms acquired through non-leveraged cash acquisitions are consistent with those reported by previous studies. Elgers and Clark [7] find a cumulative abnormal return of 42.60 percent for the 24 months surrounding the announcement date. Using daily returns, Wansley, Lane, and Yang [9] report a lower CAR of 33.54 percent for a period of 80 days surrounding the announcement.

Furthermore, the results show different patterns of abnormal returns over the event period for both groups of acquired firms. The non-leveraged group realizes 39.03 percent of their total abnormal gains in the announce-

TABLE 1

Average Residuals and Cumulative Average Residuals for Acquired Firms Engaged in the Leveraged and Non-Leveraged Acquisitions

Event Month	Leveraged, Group 1		Non-Leveraged, Group 2	
	Average Residuals	C.A.R.	Average Residuals	C.A.R.
- 6	-0.0017	-.0017	-0.0078	-.0078
- 5	0.0406	.0389	0.0455	.0377
- 4	0.0024	.0413	-0.0137	.0240
- 3	-0.0095	.0318	0.0487	.0727
- 2	-0.0123	.0195	0.0645	.1372
- 1	0.0209	.0404	0.0986	.2358
0	0.1594	.1998	0.1690	.4048
+1	0.0305	.2303	0.0282	.4330

ment month itself, relative to 66.29 percent which is realized by the leveraged buyout group during the same month. This suggests that, even though some information regarding acquisition starts leaking out before the announcement month, the stockholders involved in a prospective leveraged buyout remain basically uninformed regarding management's intentions almost until the actual offer is announced.

In the second stage of analysis, a pairwise t-test is applied to the AAR's to determine whether the excess returns for the non-leveraged acquisition group are significantly different from those of the leveraged buyout firms. The results are reported in Table 2.

Over the event period, the pairwise test produces a t-statistic of 2.05 which is significant at the .05 level. This indicates that the non-leveraged group realizes significantly higher excess returns due to the acquisition announcement.

V SUMMARY & CONCLUSIONS

The gains to shareholders of firms

acquired through both leveraged and non-leveraged methods are significant because of the abnormal returns found from six months prior, up to one month after the announcement date. Although the gains start to accumulate six months prior to the announcement, the major portion of these gains are realized in the announcement month itself. These findings are consistent with those of previous acquisition studies which found significant abnormal gains to stockholders of firms acquired through traditional mergers. Furthermore, this study reports that significant abnormal gains to investors also arise when the firm is being acquired through a leveraged buyout. Thus, shareholder wealth is increased under leveraged buyout agreements, as well.

In addition, this study compares the gains to the shareholders of firms acquired through non-leveraged acquisitions and leveraged buyouts. The major finding is that the stockholders of firms engaged in non-leveraged acquisitions earned significantly higher abnormal returns than their counterparts involved in leveraged buyouts, during the event period.

TABLE 2

The Results of Pairwise Tests:
Leveraged Buyout Group Versus Non-Leveraged Group

	Mean	Mean Difference	Standard Error	t-Statistic
Leveraged Buyout Group	.0288			
		.0253	.0121	2.05*
Non-Leveraged Group	.0541			

* significant at .05 level.

This finding can be explained within the context of the agency problem discussed in the introduction. Management, in taking a company private through a leveraged buyout, prefers not to maximize shareholder wealth prior to the actual offer. Such non-maximizing behavior will clearly increase management's own post-acquisition returns as they take the firm private at a bargain price. Since management has control over the firm and the release of information, the non-maximization of shareholder wealth would seem to be a likely management objective prior to a leveraged buyout proposal. Less information leakage is indicated by the lower excess returns in months prior to the acquisition announcement for the leveraged group compared to the non-leveraged group. This precludes a substantial run-up in the stock price before the proposal.

While management may not maximize shareholder wealth prior to the offer, the evidence presented here also shows

that management does not minimize shareholder wealth, either. The abnormal gains realized by investors in firms acquired through leveraged buyouts are significant. Given a competitive market for corporate control, management involved in a leveraged buyout must offer a premium of sufficient magnitude to ensure the success of their takeover bid. Otherwise, outside interests may attempt to gain control of the corporation through a more competitive bid of their own.

From the investors' perspective, the announcement of a leveraged buyout must come as a mixed blessing. It generally means that shareholders will benefit as management takes the company private. Based on the results of this study, however, these benefits in the form of excess returns would be more than doubled if the firm were to be acquired through a typical or non-leveraged acquisition. Thus leveraged buyouts increase, but do not maximize, shareholder wealth.

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