

Pre-Buyout Bondholders' Reaction to Leveraged Buyouts

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ABSTRACT

In this paper the authors study the impact of leveraged buyouts on pre-buyout bondholders' wealth. The paper analyses the bondholders' excess returns over a period 12 months prior to and 12 months after the effective date of the leveraged buyouts. The results indicate that bondholders experience significant increase in yields (prices drop) four to twelve months after the effective date. The results also indicate that bondholders react rather slowly to leveraged buyouts. Bondholders have high expectation about future benefits at the time of the leveraged buyouts and hence they do not react immediately. But after four to six months when the expectations do not materialize the bond yields rise significantly.

INTRODUCTION

The structure of Corporate America has been undergoing dramatic changes due to the phenomenal growth in mergers and acquisitions (M&A). In addition, a new form of corporate restructuring, commonly known as the "Leveraged Buyout" (LBO) has been transforming traditional concepts in corporate finance theory, particularly regarding risk and the existence of an optimal capital structure. These developments did not take the financial theorists by surprise. In fact, it appeared that these were prophetic changes that would vindicate Modigliani and Miller's (1958, 1959, 1963) controversial notion regarding the non-existence of an optimal capital structure.

While some economists in academia such as DeAngelo, DeAngelo and Rice (1984), DeAngelo and DeAngelo (1987), Jensen (1984, 1987, 1988), and Jarrell, Brickley and Netter (1988) endorse these new developments, the popular press characterizes them as scourge on American industry. According to Shleifer and Vishny, "a wealth of evidence suggests that managers often take actions that dramatically reduce the value of the firm." (Shleifer and Vishny (1988) p.8). But, LBOs force managers to actively seek value maximization. While the argument can be made that mergers and acquisitions are beneficial because of purported synergistic benefits and economies of scale, these benefits do not seem to pertain to LBOs, since there is no real

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change on the asset side of the balance sheet in the short-term.¹ The change is mainly in the financial structure of the corporation - the debt-equity ratio. It may well be that the prime objective of an LBO is to take a company out of the public investment domain and thus avoid the market discipline. Shares of the LBO companies are closely held thereby escaping public scrutiny. Although there is a well developed literature on mergers and acquisitions, there is no systematic body of theory on LBOs. Perhaps this is due to the short history of LBOs. For the same reason, it may be premature to come to any conclusions regarding the long-term economic benefits of LBOs or the viability of highly leveraged firms during mild to moderate recessionary periods. However, the increase in the number of such LBOs (from 13 in 1982 to 318 in 1988) with a corresponding increase in dollar value (from \$2,000 million in 1982 to \$42,914 million in 1988)² necessitates careful study of this new form of corporate finance structure.

Debt per se has no inherent stigma in corporate finance, but the wisdom of having a high debt-equity ratio is questionable. A 10:1 ratio of debt to equity (observed in large leveraged buyout such as RJR-Nabisco) has wide economic implications in terms of stability of financial markets and institutions. Miller (1991) argues that there are no inherent dangers of having high leverage on the economy.³ Still the default rates of high yield bonds are much higher than originally expected [Altman and Nammacher (1985), Altman (1989) Asquith, Mullins and Wolff (1989)]. The recent rash of defaults (e.g., Integrated Resources, Southmark Corp, Southland, and Campeau Corporation) as well as the recent steep drop in bond values of leveraged buyout companies suggest that these studies might have under-estimated the default rates. Clearly, if the expected benefits of leveraged buyouts outweigh or offset the increased risk associated with the high leverage, then the bondholders should not experience significant negative returns. This lead us to explore a possible explanation for the observed bond returns in leveraged buyouts.

Previous studies, such as those of Dennis and McConnell (1986), Marias, Schipper and Smith (1989) and Cornett and Travlos (1989), that conclude that bondholders do not suffer negative returns in leveraged buyouts are based on relatively narrow windows surrounding the event date.⁴ The present study expands on these previous studies by analyzing the bondholders returns in LBOs over a longer time span.

In this paper, we study whether leveraged buyouts have any significant effect on bondholders' wealth within a year after the effective date of the leveraged buyout. The paper is organized as follows: Section I discusses theories and empirical results of some relevant studies regarding the effects of certain financial decisions on bondholders returns. In Section II the data and the methodology are presented. The analysis and the results of the study are presented in Section III and the summary and conclusions are found in Section IV.

SECTION I

Review of the Literature

The spate of leveraged buyouts and the corresponding increase in the use of junk bonds used to finance these buyouts are presented in Table I. It has been extensively documented that target company shareholders realize vast premium for their shares in leveraged buyouts, mergers, takeovers and debt-for-equity offers. There is considerable disagreement as to the source of this gain. For example, Jensen and Ruback (1983) conclude that “knowledge of the source of takeover gains still eludes us.” (Jensen and Ruback (1983), p. 47).

Over the past two decades the premium on shares in takeovers has increased from 19 percent in the 1960s to more than 50 percent in the late 80s. This benefit accrues mainly to shareholders of target companies. [See Jensen and Ruback (1983), Lehn and Poulsen (1987)]. Moreover, there is notable disagreement as to whether these corporate takeovers benefit the bondholders of target companies as well as the acquiring companies and/or the equityholders of the acquiring companies. While Jensen and Ruback (1983) argue that shareholders and bondholders of bidding firms don't lose, Roll (1986) contends that they do. Proponents of mergers and acquisitions and leveraged buyouts suggest that shareholders benefit without loss to bondholders [see Jensen (1983, 1987, 1988), Asquith 1983, Asquith and Kim (1982), Jarrell, Brickley, and Netter (1988), Shleifer and Vishny (1988)]. Others posit that the equityholders gain is at the expense of employees, consumers and bondholders of both target and acquiring companies [Scherer (1988), Shleifer and Summers (1987)]. Asquith and Wizman (1990) studied the effect of leveraged buyouts on pre-buyout bondholders' wealth and conclude that buyouts on average, decrease pre-buyout bondholder's wealth and the loss suffered by bondholders, however, represents only a small fraction of the gain realized by equityholders of the target company and these losses are not an important motivation in buyouts. Warga and Welch (1990) work also addresses the same question. Some even argue that there is a positive effect of increased debt on corporate viability. Jensen (1986), for example, argues that debt will promote corporate efficiency and motivate management to be effective and alert and prevent firms from wasting resources on low-return projects. Further he suggests that interest payments are good substitutes for dividends. The increased leverage will ultimately result in more efficient organization in the future.

Dennis and McConnell (1986) find that mergers result in benefits to equityholders in takeovers without loss to bondholders of either the acquiring or the target firm, but do not deny the possibility that bondholders of acquiring firms lose if the perceived default risk rises. Similar conclusions were also reached by Jarrell, Brickley and Netter (1988).

Numerous studies have focused on changes in bondholders' wealth under various financial restructuring plans. In their study on leveraged buyouts,

DeAngelo and DeAngelo (1987) report that, through 1982, borrowing for leveraged buyouts averaged 86 percent of capitalization. The reason for the high borrowing, the authors explain, is that bondholders are protected by debt covenants, by common stock warrants and by substantial equity ownership. Similar conclusions are reported by Marias, Schipper and Smith (1989).

While different hypotheses have been proposed as to the source of shareholders' gains, only Wealth Redistribution hypothesis suggests that the gains accruing to equityholders are at the expense of bondholders. Number of hypotheses are proposed to explain the source of this gain. The hypotheses range from the free cash flow and agency costs [Jensen (1986) Jensen and Meckling (1976)] to tax shield [Kaplan (1989)], to information effect and to wealth redistribution.

Although numerous studies have tested the four hypotheses outlined above as to their effect on bondholders' wealth, we are unaware of any studies that limited the analysis solely to the effects of leveraged buyouts on existing non-convertible bondholders' returns.⁵ If bonds of the leveraged buyouts are adequately protected by covenants then the bondholders do not have to worry about leveraged buyouts. If the bonds are not protected by suitable covenants than bondholders' gains are inversely related to leverage [Settle, Petry and Hsia (1984)]. In leveraged buyouts the debt ratio rises dramatically and bondholders are generally unprotected.

Cornett and Travlos (1989) studied the effects of pure exchange offers of debt-for-equity and equity-for-debt on stock returns and bond returns. Their findings reject the wealth transfer hypothesis and support the information-effect hypothesis. While stocks enjoy significant positive returns in debt-for-equity offers and negative returns in equity-for-debt offers, the results (shown in Cornett and Travlos (1989) Table IV, p. 462) do not provide conclusive proof that bondholders experience positive returns. According to the reported returns for straight bonds used in debt-for-equity offers, bondholders experienced positive returns only on day $t + 1$, and negative returns from day $t+2$ to $t+5$. Asquith and Kim (1982) also analyzed bondholders' returns in mergers. They find from the study of 62 bonds that bondholders' returns are correlated with stockholders' returns.⁶

SECTION II

Data and Methodology

Earlier studies on the effect of leveraged buyouts on senior securityholders used control groups or control periods to test various hypotheses. This was done, for example, by matching bonds of merged and non-merged firms or by testing means and variances in yields during the test periods. The use of such methodology may not be possible for studying leveraged buyouts for several reasons. First, there are no comparable publicly traded firms with levels of debt found in leveraged buyouts other than firms in bankruptcy which present an obvious problem. Second, if the increase in debt were to change the financial stability of the firm, then no post-LBO control period exists because either the bondholders' position would continue to deteriorate

or it would improve. Since it is expected to change, there is no stable control period. Consequently, we base our analysis on the assumption that the yield to maturity of a leveraged firm's bonds would vary in a consistent fashion around the yield to maturity of a comparable Treasury bond. If a firm's bond yield, for example, is three percentage points higher than a comparable Treasury bond yield, then, unless there was some change in the firm's risk, the corporate bond yield should move with the yield on the Treasury bond. An advantage of this approach, we find, is that any shifts in the yield curve are also reflected in the yields of LBO bonds and the difference may represent, *ceteris paribus*, pure default risk premium. We recognize that this methodology is not perfect. We have therefore sought confirmation of negative yields from other sources: changes in bond ratings, average term adjusted residuals and significance in means and variances of bond yields.

Data

The following criteria were used to select the firms for inclusion in the sample:

1. All companies were selected from *Mergers & Acquisitions'* "Top 25 Transactions" of the quarter and were identified by *Mergers & Acquisitions'* as an LBO;
2. The effective date of the Leveraged Buyout occurred between January 1, 1983 and December 31, 1987;
3. The company had publicly traded non-convertible debt outstanding from a minimum of 12 months before the buyout to 12 months after the effective buyout date; and
4. The company's bonds are not guaranteed or defeased subsequent to the Leveraged Buyout, so that the effect of covenants or guarantees can be eliminated. Bonds which are guaranteed or protected by covenants may not react to leveraged buyouts since the bondholders will be indifferent to the event. The third and fourth criteria were included to ensure that the bonds being studied were not issued in conjunction with the leveraged buyouts and to ensure that special guarantees would not change the default risk of the bonds and thus distort our findings.

Of the 73 leveraged buyouts of public corporations that occurred in that five-year period, only 20 met all the criteria (a list of sample firms is given in Appendix I). The bond ratings of the firms were evenly split between A or better to BBB or worse. The event date (t_0) for this study was the data that the buyout became effective or the consummation date. In fact, there are a number of possible choices for the event dates which were used in different studies ⁷. The consummation date is the official date of the buyout and can be cited with certainty. It can be expected that bondholders will begin to react, if they react, sometime prior to this date. Our study examined yields beginning 12 months, wherever possible, prior to the effective date of the buyout. Bondholders' reaction around the announcement date would be

included in the period studied.

The dates of the first public notice and the announcement were obtained from the *Wall Street Journal*. The effective date of the LBO is published in *Mergers & Acquisitions*. Monthly bond prices, bond ratings and yields to maturity were collected from the S & P Bond Guide. *The Federal Reserve Bulletin* was the source for the Treasury bond yields for the years 1982 to 1988. *Bond Ratings*: We also studied the changes in the bond ratings to see whether the bond's risk class had changed. The bond ratings were followed for six months prior to the effective date of the LBO. In some instances, the LBO was not effective until the last day of the month. Although the bond rating change actually appears in a different calendar month, for the purpose of this study, it is considered as a change at time $t=0$.

Term Adjusted Residuals: In order to track the changes in the bond yields we used a technique which is somewhat similar to that of Settle, et al (1984). We used Treasury bond yields rather than an index or pairing technique to calculate the excess yields. For each of the bonds in the sample, the yield-to-maturity (YTM) was calculated.⁸ Excess yields were calculated by subtracting the calculated bond yield from a comparable Treasury bond after taking into account the differences in maturity and coupons. This was accomplished by matching sample bonds as closely as possible to Treasury bonds of similar maturities to accommodate the shifts in yield curve, instead of a bond index to calculate the abnormal returns.⁹

For all years, except 1988 when the yields on 20 year bonds were no longer reported in the *Federal Reserve Bulletins*, yields were available for 1,2,3,5,7,10,20 and 30 years. The term adjusted excess yield, EY_{it} , was calculated as follows:

$$\begin{aligned} AEY_{it} &= EY_{it} / n \\ AEY_{it} &= \text{Average excess yield} \\ EY_{it} &= R_{gt} - R_{it}, \text{ where:} \\ EY_{it} &= \text{Term adjusted excess yield} \\ R_{gt} &= \text{Yield on Treasury bonds at time } t \\ R_{it} &= \text{Return on corporate bond } i \text{ at time } t \\ n &= \text{the number of bonds outstanding} \end{aligned}$$

The average term adjusted excess yields, AEY_{it} , were computed in three different ways, namely:

1. *Average Excess Yields, AEY1*. The average excess yields on all outstanding bonds were calculated for each sample firm for the period twelve months ($t-12$) before the LBO consummation date to twelve months ($t+12$) after the consummation date. However, if a firm had more than one bond outstanding, the term adjusted excess yields of all bonds were cumulated and then averaged. As a result, each firm had one "sample" bond in the analysis.

2. *Average excess yields*, AEY2, for all sample bonds. Under this variation all bonds outstanding (38 bonds for 18 firms¹⁰) were included.
3. *Average excess yields*, AEY3, for the largest outstanding bond per firm. Under this plan the average excess yields were computed for 20 bonds (one bond for each firm). The selection of bonds is based on the largest amount outstanding. The means and variances of average excess yields, AEY1, AEY2, and AEY3 and cumulative average excess yields, CAEY, under each variation for the entire sample were calculated.

A t-test was performed to test whether there was any significant change in the mean yield (wealth) of existing senior securityholders before and after the leveraged buyouts.

SECTION III

Results and Analysis

Table II shows the average excess yields (AEY1), t-statistics, to test for significant differences in the means before and after buyouts for selected periods, and cumulative average excess yields (CAEY1) based upon variation 1 (average yield on an average representative bond).¹¹ The behavior of AEY1 and CAEY1 are also graphically shown in Figures 1 and 2. The data reveal several trends. The AEY increases fairly steadily over the 25-month period. Moreover, while there is a moderate increase in AEY1 between t-12 and t-0 (concentrated in the period t-4 to t-0), it remains relatively stable for the next six month period. This is followed by a pronounced jump in AEY1 in the periods t+7 to t+12. This behavior suggests that although the bond yields react in the period prior to the buyout, the six months after the LBO appears to be a “wait and see” period. After six months bondholders seem to reevaluate the risk of the bonds resulting in a marked increase in yields. This is substantiated by a constantly increasing CAEY1. The CAEY1 does not decline over time to return to pre-LBO levels. Furthermore the means of all average excess yields are statistically significant during the test period.

Table III contains the Tests of Significance for the differences in the means of average excess yields (AEY1) under variation 1, for various combinations of time periods. In a comparison of the six months immediately following the LBO with the twelve months prior to the buyout (column 7 of Panel A), only 4 out of 72 t-values are significant at the 95 percent confidence level. This contrasts significantly with Panel B which compares the 12 months prior to the LBO with the period seven to twelve months after the event (columns 2 to 6 of Panel B) where 37 out of 72 t-values are significant at the 95 percent confidence level. The two most revealing columns are 1 and 6 of Panel B, which contain 9 out of 12 and 10 out of 12 significant t-values. At the 90 percent confidence level, the results present convincing evidence (12 out of 12 values) that bond yields show a marked rise 12 months after the event date compared to any month prior to the LBO.

The average excess yields (AEY2) of all outstanding bonds (38) of the sample companies, t-values of average excess yields, and cumulative average

excess yields (CAEY2) under variation 2 are shown in Table IV. The results show that the average excess yields gradually increase from 2.1 percent at t-12 to 2.24 percent at t-0 suggesting that bond yields rise gradually in the 12 months before the event date. Again there is only a minor rise in AEY2 from t-0 to t+6. However, the AEY2 dramatically rises from 2.4 percent at t+6 to 3.04 percent at t+12 indicating that bond yields increase significantly starting six months after the event date. This pattern is graphically shown in Figure 1. Moreover, all t-values for AEY2 are significant. The behavior of the cumulative average excess yields (CAEY2) is similar to that to CAEY1, rising consistently. The results of tests of significance of AEY2, under variation 2, for various time periods are shown in Table V. An analysis of the t-values reveals an interesting fact. Although the means of average excess yields under variation 2 show few significant differences in the means 12 months before to 11 months after the event, a comparison of the mean of AEY2 at t+12 with the means in the period t-3 to t-12 months before the event do show consistently significant this indicates that bond yields rise significant by 12 months after the event date compared to the average excess yields before the event. Out of a total of 132 values, covering the period t-12 to t+11, only 4 values are significant (at the 95% confidence level), but 5 out of 12 values, covering the period t+12 in column 7 panel B are significant at the 95 percent confidence, and 11 out 12 are significant at 90 percent confidence level.

The results of average excess yields, (AEY3), t-values of means, and cumulative excess average yields (CAEY3) under variation 3 (largest bond per company) are presented in Table VI and tests of significance of differences in the means (AEY3) are shown in Table VII.

The variances of the average excess yields, AEY1, from t+7 to t+12 as compared with the period t-1 to t-12 are tested for their significance using the F-test and the F-values are shown in Table VIII. The F-values in the last column of this table clearly show that the variance of AEY1 at t+12 is significantly different from the variance of all test periods prior to the event date, except for t-1 and t-2. These results suggest that bond yields become more volatile within a year after the buyout indicating that the bonds have greater risk after the leveraged buyout. This is reflected in the increase in bond yields around t+12.

Bond ratings also dropped consistent when the leveraged buyouts were approved. S&P bond rating changes in the period t-6 to t-0 for each of the 20 companies in our studies are shown in Table IX. These changes can be summarized as follows :

Number of Grade Changes	No. of Firms
-4	1
-3	3
-2	4
-1	6

0	5
1	1

Of the 20 firms studied, 14 firms (70 percent) experienced a drop in bond rating while only 1 (5%) showed an improved rating. While ten firms had a bond rating of A or better six months prior to the leveraged buyout, after the LBO, only one firm still had an A rating for its bonds. Moreover, negative credit watches were issued for 16 of the 20 firms studied either immediately after the public announcement of the intention to take the firm private or when the buyout was tentatively approved. This indicates that rating agencies recognize that leveraged buyouts present an increased risk to bondholders.

Every analysis performed suggest that bond yields rise after the leveraged buyout. This pattern is apparent in the period t-0 to t+6 but it is more pronounced during the period t+7 to t+12. Actually there is clear evidence of a rise in yields starting as early as four months prior to the event date which corresponds to the period in which management begins to accept the LBO proposal.

The results of this study can be divided into three segments to depict bondholders' reaction to LBOs. Stage 1, the period between t-12 and t-5, shows no consistent behavior. During this period the LBO is usually announced but not confirmed. Bondholders seem to be unsure as to the prospects of the impending changes. In stage 2, during the time t-4 to t+6, bondholders begin to react to the changes and yields increase as a reflection of the higher risk. It should be noted that this rise is a gradual one, contrary to general expectations of a sudden sustained increase. The reason is that bondholders have high expectations for the economic future of the firm based upon management appraisal. In stage 3, the final phase between t+7 and t+12 months, bondholders react to the unfolding evidence reflected in the financial and market reports suggesting the firm's performance is below the original expectations. this is most dramatic in t+12, one year after the LBO. This indicates continuous erosion of bondholders' confidence.

The results in the last section partially support the findings of others that bondholders do not sustain significant losses due to leveraged buyouts within six months after the event. However their studies did not examine the bond yields beyond four to six months after the confirmation date, thus omitting critical data. Our study convincingly shows that bondholders do indeed sustain significant losses though there is lag of 7 to 12 months after the confirmation date. Thus our results do not entirely support the hypothesis that bondholders do not suffer in leveraged buyouts. On the contrary we are forced to conclude that bondholders do sustain significant losses in leveraged buyouts, not immediately, but after a lag of six to 12 months. The reasons for this, we believe, are that bondholders do not react immediately after the event as they continue to harbor high expectations in management's ability to achieve the expected benefits and wait for a clear sign before they begin to reassess

future prospect. When bondholders begin to realize that their high expectations are not materializing they begin to reevaluate the bond risk and yields begin to rise. Our results verify this. It should be noted that the recent rapid decline in bond prices suggests that bondholders of leveraged buyouts seem to react sooner than in earlier buyouts. Asquith and Wizman (1990) and Warga and Welch (1990) also find that existing bondholders lose much more than hitherto believed. The results may appear to be a violation of the rational efficient market hypothesis. Asquith and Wizman (1990) note that bondholders, in some cases, did lose wealth despite strong covenants protecting the bonds. Marias, Schipper and Smith (1989) documented that bondholders in an earlier period did not lose substantially in LBOs. In the target period covered in this study, however, LBO target bondholders did lose substantially. Possibly, stockholders devised progressively more aggressive strategies to extract wealth from bondholders. Thus, bondholders in our sample period were "as-of-yet" in the Efficient Market learning process (and thus consistently surprised), realizing one LBO at a time that future LBOs are more and more likely to extract wealth from bondholder in LBOs. The results of this study are consistent with an Efficient Capital Market hypothesis, but it still retains the flavor of the high expectations argument. The LBOs of the late 80s were more aggressive than earlier LBOs. It can be anticipated that as investors move along learning curve bondholders will protect themselves against such losses by demanding higher returns and or by strong bond covenants in the future. The present results suggest that bondholders lose in leveraged buyouts as they are still in the learning process. Although this warrants further study, it could be anticipated that the past negative experience of these bondholders has altered the learning curve.

SECTION IV

Summary and Conclusions

This study investigated whether existing bondholders sustain losses in leveraged buyouts. Previous studies of changes in the leverage and financial decisions effecting leverage ratios, such as debt-for-equity exchanges or stock repurchases resulting in significant changes in the leverage ratio, have suggested that existing bondholders do not sustain losses in these activities. Their conclusions were based on narrow windows, generally six months after the event. In this study, we analyzed bond yields in 78 buyouts for a period from 12 months before to 12 months after the effective date of the leveraged buyout. The bonds we studied were non-convertible bonds issued prior to the leveraged buyout. The event date (t-o), for purposes of this study, was the date that the buyout became official or consummated. An event methodology technique was applied to analyze bond excess yields. Bonds excess yields (yields to maturity) of all outstanding bonds were calculated by subtracting the sample bonds' yields from the yield on similar maturity of Treasury bonds. The average excess yields (AEY 1, AEY2, AEY3) were computed in three different ways. Cumulative average excess yields (CAEY1, CAEY2 and CAEY3) were also computed. The significance of the differences in the means of average excess yields for various sub-periods were tested using t-

tests. Differences in the variances of the excess bond yields for selected period were also tested for the significance, using F-statistics.

Our results partially support the findings of previous studies that bondholders do not sustain losses within six months of the event date due to corporate decisions that significantly change the leverage ratio of firms. However, in this study we examined the behavior of the excess yields over a longer period. Our results showed that bond yields increased (or bond prices declined) significantly beginning seven months after the event date. At the end of 12 months after the event, the bond yields showed significant increase indicating that bondholders do sustain significant losses in leveraged buyouts. Furthermore, our data indicated that not only did the bonds' average excess yields rise but also indicated that the behaviour of senior bonds, as evidenced by the variances of AEYs, had changed significantly. The results support our hypothesis that not only do bondholders sustain losses in leveraged buyouts but also that the bonds become more risky. Our results present convincing evidence that leveraged buyouts have a significant negative impact on the existing bondholders.

We also attempted to find reasons for the delayed response of bondholders to leveraged Buyouts. We posit that bondholders didn't react strongly to leveraged buyouts when it became effective, although we noticed that bond yields slowly began to rise starting four months before the event. The authors conjecture that the reason for this behavior is that bondholders generally have high expectations of future profits promoted by management. But as events unfold, bondholders start re-evaluating the future prospects and realize that expected benefits of leveraged buyouts are overestimated. This reaction occurs after a lag of seven to twelve months. Recent studies of Asquith and Wizman (1990) and Warga and Welch (1990) did confirm that bondholders lose in leveraged buyouts and also in some cases bondholders lost wealth despite strong covenants. But our results can be interpreted that bondholders of earlier period were in "as-of-yet" in the learning process and surprised when their hopes of realizing the purported gains did not materialize. It can be expected that once investors pass the hump in the learning process the future behavior will be consistent with ECH. Further, there are serious policy issues regarding the implications of high leverage in general and leveraged buyouts, in particular, on the economy as a whole. Our results are somewhat in variance with that of Asquith and Kim for they note that "for whatever reason, we can conclude that mergers generate no noticeable impact on bondholders and no noticeable wealth transfers between Again, neither the acquiring nor the acquired bondholders experienced a significant gain or loss. The shareholders of the acquired firm did experience a significant gain but their gain did not come at the expense of other security holders. Our results also support Asquith and Wizman (1990), findings that buyouts, on average, decrease pre-buyout bondholders' wealth. The losses suffered by pre-buyout bondholders is significantly higher than those found in previous studies.

A possible explanation for the observed phenomena is that bondholders' wealth and bond prices do not react adversely to the leveraged buyouts immediately after the announcement and effective dates because of bondholders' confidence in management's high expectations of future benefits. Probably, "the buyers of the junk bonds (issued by LBOs), of course, also hoped that the promises would be kept. But they clearly weren't counting on it!" (Miller, 1991, p. 481). However, within six to twelve months, bondholders of highly leveraged firms will become aware of the fact that management's high hopes regarding future cash flows, spin-off values of the assets and tax-shield benefits from the LBOs have been overestimated and the perceived risk of default increases resulting in higher yields.

Footnotes

1. The company may step-up its tax basis of the assets after the leveraged buyouts to reflect the price paid or the market value. In that sense there may be accounting change in the book values, but the productive capacity of the assets is not increased. There may be accounting changes in the balance sheet but no change in the real value of the assets. The new debt ratio may not truly reflect the risk of the company because of the revaluation of the assets.
2. Representing 18.9 percent of the values of all mergers and acquisitions during the period.
3. Miller (1991) raises number of issues as to the alleged misconceptions about leverages. Some of the conclusions are controversial. For example, he says that the highly visible losses to bondholders in leveraged buyouts "do not mean that overleveraging did in fact occur, second, paradoxical as it may sound, that increased leveraging by corporations does not imply increased risk for the economy as a whole; third that the financial distress being suffered by some highly leveraged firms involves mainly private, not social costs; and finally, that the capital markets have built-in controls against overleveraging-controls, moreover, very much in evidence at the moment." (Miller, (1991), p. 481)
4. Shortly after we completed our paper the existence of the working papers of Asquith and Wizman (1990) and Warga and Welch (1990) were brought to our attention. The results of this study were independently arrived. Surprisingly our results are in agreement with the results of the two papers cited above.
5. 24 bonds of the 22 acquired firms and 38 bonds of 26 acquiring firms, are classified as conglomerate firms by the Federal Trade Commission.
6. Asquith and Wizman (1990) sample include not only outstanding non-convertible bonds but also bonds called, defeased subsequent to the leveraged buyouts. Further, the sample bonds also classified on the basis of covenants strength-strong to weak covenants protection. The motivation for this may be that these bonds are outstanding at the time of the leveraged buyout date.
7. The event dates used in different studies are:
 The Public Announcement Date; The date of the first public notice of intent to take the company private. This is the date used in many previous studies (see Asquith and Kim (1982) and Marais, Schipper and Smith (1989)) in the area of mergers and acquisitions, though "foot steps" might have been heard much earlier than the official announcement date. This date presented problems

with regards to LBOs as it is not always clear what should be regarded as the first public notice. Since LBOs sometimes result from hostile takeover attempts, it is unclear as to correct date of announcement. In addition, the first notice in some buyouts occurred nine months or more before the actual buyout, making it difficult to determine whether bondholders are reacting to any impending change or to a specific change in the level of risk. There were also instances where there was pressure on the target firm to decide among competing offers which would have different impacts on the securityholders. While stock prices react quickly to a wide variety of rumors ranging from "whistling in the wilderness" to official public announcements, bondholders are slow to react to changes in leverage. This is probably because institutions are the major holders of debt securities and are cautious so as not to react prematurely. Not until a decision is reached the bondholders truly able to judge the change in risk levels of the bonds. Further, the time between public announcement by a bidder and the consummation of the deal also varied widely from as short as one month to as long as four months in our sample. There were even instances in which definitive agreements were concluded and then the purchases collapsed.

8. There is considerable disagreement as to how to calculate the "abnormal returns" in many event studies. In some studies excess returns for bonds are calculated using actual prices. But because of lack of continuous trading in the bonds the calculated returns may not reflect the "true" behavior of the bonds. Using the bond yields or some bond index would eliminate not only the problem of illiquidity but also problems associated with the difference in coupons and shifts in the term structure of interest rates.
9. Asquith and Wizman (1990) calculate the abnormal returns by subtracting the bond returns from the expected returns based on Shearson-Lehman-Hutton long term or intermediated term corporate bond index for the same period. They justify the use of the two indices on the ground that it will capture changes in the slope of the yield over the measurement period. In this study we used the whole range of the Treasury bond yields to capture the entire spectrum of the yield curve.
10. Under variation 2, the number of sample firms is reduced to 18 from 20. Diamond Samrock and Hospital Corporation of America, remained as public firms after the management leveraged buyout and sold a large segment of their business. Although these two firms were classified as leverage buyouts there was some question as to the impact of the LBO on the parent company. Since these two firms had a total of sixteen bonds outstanding representing nearly half of the total bonds of all other firms in the sample, the bonds of these companies were deleted to avoid any distortions in the results.
11. The cumulative excess yields have to be interpreted in a narrow way. In market model methodology, first, the excess returns are calculated and second, the excess returns are cumulated to study whether the cumulative excess returns are persistence or die out rapidly after an event to test the market efficiency or the whether the event has a temporary or a permanent effect. In this study the excess yields are calculated to study whether there is any significant difference between the level of excess yields before and after the LBO. So, the CAEYs have a different meaning than is generally understood in the literature. The cumulative average excess returns will continue to be positive and remain constant if the bond yields and risk of the bonds have not significantly changed after the buyout.

Table 1
Leveraged Buyouts (1982-88)

Leveraged Buyouts				
	No. of Transactions	Percent of Total	Value in Millions	Percent of Total
1982	13	n.a	2,000	n.a
1983	231	9.9	4,292	8.3 (1)
1984	250	8.2	18,631	14.9 (2)
1985	244	7.7	18,037	13.0 (3)
1986	331	7.7	46,428	22.7 (4)
1987	270	6.9	36,067	20.4 (5)
1988	318	9.1	42,914	18.9 (5)

Note :

1. Ferenbach, Carl., "L.B.O.s: A New Capital Market (And How to Cope With It)", *Mergers and Acquisitions* (Fall 1983, p. 21)
2. *Mergers and Acquisitions Almanac "1984 Profile"*, p. 25
3. *Mergers and Acquisitions Almanac "1985 Profile"*, p. 45
4. *IBID.*, "1987 Profile", May-June 1988, p. 45
5. "1988 Profile:", May-June, p. 53

Table 2
Average Excess Yields (AEY1), t-statistics, and Cumulative Average Excess Yields (CAEY1) (Variation 1: Average Yield of Representative Averaged Bond)

Period (Months)	AEY1	t-stat*	CAEY1
t -12	2.07	8.6057	2.07
t -11	1.86	8.3252	3.93
t -10	2.05	8.5449	5.98
t - 9	1.97	7.7189	7.95
t - 8	2.11	7.6963	10.06
t - 7	2.12	8.1004	12.18
t - 6	2.14	7.7614	14.33
t - 5	2.16	7.6986	16.49
t - 4	2.01	7.2157	18.50
t - 3	2.30	8.0944	20.80
t -2	2.48	7.6947	23.28
t -1	2.62	8.2076	25.90
t 0	2.76	8.6737	28.66
t+1	2.60	7.7965	31.27
t+2	2.74	8.8880	34.00
t+3	2.60	7.5059	36.60
t+4	2.70	8.1978	39.30
t+5	2.78	7.9684	42.09
t+6	2.70	9.4565	44.79
t+7	3.04	9.6522	47.83
t+8	2.90	9.9761	50.72
t+9	2.80	8.3353	53.52
t+10	2.92	9.7010	56.44
t+11	3.10	8.5590	59.54
t+12	3.58	8.6122	63.12

* All t-values are significant at any confidence level

Table 3
Tests of Significance of Means of Average Excess Yields- AEY1 - t-values
(Variation 1)

(Panel A)						
Period	t+1	t+2	t+3	t+4	t+5	t+6
t -1	0.0461	-0.2464	0.0555	-0.1697	-0.3300	-0.1697
t -2	-0.2495	-0.5527	-0.2346	-0.4662	-0.6169	-0.4872
t -3	-0.6719	-1.0149	-0.6469	-0.9045	-1.0482	-0.9649
t -4	-1.3360	-1.7140	-1.2965	-1.5754	-1.6973	-1.6926
t -5	-0.9848	-1.3445	-0.9530	-1.2208	-1.3544	-1.3078
t -6	-1.0333	-1.3983	-1.0001	-1.2713	-1.4038	-1.3640
t -7	-1.1077	-1.4861	-1.0717	-1.3516	-1.4829	-1.4562
t -8	-1.0995	-1.4686	-1.0648	-1.3385	-1.4688	-1.4373
t -9	-1.4585	-1.8589	-1.4140	-1.7072	-1.8264	-1.8459
t -10	-1.3197	-1.7250	-1.2768	-1.5736	-1.6990	-1.7077
t -11	-1.7916	-2.2349*	-1.7353	-2.0552*	-2.1630*	-2.2445*
t -12	-1.2741	-1.6766	-1.2323	-1.5274	-1.6545	-1.6569

(Panel B)						
Period	t+7	t+8	t+9	t+10	t+11	t+12
t -1	-0.8970	-0.6112	-0.3717	-0.6440	-0.9347	-1.6959
t -2	-1.1970	-0.9240	-0.6605	-0.9471	-1.2063	-1.9375
t -3	-1.6940	-1.4274	-1.1015	-1.4376	-1.6551	-2.3789*
t -4	-2.3912*	-2.1537*	-1.7594	-2.1416*	-2.2823*	-2.9466*
t -5	-2.0233*	-1.7701	-1.4118	-1.7698	-1.9514	-2.6477*
t -6	-2.0814*	-1.8148	-1.4584	-1.8028	-1.8731	-2.5486*
t -7	-2.1832*	-1.9321	-1.5462	-1.9280	-2.0931*	-2.7921*
t -8	-2.1522*	-1.9031	-1.5289	-1.8991	-2.0668*	-2.7567*
t -9	-2.5576*	-2.3230*	-1.8961	-2.3068*	-2.4282*	-3.0969*
t -10	-2.4427*	-2.1990*	-1.7712	-2.1876*	-2.3223*	-3.0164*
t -11	-2.9619*	-2.7429*	-2.2479*	-2.7147	-2.7828*	-3.4392*
t -12	-2.3944*	-2.1484*	-1.7258	-2.1386*	-2.2792*	-2.9775*

* Significant at 95% confidence level

Table 4
Average Excess Yields (AEY2), t-statistics, and Cumulative Average
Excess Yields (CAEY2) (Variation 2, All 38 Bonds)

Period (Months)	AEY2	t-stat*	CAEY2
t -12	2.10	9.3819	2.10
t -11	1.97	9.4423	4.07
t -10	2.05	9.5639	6.12
t -9	2.03	8.971	8.15
t -8	2.08	8.9599	10.23
t -7	2.06	9.3805	12.29
t -6	2.00	9.0255	14.29
t -5	2.04	9.2631	16.34
t -4	1.88	8.9851	18.21
t -3	2.12	9.8586	20.34
t -2	2.04	7.8168	22.38
t -1	2.31	9.4146	24.68
t 0	2.24	9.4982	26.92
t+1	2.24	10.0632	29.16
t+2	2.44	10.4000	31.60
t+3	2.47	10.6689	34.07
t+4	2.44	10.6483	36.52
t+5	2.44	9.3533	38.95
t+6	2.40	10.6675	41.35
t+7	2.65	10.7777	44.00
t+8	2.57	10.6267	46.58
t+9	2.37	9.1348	48.94
t+10	2.59	10.7955	51.54
t+11	2.64	8.0651	54.16
t+12	3.04	6.7563	57.19

Table 5
Tests of Significance of Means of Average Excess Yields- AEY2 - t-values
(Variation 2)

(Panel A)						
Period	t+1	t+2	t+3	t+4	t+5	t+6
t -1	0.2150	-0.3907	-0.4788	-0.3899	-0.3507	-0.2743
t -2	-0.5699	-1.1371	-1.2267	-1.1443	-1.0633	-1.0364
t -3	-0.3591	-0.9882	-1.0715	-0.9815	-0.8994	-0.8658
t -4	-1.1584	-1.7722	-1.8781	-1.7904	-1.6471	-1.6809
t -5	-0.6044	-1.2196	-1.3186	-1.2297	-1.1304	-1.1161
t -6	-0.7325	-1.3426	-1.4422	-1.3542	-1.2470	-1.2419
t -7	-0.5569	-1.1749	-1.2738	-1.1844	-1.0878	-1.0702
t -8	-0.4758	-1.0793	-1.1748	-1.0873	-0.9997	-0.9750
t -9	-0.6488	-1.2538	-1.3521	-1.2648	-1.1612	-1.1540
t -10	-0.5910	-1.2115	-1.3120	-1.2226	-1.1179	-1.1097
t -11	-0.8484	-1.4624	-1.5662	-1.4758	-1.3482	-1.3701
t -12	-0.4383	-1.0494	-1.1468	-1.0586	-0.9651	-0.9468
(Panel B)						
Period	t+7	t+8	t+9	t+10	t+11	t+12
t -1	-0.9739	-0.7579	-0.1612	-0.8116	-0.7630	-1.4315
t -2	-1.6852	-1.4810	-0.8800	-1.5337	-1.3875	-1.9301
t -3	-1.5731	-1.3516	-0.7050	-1.4123	-1.2616	-1.8386
t -4	-2.3677*	-2.1475*	-1.4548	-2.2162*	-1.9243	-2.3635*
t -5	-1.8139	-1.5939	-0.9371	-1.6562	-1.4657	-2.0007*
t -6	-1.9324	-1.7139	-1.0547	-1.7765	-1.5678	-2.0815*
t -7	-1.7715	-1.5507	-0.8940	-1.6130	-1.4287	-1.9716
t -8	-1.6617	-1.4460	-0.8097	-1.5055	-1.3416	-1.8900
t -9	-1.8383	-1.6221	-0.9719	-1.6847	-1.4828	-1.9924*
t -10	-1.8106	-1.5895	-0.9255	-1.6547	-1.4495	-1.9674
t -11	-2.0569*	-1.8382	-1.1603	-1.9081	-1.6432	-2.0955*
t -12	-1.6384	-1.4211	-0.7764	-1.4845	-1.3037	-1.8298

* Significant at 95% confidence level

Table 4
Average Excess Yields (AEY3), t-statistics, and Cumulative Average
Excess Yields (CAEY3) (Variation 3)

Period (Months)	AEY3	t-stat	CAEY3
t -12	2.07	8.1344	2.07
t -11	1.85	7.9618	3.92
t -10	2.09	7.6369	6.01
t -9	1.97	6.9471	7.97
t -8	2.11	7.1828	10.08
t -7	2.07	7.5589	12.15
t -6	2.17	7.5849	14.32
t -5	2.26	6.9781	16.59
t -4	2.12	6.9321	18.70
t -3	2.49	7.9608	21.19
t -2	2.56	7.5151	23.75
t -1	2.71	7.9997	26.46
t 0	2.82	8.0711	29.28
t+1	2.83	8.0239	32.11
t+2	2.98	8.9123	35.09
t+3	2.88	7.9482	37.96
t+4	2.94	8.5736	40.90
t+5	2.99	8.1625	43.89
t+6	2.86	9.1237	46.75
t+7	3.15	8.9741	49.90
t+8	3.03	9.1894	52.92
t+9	2.87	7.2858	55.80
t+10	2.95	9.2561	58.75
t+11	3.01	8.2263	61.76
t+12	3.30	8.3161	65.06

Table 7
Tests of Significance of Means of Average Excess Yields- AEY3 - t-values
(Variation 2)

(Panel A)						
Period	t+1	t+2	t+3	t+4	t+5	t+6
t -1	-0.2470	-0.5460	-0.3274	-0.4622	-1.5443	-0.3127
t -2	-0.5370	-0.9156	-0.6615	-0.8190	-0.8918	-0.6769
t -3	-0.7185	-1.0445	-0.7953	-0.9502	-1.0169	-0.8187
t -4	-1.4911	-1.8450	-1.5577	-1.7383	-1.7760	-1.6447
t -5	-1.1564	-1.4892	-1.2263	-1.3909	-1.4415	-1.2816
t -6	-1.4265	-1.7903	-1.4953	-1.6806	-1.7197	-1.5836
t -7	-1.6603	-2.0394*	-1.7263	-1.9235	-1.9523	-1.8395
t -8	-1.5437	-1.9068*	-1.6103	-1.7968	-1.8317	-1.7060
t -9	-1.8684	-2.2489*	-1.9308	-2.1317*	-2.1529*	-2.0585*
t -10	-2.0528*	-2.5868*	-2.1179*	-2.4127*	-2.3917*	-2.3893*
t -11	-2.2843*	-2.7192*	-2.3420*	-2.5810	-2.5761*	-2.5399*
t -12	-1.7125	-2.1061*	-1.7947	-2.0041*	-2.0275*	-1.9257
(Panel B)						
Period	t+7	t+8	t+9	t+10	t+11	t+12
t -1	-0.8765	-0.6599	-0.3105	-0.4983	-0.5946	-1.1003
t -2	-1.2600	-0.9586	-0.5840	-0.8015	-0.8777	-1.3697
t -3	-1.3739	-1.1666	-0.7564	-1.0085	-1.0733	-1.5836
t -4	-2.1555*	-1.9739	-1.4833	-1.8296	-1.8378	-2.3243*
t -5	-1.8020	-1.6118	-1.1685	-1.4623	-1.4957	-1.9776
t -6	-2.1097*	-1.9231	-1.4222	-1.7775	-1.7887	-2.2970*
t -7	-2.3558*	-2.1767*	-1.6411	-2.0368*	-2.0283*	-2.5398*
t -8	-2.2202*	-2.0389*	-1.5324	-1.8957	-1.8987	-2.3953*
t -9	-2.5561*	-2.3858*	-1.8369	-2.2501*	-2.2268*	-2.7216*
t -10	-2.9404*	-2.7784*	-1.6058	-1.9970*	-1.9915*	-2.5049*
t -11	-3.0292*	-2.8735*	-2.2207*	-2.7571*	-2.6859*	-3.2264*
t -12	-2.4499*	-2.2712*	-1.7035	-2.1348*	-2.1165*	-2.6529*

* Significant at 95% confidence level

Table 8
Tests of Significance of Means of Average Excess Yields- for Selective
Periods F-Statistics (Variation 1)

Period	t+7	t+8	t+9	t+10	t+11	t+12
t -1	1.033	1.214	0.904	1.129	0.780	0.591
t -2	1.052	1.237	0.921	1.151	0.794	0.602
t -3	1.226	1.043	1.401	1.121	1.624	2.141*
t -4	1.280	1.089	1.463	1.170	1.695	2.235*
t -5	1.256	1.068	1.435	1.148	1.663	2.193*
t -6	1.298	1.104	1.484	1.187	1.720	2.268*
t -7	1.445	1.229	1.651	1.321	1.914	2.524*
t -8	1.311	1.115	1.498	1.199	1.737	2.290*
t -9	1.515	1.289	1.731	1.385	2.006*	2.646*
t -10	1.727	1.469	1.973*	1.578	2.287*	3.015*
t -11	1.979*	1.681	2.258*	1.806	2.617*	3.451*
t -12	1.719	1.463	1.965*	1.572	2.277	3.003*

* Significant at 95% confidence level

Table 9
Changes in Bond Rating

	t -6	t-5	t-4	t-3	t-2	t-1	t-0
ACF INDUSTRIES	A+					A-	
ARA SERVICES, INC	A-						B
BORG WARNER CORP	A+						B
BURLINGTON IND.	BBB+						B+
CCI CORP.	B						CCC
COLE NATIONAL CORP	B	BB-					
CONTINENTAL GROUP	A-						BB
DIAMOND SHAMROCK	A-					BBB+	
GUARDIAN IND.	BBB						BB-
HERITAGE COMM.	B+					BB-	
HERTZ CORP.	A-						
HOSPITAL CORP OF AMER	A-						BBB+
LEAR SIEGLER	A-						A
METROMEDIA	BB+						B-
MGIC INVESTMENT CORP	B						
OWENS ILLINOIS	A-						B+
REVCO DRUG	BBB+						B
R.H. MACY	AA-				BB		B
SFN COS INC.	BB+						B-
STORER COMM.	BB-						CCC

Note : 1. Cole had an improvement in its bond rating 2 months before, before there was any discussion of a leveraged buyout.
2. Two other companies, Northwest Industries & Leaseway Transportation, which were not included in this study because of insufficient bond data, also experienced negative changes in bond ratings.
3. Northwest fell BBB to CCC and Leaseway dropped from A to B+

APPENDIX I
LIST OF FIRMS AND IMPORTANT DATES

	FIRST NOTICE	LBO APPROVED	LBO FINAL
ACF	9-83	4-84	6-29-84
ARA SERVICES, INC.	7-84	9-84	12-19-84
BORGWARNER	10-86	4-87	5-08-87
BURLINGTON INDUSTRIES	4-87	8-87	9-03-87
CCI CORP.	9-82	10-82	1-20-83
COLE NATIONAL CORP.	6-84	7-84	11-1-84
DIAMONDSHAMROCK	3-86	5-86	9-04-86
GUARDIAN INDUSTRIES	7-84	1-85	2-22-85
HERITAGECOMMUNICATIONS	2-87	7-87	8-11-87
HERTZ CORP.	5-87	9-87	12-30-87
HOSPITAL CORP. OF AMERICA	4-87	6-87	9-17-87
LEAR SIEGLER	10-86	12-86	2-11-87
METROMEDIA	12-83	6-84	6-21-84
MGIC INVESTMENT CORP.	5-83	12-83	2-28-84
OWENS ILLINOIS	12-86	2-87	3-24-87
REVCO DRUG STORES, INC.	3-86	8-86	12-29-86
R.H. MACY	1-86	6-86	7-15-86
SFN COS INC.	8-84	10-84	2-01-85
STORERCOMMUNICATIONS	3-85	11-85	12-05-85

References

1. Altman, Edward I. and Scott, A. Nammacher, 1985, The default rate experience on high-yield corporate debt, *Financial Analysts Journal*, 41, 25-41.
2. Altman, Edward I, and Scott A. Nammacher, 1989, Measuring corporate mortality and performance, *Journal of Finance*, 44, 909-922.
3. Asquith, Paul R., 1983, Merger bids, uncertainty, and stockholders returns, *Journal of Financial Economics*, 35, 1-12
4. Asquith, Paul and E. Han Kim, 1982, The merger impact on the participating firm's security holders, *Journal of Finance*, 37, 1209-1229.
5. Asquith, Paul, David W. Mullins, JR., and Eric D. Wolff, 1989, Original issue high yield bonds: Aging analysis of default, exchanges, and calls, *Journal of Finance*, 44, 923-952.
6. Asquith, Paul, and Thierry Wizman, 1990, Event risk, wealth redistribution and the returns to existing bondholders in Corporate buyouts, *Working Paper* (MIT, Boston, Mass)
7. Cornett, Marcia M., and Nickolaos G. Travlos, 1989, Information effects associated with debt-for-equity and equity-for debt exchange offers, *Journal of Finance*, 44, 451-468.
8. DeAngelo, H., L. DeAngelo, and E.Rice, 1984, Going private minority freezeouts and stockholder wealth, *Journal of Law and Economics*, 27, 367-402.
9. DeAngelo, Harry and Linda DeAgelo, 1987, Management buyouts of publicly traded corporations, *Financial Analysts Journal*, 43, 38-49.
10. Dennis, Debra K., and John J. McConnell, 1986, Corporate mergers and security returns, *Journal of Financial Economics*, 6, 143-187.
11. Haupin, Rebekah J. and Wayne A. Label, 1987, Profiting from a management buyout, *Management Accounting*, (April 1987), 32-34.
12. Jarrell, Greg A., James A. Brickley and Jeffrey M. Netter. (1988), The market for corporate control: The empirical evidence since 1980, *Journal of Economic Perspectives*, 2, 49-68.
13. Jensen, Michael C., and Richard S. Ruback, 1983, The market for corporate control: The scientific evidence, *Journal of Financial Economics*, 11, 5-50.
14. Jensen, Michael C., 1984, Takeovers: Folklore and science, *Harvard Business Review*, (November/December), 109-121.
15. Jensen, Michael C., 1986, Agency Costs and free cash flows, corporate finance and takeovers, *American Economic Review*, 73, 323-329.
16. Jensen, Michael C., 1987, *Takeover controversy: Analysis and Evidence*, In Coffee, Lowenstein, and Rose-Akerman, eds., *Takeovers and Contests for Corporate Control*, Oxford University Press, Oxford.
17. Jensen, Michael C., 1988, Takeovers: their causes and consequences, *Journal of Economic Perspectives*, 2, 21-48.

18. Jensen, Michael C. and William, H. Meckling, 1976, Theory of the firm managerial behaviour, agency costs and ownership structure, *Journal of Financial Economics*, 3, 305-360.
19. Kaplan, Steven, 1989, Management buyouts: Evidence on taxes as a sources of value, *Journal of Finance*, 44, 611-632.
20. Lehn, Kenneth, and Annette B. Poulsen, 1987, *Sources of value in leveraged buyouts. In Public Policy Towards Corporate Takeovers*. New Brunswick, NJ Transaction Publishers.
21. Marais, Lauryentius, Katherine Schipper and Abbie Smith, 1989, Wealth effects of going private for senior securities, *Journal of Financial Economics*, 23, 155-191.
22. Miller, Merton H., (1991), Leverage, *Journal of Finance*, 46, pp. 479-488.
23. Modigliani, Franco and Merton H. Miller, (1958), The cost of capital and corporation finance, *The American Economic Review*, XLVIII, 261-297.
24. Modigliani, Franco and Merton H. Miller, (1959), The cost of capital, corporation finance, and the theory of investment; Reply, *The American Economic Review*, XLIX, 653-669.
25. Modigliani, Franco and Merton H. Miller, (1963), Corporation Income taxes and the cost of capital; A correction, *The American Economic Review*, LIII, 433-443.
26. Roll, Richard, (1986), The Hubris Hypothesis of Corporate Takeovers, *Journal of Business*, 59, 197-216.
27. Scherer, F. M. 1988, Corporate takeovers; the efficiency arguments, *Journal of Economic Perspectives*, 2, 69-82.
28. Settle, John W., Glenn H. Petry and Chi-Cheng Hsia, 1984, Synergy, diversification and incentive effects of corporate merger on bondholder Wealth, *Journal of Financial Research*, 7, 329-339.
29. Shleifer, Andrei and Lawrence Summers, 1987, Hostile takeovers as breaches of trust, *Working Paper*, NEBR.
30. Shleifer, Andrei, and Robert W. Vishny, 1988, Value maximization and the acquisition process, *Journal of Economic Perspectives*, 2, 7-20.
31. Shleifer, Andrei, and Robert W. Vishny, *Management buyouts as a response to market pressure*, in A. Auerbach, ed: *Mergers and Acquisitions*, 1988, University of Chicago Press, Chicago, IL.
32. Warga, A. and I., Welch, 1990, Bondholders losses in leveraged buyouts, *Working Paper* (Columbia University, New York).
33. Zaima, Janis K., and Joseph McCarthy, 1985, The impact of bond rating changes on common stock and bonds; tests of wealth redistribution hypothesis. *Financial Review*, 23, 483-498.