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## **Choosing an Organizational Form: Leveraged Buyouts versus Leveraged Recapitalizations\***

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## **Abstract**

This paper investigates the economics of highly leveraged transactions and what determines firms' choice of an organizational form by documenting differences between 106 firms that undertook leveraged buyouts (LBOs) and 41 firms that implemented leveraged recapitalizations (LRs) during the period 1985-1990. We find a negative relation between the probability of choosing a LBO over a LR and two measures of potential efficiency improvements, profits per dollar of book assets and profits per employee. However, we discover a positive relation between the propensity of choosing a LBO and three measures of managerial power; insider ownership, the absence of block ownership, and the absence of independent outside directors on the firm's board. Additionally, we find that a prior takeover threat increases the likelihood of a LR. Overall, we interpret these results to mean that both efficiency improvement concerns and managers' personal incentives drive a firm's organizational structure choice in highly leveraged transactions.

## Choosing an Organizational Form: Leveraged Buyouts versus Leveraged Recapitalizations

During the 1980s, highly leveraged transactions (HLTs) became increasingly important in the market for corporate control. HLTs are typically categorized as leveraged buyouts (LBOs), in which a company is purchased using debt financing, and leveraged recapitalizations (LRs), in which a large debt-financed cash payout, generally either a special dividend or tender offer repurchase, is distributed to equityholders. These two transactions share many similarities: both often occur in response to a takeover threat and tend to substantially increase firm value, debt levels, and insider ownership.<sup>1</sup> LBOs and LRs, however, lead to very different post-HLT organizational forms. LBO firms become closely held private companies with little or no publicly traded equity and, generally, a single large LBO investor. Conversely, LR firms retain relatively diffuse outside ownership of publicly traded equity.

Many studies, beginning with DeAngelo, DeAngelo, and Rice (1984), document the characteristics of HLTs and their effect on security-holders' wealth and firms' performance. Previous research, however, generally compares LBO firms to non-LBO firms or to the LBO firms' industry counterparts (see, e.g., Lehn and Poulsen (1989) and Kaplan (1989)). Jensen (1993) notes that these studies provide good estimates of the potential value gain from increased leverage and the LBO corporate governance system because following a LBO, a firm has, to a first approximation, the same managers and the same assets, but different financial structures and control systems. As noted in Palepu (1990), however,

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<sup>1</sup>See Palepu (1990) for a review of LBO research and Palepu and Wruck (1992) for a review of LR research

prior empirical LBO studies fail to disentangle the effects of high leverage from the effects of the LBO organizational form, making it impossible to fully understand the individual effects of high leverage and the LBO governance system. One exception is Lehn, Netter, and Poulsen (1990) who focus more sharply on the effect of high leverage by comparing LBO firms to firms that consolidate organizational control using dual-class recapitalizations. However, except for Denis' (1994) clinical comparison of Safeway's LBO and Kroger's LR, no study has focused on the effect of the LBO organizational form while controlling for the sharp increase in leverage. Andre and Kaplan (1998) use samples of both LBOs and LRs in a study of post-HLT financial distress, but do not disentangle the impact of the LBO governance system from the impact of high leverage.

Our study attempts to fill this void by examining the choice of an organizational form in HLTs. For this task, we compare the pre-HLT operating performance and the pre-HLT corporate governance characteristics of firms that go private in LBOs and firms that restructure using LRs. Contrasting LBOs and LRs provides a natural experiment for exploring firms' incentives to go private instead of remaining a publicly-traded corporation while increasing leverage and/or managerial ownership.<sup>2</sup>

A number of reasons may explain why firms choose a LBO over a LR, or *vice-versa*. First, Jensen (1989) argues that a LBO organization's concentrated outside ownership leads to better monitoring, which, in turn, leads to greater operating performance improvements following the transaction. In LRs, equity ownership concentration may also increase, but typically no single large outside equity investor plays a role analogous to a LBO specialist. Because relatively poorly performing firms have the

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<sup>2</sup>Both Herzel (1990) and Dann (1993) make similar points.

potential to benefit the most, at the margin, from additional monitoring, the "effective monitoring hypothesis" proposes that relatively poorly performing firms will lean toward LBOs. Presumably, change is potentially more beneficial when a firm is performing poorly. If so, and if effective monitoring leads to better decision-making, LBOs will be more valuable, and hence, more common in firms with poor performance.

Joint with the effective monitoring hypothesis that LBOs add more value (all else equal) in poorly performing firms, we evaluate three competing corporate governance hypotheses. First, the "substitute monitoring hypothesis" proposes that to the extent that pressure from the market for corporate control serves as a substitute for internal control systems, LBOs should be more common in firms with ineffective corporate governance systems. This should be true if active outside investors like LBO specialists add more value when existing internal control structures are ineffective.

Alternatively, LBOs have historically been associated with larger stockholder gains than LRs but are likely more disruptive for incumbent managers. Therefore, it is possible that effective internal governance structures are actually a prerequisite for a LBO. If LBOs systematically benefit shareholders but impose costs on managers (e.g., losing their jobs or enduring intense monitoring by LBO equity investors), then effective internal controls would be necessary to provide the incentives for managers to accept a LBO offer. This "governance prerequisite hypothesis" proposes that LBOs should be more common in firms with effective corporate governance systems. In other words, effective governance structures are prerequisite conditions for managers to accept a LBO offer.

Our final governance hypothesis, the managerial entrenchment hypothesis, is based upon Stulz' (1988) argument that managers often want to entrench themselves

against disciplinary pressures. Managers' actions are, however, constrained by their legal responsibility and there is a fundamental legal difference between LBOs and LRs. Because LBOs involve a change of control but LRs do not, the decision to recapitalize, but not a LBO, is covered by the business judgement rule. This means that a firm can carry out a LR in the face of a more valuable takeover offer, but cannot accept a LBO offer if a higher offer exists.<sup>3</sup> Accordingly, firms that fear a hostile takeover would be reluctant to consider a LBO because doing so puts the firm "in play." Unlike LBOs, LRs rarely generate competing takeover offers and require neither a shareholder vote nor that the firms accept, or even consider, higher-value offers. In fact, LRs are often implemented in the face of a takeover threat that generally dissipates after the restructuring. Managerial entrenchment, however, should greatly reduce the risk that a competing offer will cause managers to lose control of their firm after supporting a LBO proposal. For example, managers who own majority of their firm's stock can take their company private with little risk of an aggressive counter-offer costing them control. Therefore, under the managerial entrenchment hypothesis, we expect that firms with relatively entrenched managers will be more likely to implement LBOs.

Our empirical results based upon a sample of 41 LRs and 106 LBOs implemented between 1985 and 1990 indicate the following. Prior to their HLT, LBO firms tend to (1) be smaller, (2) be less profitable, (3) have higher insider ownership, (4) have lower block ownership, (5) have a smaller fraction of independent outside directors on their board, and

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<sup>3</sup>Generally, the business judgement rule protects the members of the independent committee from judicial second-guessing a director who acts in good faith, is adequately informed, and has no personal interest in the transaction. The obligation to act in good faith requires that the committee act in the best interest of shareholders by obtaining the best price for shareholders, and promoting a level playing field for bidders other than the management group. See Simpson (1988) for a detailed description of the business judgement rule.

(6) face fewer takeover threats than LR firms. We find that empirical results of (2)-(6) can not be attributed either to the difference in firm size or to an industry effect. We interpret the result of (2) as supporting the effective monitoring hypothesis. We also consider the results of (3), (4), (5), and (6) as supporting the managerial entrenchment hypothesis.

This paper contributes to the existing literature in several important ways. First, our support of the effective monitoring hypothesis for operating performance complements the studies of Jensen (1989) and Denis (1994) that indicate the LBO organizational forms can add additional value by private equity investors' increased monitoring. Our evidence suggesting that poorly performing firms tend to choose LBOs over LRs also complements the work of Lang, Poulsen, and Stulz (1995) that shows poorly performing firms are more likely to sell assets. Second, our support of the managerial entrenchment hypothesis for corporate governance complements the existing work in Stulz (1988), Berger, Ofek, and Yermack (1997) and Garvey and Hanka (1998) which suggests that managerial self-interest plays an important role in corporate decision-making. Third, both efficiency concerns and managerial incentives appear to play important roles in determining a firm's choice of a HLT. To the extent that these results generalize to how corporate organizational forms develop, this suggests that models of corporate organizational form, both theoretical and empirical, should try to incorporate both the efficiency gains available from different organizations and the incentives of the powerful parties involved. Assuming, at any given time, that decisions on corporate organizational form are made either based solely on value maximization, (i.e., efficiency improvement), or purely in an agency context, (i.e., managerial self-interest), likely misses many important issues.

The paper proceeds as follows. Section I describes the hypotheses. Section II presents our sample, data and empirical measures. Section III provides empirical results and Section IV concludes.

## **I. Hypotheses**

### **A. Operating Performance**

Jensen (1986) and Stulz (1990) contend that high leverage can limit management's discretion and, hence, reduce agency costs because large interest payments prevent managers from investing in unprofitable projects they would otherwise fund. As a result, LBOs should generally lead to operating improvements, a conjecture supported by Lichtenberg and Siegel (1990) who find that total factor productivity in manufacturing plants increases sharply following a LBO. Consistent with this, Denis and Denis (1993) also find that operating performance improves after LRs.

Jensen (1989) argues that the LBO organizational form adds additional value because increased monitoring by private equity investors (e.g., Kohlberg, Kravis, and Roberts (KKR)) complements the discipline provided by high debt levels, helping ensure that managers make value-enhancing changes. That is, private equity monitoring increases the likelihood that potential operating improvements are realized. To the extent that operating improvements motivate HLTs, firms with the potential for greater operating improvements should find a LBO, at the margin, more profitable than a LR because the LBO organizational form facilitates post-HLT improvements. Denis' (1994) comparison of two similar supermarket HLTs, Safeway's LBO and Kroger's LR, supports this hypothesis. Denis shows that increased monitoring by KKR, together with the improved incentive

structure provided by high debt and new compensation schemes, was associated with Safeway experiencing a much greater increase in post-HLT value than Kroger. Our large sample test of this hypothesis is:

*Effective Monitoring Hypothesis: Firms with relatively poor operating performance as measured by low profitability prior to HLT will tend to choose LBOs over LRs.*

Relatively low profitability should, on average, reflect a greater potential for value-adding changes. However, it is important to note that tests of this hypothesis cannot determine the causal link between potential operating improvements and a HLT choice. Possibly managers only support a LBO when large operating improvements are available because this allows them to earn attractive returns on their LBO equity stakes. Similarly, if investors believe that a LBO proposal reveals managers' knowledge of large future operating improvements, shareholders will likely demand a large premium before selling the firm. If so, a (high premium) buyout is only viable when large potential improvements actually exist. Likewise, LBO specialists such as KKR may only be willing to get involved in transactions when there are large potential improvements. Providers of debt financing, such as banks, may also play a role. In sum, tests of the effective monitoring hypothesis constitute joint tests of the propositions that the LBO governance system facilitates post-HLT operating improvements and that poor pre-HLT performance is a good proxy for the potential for these improvements.

## **B. Corporate Governance**

For a number of reasons, firms' pre-HLT governance structure should also affect their choice of a HLT. First, because well-designed internal control systems align managers' incentives with shareholders, either by letting them share in the rewards of good decision-making (substantial managerial ownership and equity-linked compensation

plans) or by punishing them for bad decision-making (outside block ownership and active monitoring by boards of directors), firms with good corporate governance should put greater emphasis on value maximization.

Jensen and Meckling (1976) argue that increased equity ownership by managers provides them with incentives to make value-maximizing decisions. Morck, Shleifer, and Vishny (1988) and McConnell and Servaes (1990) document a relation between management ownership and firm value. Large outside blockholders, recognizing that managers have a tendency to skew decisions in directions that would benefit themselves, have an incentive to monitor managers (Demsetz and Lehn (1985), Shleifer and Vishny (1986), and Jensen (1989)). Denis and Serano (1996) find that monitoring by active outside blockholders with substantial ownership stakes often promotes valuable internal control efforts.

Additionally, many studies (Weisbach (1988), Byrd and Hickman (1992), Brickley, Coles and Terry (1994), and Berger, Ofek, and Yermack (1997), among others) suggest that top managers are more vigorously monitored when the board of directors is controlled by independent outside directors. Yermak (1996) also argues that board size has an impact on the quality of internal monitoring and reports that smaller boards are more effective. Finally, Jensen and Murphy (1990a, 1990b) argue that equity-based compensation provides managers with an incentive to maximize value.

Following previous studies aforementioned, we use 1) managerial ownership, 2) block ownership, 3) composition of a firm's board, 4) board size, and 5) equity compensation to proxy for the quality of a firm's corporate governance system. There are,

however, several competing hypotheses about how a firm's pre-HLT corporate governance influences the choice between LBOs and LRs.

### **B.1. Substitute Monitoring Hypothesis**

If, as part of the market for corporate control, LBOs serve as a substitute for effective internal control systems, firms without effective internal controls will tend to be the target of LBO attempts. Jensen (1993) claims that capital markets and the market for corporate control are one of control forces that resolve the problems caused by a divergence between managers' decisions and those that are optimal from society's standpoint. Jensen (1993) also asserts that other control forces correcting managerial failure include legal/political/regulatory system, product and factor markets, and internal control system headed by the board of directors. According to Jensen (1993), capital markets and the market for corporate control may serve as a substitute for internal control system especially when internal control system is not functioning properly. Denis and Denis (1995) further suggest that the external control systems have an important influence on internal control systems' ability to discipline poorly performing managers. Hence, it is reasonably expected that capital markets and the market for corporate control provide an important disciplining function to correct managerial failure. By nature, ineffective governance is one of the major problems in internal control mechanisms. If LBOs are only necessary when internal monitoring fails, LBO firms should have observably inferior corporate governance systems. This leads us to the following hypothesis:

*Substitute Monitoring Hypothesis: Firms with relatively ineffective internal control systems are more likely to choose LBOs than LRs.*

Under the substitute monitoring hypothesis, we expect that firms with relatively ineffective internal control systems -- low managerial ownership, little block ownership,

large boards dominated by inside directors, and equity-insensitive compensation plans -- will tend to choose LBOs over LRs.

## **B.2. Governance Prerequisite Hypothesis**

An alternative theory is that LBOs systematically dominate LRs from current shareholders' perspective. To the extent that shareholders receive a sufficiently large control premium in a LBO, they will always prefer that their firm be sold. Supporting this idea, past research has consistently documented higher abnormal returns around LBO announcements than around LR announcements. If LBOs systematically help shareholders but burden managers with costs, then effective internal controls would be necessary to provide the incentives for managers to accept a LBO offer. If we further assume that an auction resulting in a LBO always maximizes firm value, the LBOs will be associated with effective, not ineffective, corporate governance systems. This assumption is, however, not universally accepted. LRs are often cited as a "fair" way for a firm to increase leverage (and, presumably, improve performance) because individual shareholders are given the opportunity to share in any subsequent gains. Our next governance hypothesis is based on the idea that effective corporate governance systems are prerequisite for managers to accept LBOs and LBOs are the value maximizing strategy:

*Governance Prerequisite Hypothesis: Firms with relatively effective internal control systems will tend to choose LBOs over LRs.*

This produces predictions exactly opposite of the substitute monitoring hypothesis: firms with relatively high managerial ownership, substantial block ownership, small boards dominated by outside directors, and equity-sensitive compensation plans will tend to choose LBOs over LRs.

### **B.3. Managerial Entrenchment Hypothesis**

Our final governance hypothesis is based upon agency theory and a managerial entrenchment argument. Jensen and Meckling (1976) discuss the circumstances under which managers will not act to maximize firm value. It is conceivable that the extent to which managers themselves entrench (optimal for managers whose objective is to maximize tenure) often differs from the optimal choice for shareholders. Managers' ability to do excessively entrench themselves is restricted by other parties' ability to discipline them for taking value-reducing actions. This can lead managers to try to entrench themselves from both internal and external disciplinary mechanisms (see Stulz, 1988). Berger, Ofek, and Yermack (1997) define managerial entrenchment as the extent to which managers fail to experience discipline from the full range of corporate governance and control mechanisms, including monitoring by the board, the threat of dismissal or takeover, and stock- or performance-based compensation incentives.

We focus on entrenched managers' ability to avoid discipline from the market for corporate control. LBOs, but not LRs, involve a change of corporate control. Therefore, in a LBO, the firm's board has a fiduciary responsibility to consider competing takeover offers.<sup>4</sup> This makes a LBO relatively risky; a firm cannot accept a LBO offer when another aggressive bidder is offering a superior price. Additionally, a LBO, as well as any competing takeover offer, requires shareholder approval. Conversely, firms can, and do, implement LRs in the face of an attractive takeover offer. Moreover, most LRs do not

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<sup>4</sup>Lederman and Bryer (1989) provide a summary of boards' legal responsibilities in a LBO.

require shareholder approval. Therefore, we expect managers to lean toward LRs when a LBO proposal would put their control of the firm at risk.

Stulz (1988) shows how increased managerial ownership increases the premium necessary for a bidder to acquire control of a target firm, decreasing the likelihood of a successful bid. This makes a LBO less risky for managers who control substantial voting rights: a competing offer is less likely to succeed. Similarly, in the Stulz model increased managerial ownership decreases the premium necessary for managers to acquire control of their firm in a LBO, making the LBO more attractive. Therefore, high managerial ownership should be associated with LBOs.<sup>5</sup>

Shleifer and Vishny (1986) show how outside blockholders can facilitate an outside takeover by "sharing" some of their gains from a higher-valued offer with the bidder. This will make initiating a LBO relatively safer for entrenched managers of firms without substantial outside blocks. In their study of unsuccessful control contests, Denis and Serrano (1996) report that in the absence of an outside blockholder, entrenched managers typically retain their positions despite poor pre-contest performance. They also find that management turnover is concentrated among poorly performing firms in which outside blockholders acquire an ownership stake. They conclude that monitoring by active outside blockholders facilitate valuable control efforts. Hence, managers should view a LBO as less risky if outside blockholders' ownership stake is relatively low.

Additionally, some discretion is available when a board of directors considers a LBO proposal; for example, although doing so may maximize shareholder wealth, a

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<sup>5</sup>Also, participating in a LBO exposes managers to substantial unsystematic risk, and high pre-HLT managerial ownership plausibly reveals a relatively low aversion to unsystematic risk. Similarly, low managerial equity ownership may reveal a personal preference for LRs over LBOs. We thank Jonathan Karpoff for making this point.

board is not required to "shop" the firm for the highest possible bid. The likelihood that a firm's board uses its discretion to support the LBO is presumably a function of the board's independence. The evidence of larger LBO premia when firms have an outside-dominated board documented in Lee, Rosenstein, Rangan, and Davidson (1992) supports this presumption. Therefore, a LBO may be safer for managers of firms with relatively dependent (rather than independent) boards. Combined together, the discussion leads to the following hypothesis:

*Managerial Entrenchment Hypothesis: Firms with relatively entrenched management are more likely to choose LBOs than LRs.*

Under the managerial entrenchment hypothesis, it is expected that LBO firms will have relatively high managerial ownership, little block ownership, and/or boards without a strong outsider presence. Table I summarizes the governance hypotheses' specific empirical predictions. We should note that while the substitute monitoring and governance prerequisite hypotheses make precisely opposite predictions, the managerial entrenchment hypothesis' predictions mix the two. Therefore, our empirical analysis can potentially distinguish between the three hypotheses.

## **II. Data and Measurement**

### **A. Data Description**

To investigate firms' choice of a HLT organizational form, we collect data for a sample of LBO and LR firms during the period 1985 to 1990, the period of greatest HLT activity during the 1980's. We use this period because LRs first appeared in 1985 and HLT activity dropped sharply after 1989. Our sample represents all firms that meet the criteria described in this section. Our sample of LRs comes from a search of the annual industrial Compustat tapes for large special dividends and stock repurchases. That there

was an abrupt recapitalization is then confirmed from the news media. The LR sample consists of 41 firms that distribute at least 20% of their market value of equity in a debt-financed special dividend or nontargeted tender offer repurchase (but not a LBO).

Our sample of LBOs is constructed using a newspaper search of the *Wall Street Journal* abstracts over the same period for the keywords "LBO," "MBO," and "buyout," and selecting the resulting LBOs that meet criteria similar to those in Kaplan (1989). Specifically, (i) the firm must go private in a whole company LBO<sup>6</sup>, (ii) there cannot be a pre-LBO majority owner, and (iii) the firm must maintain its independence for at least three years after the LBO.

Table II provides the sample distribution by year. The sample of LR firms is most heavily concentrated in 1988-1989 and is very thin in 1990. The sample of LBO firms is most heavily concentrated in 1987-1989 and is very thin in 1990. We use the *Wall Street Journal Index* to learn whether an active takeover threat exists prior to the initial LBO or LR proposal. We define an active takeover threat as either an actual takeover offer or a large (>5%) toehold disclosure by a potential bidder along with published speculation about a possible takeover in the *Wall Street Journal*.<sup>7</sup>

## **B. Variable Measurement**

In our tests, all financial variables are taken from the Compustat tapes for the last full fiscal year before each firm's HLT. First, we measure pre-HLT performance using

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<sup>6</sup>We do not include divisional LBO firms in our sample because we believe that divisional LBO firms are more comparable with other corporate divestiture tactics, such as equity carve-outs, spin-offs, sell-offs, and asset sales.

<sup>7</sup>Consistent with the managerial entrenchment hypothesis, LRs appear more attractive to insecure managers. For instance, a substantially greater frequency of takeover threats exists in the LR group (27/41) than in the LBO group (31/106) in our sample, a difference that is highly significant ( $p < 0.001$ ) using a chi-square frequency test ( $\chi^2 = 16.4$ ).

firms' profitability. Because potential operating improvements can be the result of restructuring either capital or labor, we measure pre-HLT performance as both the ratio of operating income to total assets and the ratio of operating income to the number of employees. These are common performance measures in the HLT literature (see, e.g., Kaplan (1989) and Smith (1990)).

We obtain corporate governance data (pre-HLT managerial equity ownership, equity ownership of outside blockholders, board size, board composition, and CEO salary information) from published proxy statements for the last full fiscal year before the HLT. Managerial equity ownership is measured in two ways: the CEO's beneficial ownership and the beneficial ownership of all officers and directors. Outside block ownership is the sum of >5% owners that are unaffiliated with the firm. We measure board independence using the number of independent outside directors divided by the total number of directors on the board. We define independent outside directors following Hermalin and Weisbach (1988): independent outside directors have, to the best of our knowledge, no past, present, or likely future financial ties to the firms other than compensation for being a director (investment bankers are assumed to have likely future financial ties). The variable excludes gray directors who are relatives of former or current officers or have personal business relationship with the firm. Following Mehran (1995), the use of equity-based compensation is measured using the value of CEO stock, pseudo-stock, and option grants as a percentage of total compensation. Option grant values are estimated based upon the Black-Scholes (1973) option pricing model using volatility calculated from daily stock returns for the last full fiscal year before the HLT.

### **III. Empirical Results**

#### **A. Preliminary Comparison of Transactions**

Before we address the choice of an organizational form between LBOs and LRs, it will be beneficial to have some preliminary comparison of how the transactions impact leverage and ownership in our sample firms. While changes following LRs are observed directly, changes following LBOs are imputed from the financing and equity investment information provided in the buyout proxy statement filed with the SEC.

Table III presents a preliminary summary of how our HLTs change leverage and equity ownership. In both LBOs and LRs, debt levels roughly quadruple from relatively low levels (around 20% of total assets) to very high levels (around 80% of total assets). This demonstrates that both transactions are associated with dramatic (and similar) leverage increases. However, LRs have a much more modest impact on firms' organizational form. In addition to remaining publicly traded corporations, LR firms' director and officer ownership and outside blockholdings increase only modestly. The median level of managerial ownership rises from 3.3% to 4.1% while the largest blockholder's stake rises from a median level of 5.7% to 6.7%. LBO firms, on the other hand, experience dramatic organizational changes. After going private, median director and officer ownership rises from 10.4% to 23.3% and the largest blockholder's median stake rises from 8.2% to 76.7%. Clearly, although LBOs and LRs result in similar capital structure changes, they produce very different organizational structures, at least in terms of equity ownership structures. From below, we focus on the *ex ante* choice of LBO and LR organizational forms.

## **B. Univariate Tests**

Table IV provides summary statistics and tests for univariate differences in firm characteristics between LBO and LR firms. As a group, LR firms are larger (based upon both total assets and market value of equity) and more profitable, particularly when profitability is measured by the ratio of operating income to number of employees. Both managerial and outside block equity ownership are higher in LBO firms, but LR firms have more outside directors. There is no significant difference in board size or the use of equity-based compensation.

In general, these results support both the effective monitoring and the managerial entrenchment hypotheses. In particular, LBO firms being less profitable is consistent with the effective monitoring hypothesis that LBOs help laggards improve their performance. Higher managerial ownership in LBO firms is consistent with both the governance prerequisite and managerial entrenchment hypotheses, but not with the substitute monitoring hypothesis. Although statistical significance is relatively weak, higher outside block equity ownership of LBO firms is consistent with the governance prerequisite hypothesis, but not the managerial entrenchment hypothesis. The smaller ratio of outside directors to board size for LBO firms supports for both the substitute monitoring and managerial entrenchment hypotheses, but not the governance prerequisite hypothesis.

The significant size difference between the LBO and LR groups, however, makes these results difficult to interpret. For example, because large firms tend to have lower managerial ownership, the ownership difference between LBO and LR firms could be entirely a reflection of LBOs being, on average, smaller firms. Our subsequent analysis addresses this issue.

### **C. Analysis of Covariance Test**

To better control for LBO and LR firms' size differences, we undertake an analysis of covariance (ANCOVA) to test for differences between LBO and LR firms. An ANCOVA is functionally identical to regressing the variable of interest (for example, CEO ownership) on a covariate (in our case, firm size) and a dummy variable that classifies the two groups (in our case, LBOs and LRs). The dummy variable's impact on the regression's sum of squared errors provides an F-statistic that measures the dependent variable's difference between the two groups, controlling for the covariate. The regression coefficients can also be used to calculate the least square mean for each group, giving an estimate of what group averages would be if (in out tests) LBO and LR firms were of similar size (the population mean).

In addition to controlling for size, it may also be important to control for industry differences between our sample firms. Although LBO and LR firms tend to come from similar industries, a subtle difference in industry could explain some of the univariate differences in Table IV. For example, the lower average ratio of operating income to number of employees could be the result of our LBO sample consisting of more firms from high employment service industries. To better proxy for potential improvements using pre-HLT performance, we industry-adjust our profitability ratios by subtracting the median ratios for all Compustat firms with the same four-digit SIC code, excluding firms in our sample of HLTs. Because these industry-adjusted ratios are benchmarked against clearly attainable norms, they should provide a better measure of which HLT firms could most benefit from the LBO organizational structure.

Table V reports the empirical results from the ANCOVA tests for group differences between LBO and LR firms, controlling for firms' market value of equity. Even after controlling for size, significant differences exist between all LBO and LR firms' industry-adjusted profitability, managerial ownership, block ownership, and board composition. The block ownership difference, however, reverses when you control for size: the ANCOVA shows that LBO firms have less block ownership than LR firms, given their size. There continues to be no significant differences between LBO and LR firms' use of equity-based compensation and board size.

These results generally support the effective monitoring hypothesis for operating performance and the managerial entrenchment hypothesis for corporate governance. Specifically, LBO firms' lower profitability, both per dollar of book assets and per employee, is consistent with LBOs being more common in firms that have the potential to most benefit from additional monitoring by the LBO equity investors. These results are not sensitive to various methods for industry adjustment (e.g., using three-digit SIC code matches or industry means). LR firms' lower managerial equity ownership, higher block ownership, and greater board independence are consistent with the managerial entrenchment hypothesis that managers in insecure positions will prefer LRs. Measuring size using total assets in place of market value of equity makes virtually no difference in our results.

#### **D. Multivariate Logit Regressions**

Although the ANCOVAs control for our LBO and LR firms' size difference, they cannot reveal a variable's marginal contribution to the HLT choice after controlling for other characteristics. We use several multivariate logit regression models to further explore the

differences between LBO and LR firms. We regress a group dummy variable on various combinations of our measures of potential operating improvements and the quality of a firm's corporate governance, along with two control variables (size and a dummy variable that indicates whether there is a pre-HLT bid). Although we only report results using firms' ratio of operating income to total assets and firms' CEO ownership, regressions using the ratio of operating income to employees and/or ownership of all officers and directors produce similar results.

The logit regression results are summarized in Table VI. The dependent variable equals zero if the firm chooses a LBO and one if it chooses a LR. The logit results indicate that, as predicted by the effective monitoring hypothesis, a lower industry-adjusted operating income to total assets ratio significantly increases the likelihood a sample firm chooses a LBO. Those results remain significant using various model specifications. This suggests that efficiency considerations at least partially determine a firm's HLT choice.

The logit results also indicate that higher managerial ownership is associated with an increased probability of a LBO. Recently, Halpern, Kieschnick, and Rotenberg (1999) report that their sample LBOs cluster into two groups: one group from high pre-HLT managerial stock ownership and the other from low pre-HLT managerial stock ownership. They suggest that high pre-HLT managerial equity LBOs are typically led by management in a voluntary transaction, while low pre-HLT managerial equity LBOs are typically led by third parties in a takeover battle. They compare each group of LBOs to corporations acquired by another firm or randomly selected public corporations and conclude that two clusters of LBOs differ significantly from one another and from corporation acquired by another firms or corporations that remain public. Halpern, Kieschnick, and Rotenberg

(1999), however, do not compare LBOs with LRs. While our study does not distinguish between high and low pre-HLT managerial equity LBOs for the comparison with LRs, our empirical results suggest that pre-HLT managerial equity of LBOs is, on average, significantly higher than that of LRs. This finding supports both the managerial entrenchment hypothesis and the governance prerequisite hypothesis.

Additionally, greater board independence, measured as the fraction of independent outside directors on the board, significantly reduces the likelihood that a sample firm chooses a LBO. The existence of a prior takeover threat, measured by the bid dummy that equals one if there is an active takeover threat prior to the first HLT proposal and zero otherwise, is also significantly and positively associated with an increased probability of a LR. The results for block ownership are weaker, but the coefficient's sign is consistently positive. Together, these results are consistent only with the managerial entrenchment hypothesis: firms with relatively secure managers are more likely to use LBOs.<sup>8</sup> Our results do not support either the substitute monitoring hypothesis or the governance prerequisite hypothesis. Overall, our multivariate logit regression models correctly predict up to 84.1 percent of our sample firms' HLT choices.

#### **E. Size Matched-Sample Tests**

The ANCOVAs and logistic regressions assume a specific relationship between firm size and the other variables. For example, the ANCOVAs assume a linear relationship between size and managerial ownership. In order to verify the robustness of

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<sup>8</sup>We obtain very similar results using specifications that include dummy variables for various managerial ownership levels (e.g., 0-0.05, 0.05-0.25, and 0.25-1) and other measures of outside directors' importance on boards (e.g., a dummy that indicated whether a majority of directors are independent outsiders). Our other variables (e.g., the use of equity-based compensation) neither receive significant coefficients nor materially affect the other variables' regression coefficients when added to the logit regressions.

our results for our LBO-LR comparisons, we also explore 35 size-matched pairs of LBOs and LRs (each LR is matched to a LBO with the most similar market value of equity). Whenever possible, a LR is matched to a LBO that has full governance data available. However, in cases where no LBO with full governance data available has a market value of equity within 10 percent of the LR's market value of equity, a match is made to the closest LBO without regard for governance data availability (two cases). If no LBO with a market value of equity within 20 percent of the LRs is available, the LR is not used in this analysis (six cases). Each buyout is used as a match only once.

Table VII provides summary statistics and difference tests for the size-matched samples. Using size-matched pairs suggests that LR firms are more profitable and have lower managerial ownership and more independent boards. This confirms our earlier empirical results and again supports the efficiency improvement hypothesis for operating performance and the managerial entrenchment hypothesis for corporate governance.<sup>9</sup> The size-matched pairs do not, however, indicate a difference between LR firms' and buyout firms' outside block ownership.

#### **IV. Conclusion**

This paper explores firms' choice of an organizational form by comparing two similar highly leveraged transactions (HLTs), leveraged buyouts (LBOs) and leveraged recapitalizations (LRs). This comparison provides a natural experiment for studying why particular firms choose a different organizational form. Both transactions result in heavy debt loads, but different organizational forms: LBO firms emerge as highly leveraged

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<sup>9</sup>To further explore the effect of industry differences, we also constructed 33 industry-matched LBO-LR pairs. Tests using these industry-matched pairs produced results consistent with our previous findings.

private companies with highly concentrated equity ownership and LR firms emerge as highly leveraged public companies with relatively diffuse equity ownership.

We find evidence that supports an efficiency explanation for firms' choice of a HLT. Jensen (1989) argues that the LBO organizational form leads to increased monitoring by private equity investors, in particular the LBO sponsor/specialist, increasing the likelihood that the potential operating improvements available to the firm will be realized. Consistent with this, the sample of LBO firms has significantly lower pre-HLT profitability, as measured by industry-adjusted operating income per dollar of book assets and per employee, than the sample of LR firms. Presumably, worse pre-HLT performance corresponds to larger potential post-HLT improvements, and monitoring by LBO sponsors helps make these potential improvements a reality. These findings cannot be attributed to size or industry differences between the LBO and LR firms.

We also find evidence suggesting that managerial incentive also impact the choice between LBOs and LRs. Firms characterized by less insider ownership, more unaffiliated block ownership, a greater fraction of outsiders on their board of directors, and/or facing an active takeover threat, tend to use LRs rather than LBOs. These results also cannot be explained by differences in firm size or industry. As a whole, the results are consistent with only entrenched managers being willing to risk a LBO. We interpret that these results are supportive for the managerial entrenchment hypothesis of Stulz (1988). As noted in Denis (1994), however, while these findings suggest that incumbent managers use LRs to avoid losing control of their firms, they do not necessarily imply that LRs are value-destroying, even though the average cumulative stock return around LRs is less than

around LBOs and hostile takeovers.<sup>10</sup> Because LR firms exhibit superior pre-HLT performance, it may simply be that these firms have fewer potential improvements available.

Our results are not consistent with LBOs being the result of either particularly well- or poorly-designed corporate governance structures. Higher managerial ownership, which presumably helps align managers' incentives with shareholders, is associated with LBOs, but high block ownership and greater outside representation on corporate boards, both of which presumably improves shareholder monitoring, are associated with LRs. It appears that managers' personal incentives matter the most.

Our study suffers from a common affliction of corporate finance research because we are forced to use endogenously determined firm characteristics to explain the endogenous choice of a post-HLT organizational form. The high frequency of takeover threats in our sample of HLT firms may, however, substantially mitigate this problem. If pre-HLT characteristics are determined in a pre-threat environment and the HLT is the response to the perceived or actual takeover threat, then no simultaneity problem exists: the choice of a post-HLT organizational form must be made taking pre-HLT characteristics as a given.<sup>11</sup> In reality, our tests are not completely free of simultaneity problems.

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<sup>10</sup>The average cumulative market-adjusted return between the day before the *Wall Street Journal* announcement of any control activity and the day the *Wall Street Journal* reports the HLT plan is 27.4% for our LBOs and 22.9% for our LRs. Jensen and Ruback (1983) report average abnormal returns of roughly 30% in hostile acquisitions.

<sup>11</sup>We find economically equivalent, although statistically weaker, results replicating our tests using only the 58 sample firms that faced an active takeover threat prior to their HLT.

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**Table I**  
**Predicted Effects**

This table reports empirical predictions for the relationship between various firm characteristics and the choice between leveraged buyouts and leveraged recapitalizations. While the effective monitoring hypothesis predicts the pre-HLT effect of profitability on the choice of organizational HLT form, corporate governance hypotheses including the substitute monitoring hypothesis, the governance prerequisite hypothesis, and the managerial entrenchment hypothesis predict the pre-HLT effect of corporate governance on the choice of HLT. The symbol of (+) or (-) indicates a positive or negative relationship between the characteristic and the likelihood of choosing a buyout. 'na' indicates 'not applicable.'

Variable	Effective monitoring hypothesis	Substitute monitoring hypothesis	Governance prerequisite hypothesis	Managerial entrenchment hypothesis
<b>Profitability</b>				
Operating income/ total assets	(-)	na	na	na
Operating income/ employees	(-)	na	na	na
<b>Governance</b>				
CEO equity ownership	na	(-)	(+)	(+)
Equity ownership of all officers and directors	na	(-)	(+)	(+)
Equity ownership of outside blockholders	na	(-)	(+)	(-)
Board size	na	(+)	(-)	na
Outside directors/ board size	na	(-)	(+)	(-)
Equity-based Compensation	na	(-)	(+)	na

**Table II**  
**Distribution of Sample Firms by Year between 1985 and 1990.**

This table presents the distribution of sample firms. The leveraged recapitalization sample consists of 41 firms that distribute at least 20% of their market value of equity in a debt-financed special dividend or nontargeted tender offer repurchase (but not a leveraged buyout) between 1985 and 1990, the period of greatest HLT activity. The buyout sample consists of 106 firms that use debt financing to go private between 1985 and 1990.

Year	Leveraged Recapitalizations		Leveraged Buyouts	
	number	(%)	number	(%)
1985	6	14.6	13	12.3
1986	6	14.6	17	16.0
1987	7	17.1	20	18.9
1988	11	26.8	35	33.0
1989	9	22.0	18	17.0
1990	2	4.9	3	2.8
Total:	41		106	

**Table III**  
**Preliminary Comparison of Transaction between Leveraged Recapitalizations and Leveraged Buyouts**

This table provides estimated changes in leverage and ownership after each type of highly leveraged transaction. The leveraged recapitalization sample consists of 41 firms that distribute at least 20% of their market value of equity in a debt-financed special dividend or non-targeted tender offer repurchase (but not a leveraged buyout) between 1985 and 1990. The buyout sample consists of 106 firms that use debt financing to go private between 1985 and 1990. The pre-HLT leverage variable is taken from the Compustat tapes for the last full fiscal year before each firm's HLT. The pre-HLT managerial and outside blockholders' ownership variables are from published proxy statements for the last full fiscal year before the HLT. The post-LBO variables are taken from the financing and equity investment information provided in the buyout proxy statement filed with the SEC. The post-LR variables are from the Compustat tapes at the closest time to the date suggested by the SEC filed information. Changes following the recapitalizations are observed directly. Changes following the buyouts are based on the information provided in the buyout proxy statement filed with the SEC.

	Leveraged recapitalizations			Leveraged Buyouts		
	before mean (median)	after mean (median)	ratio mean (median)	before mean (median)	after mean (median)	ratio mean (median)
Long term debt/ total assets	0.177 (0.154)	0.723 (0.681)	4.08 (4.42)	0.219 (0.198)	0.871 (0.894)	3.98 (4.52)
Equity ownership of all officers and directors	6.6% (3.3%)	10.1% (4.1%)	1.53 (1.25)	15.6% (10.4%)	32.2% (23.3%)	2.06 (2.24)
Largest outside blockholder	6.5% (5.7%)	8.3% (6.7%)	1.28 (1.18)	10.0% (8.2%)	61.0% (76.7%)	6.10 (9.35)

**Table IV**  
**Univariate Mean Test and Rank sum Median Test**

This table reports empirical results of univariate mean test and rank sum median test. The leveraged recapitalization sample consists of 41 firms that distribute at least 20% of their market value of equity in a debt-financed special dividend or nontargeted tender offer repurchase (but not a leveraged buyout) between 1985 and 1990. The buyout sample consists of 106 firms that use debt financing to go private between 1985 and 1990. Tests for differences use a t-test on the means and a rank sum test on the medians. Total assets and market value of equity are reported in million dollars. Operating income/ employees is in thousand dollars. Equity ownership is reported as a percentage of shares outstanding. The size and profitability variables are taken from the Compustat tapes. The corporate governance variables are from published proxy statements for the last full fiscal year before each firm's HLT.

	Leveraged Recapitalizations mean (median)	Leveraged Buyouts mean (median)	Tests for differences t-statistics (z-statistics)
<b>Size</b>			
Total Assets	2,629 (1,599)	1,063 (351)	3.07*** (3.20)***
Market value of equity	1,596 (1,094)	855 (228)	3.41*** (3.47)***
<b>Profitability</b>			
Operating income/ total assets	0.176 (0.148)	0.149 (0.151)	1.78* (0.92)
Operating income/ employees	28.84 (13.02)	13.01 (9.67)	2.35** (2.61)**
<b>Governance</b>			
CEO equity ownership	2.37 (0.50)	8.51 (2.05)	3.27*** (3.13)***
Equity ownership of all officers and directors	6.60 (3.30)	15.48 (10.87)	3.55*** (3.62)***
Equity ownership of outside blockholders	12.14 (8.58)	14.57 (11.90)	2.04* (2.19)*
Board size	10.6 (11)	10.0 (10)	0.67 (0.41)
Outside directors/ board size	0.49 (0.50)	0.38 (0.38)	3.19*** (3.32)***
Equity-based compensation/ total compensation	0.10 (0.03)	0.13 (0.04)	0.51 (0.38)

\*\*\*, \*\*, and \* denote that the buyout sample differs significantly from the recap sample at the 0.01, 0.05, and 0.10 levels, respectively. Tests on size variables use natural logs.

**Table V**  
**Comparisons of Sample Firms, Controlling for Size in an Analysis of Covariance (ANCOVA)**

This table presents the empirical results from ANCOVA tests for group differences between LBO and LR firms, controlling for firms' market value of equity. The leveraged recapitalization sample consists of 41 firms that distribute at least 20% of their market value of equity in a debt-financed special dividend or non-targeted tender offer repurchase (but not a leveraged buyout) between 1985 and 1990. The buyout sample consists of 106 firms that use debt financing to go private between 1985 and 1990. The analysis of covariance controls for the natural log of market value of equity. Operating income over total assets and employees are industry-adjusted by subtracting the median value for all Compustat firms with the same four-digit SIC code. Equity ownership is reported as a percentage of shares outstanding. The size and profitability variables are taken from the Compustat tapes and the corporate governance variables from published proxy statements for the last full fiscal year before HLT. An ANCOVA is functionally identical to regressing the variable of interest (for example, CEO ownership) on a covariate (in our case, firm size) and a dummy variable that classifies the two groups (in our case, LBOs and LRs). The dummy variable's impact on the regression's sum of squared errors provides an F-statistic that measures the dependent variable's difference between the two groups, controlling for the covariate. The regression coefficients can also be used to calculate the least square (LS) mean for each group, representing the group means adjusted for differences in the covariate.

	Leveraged Recapitalizations LS mean	Leveraged Buyouts LS mean	F-stat
<b>Profitability</b>			
Operating income/ total assets	0.042	0.009	5.38**
Operating income/ employees	6.51	0.74	2.91*
<b>Governance</b>			
CEO equity ownership	3.69	7.22	3.59*
Equity ownership of all officers and directors	9.22	13.91	3.82**
Equity ownership of outside blockholders	18.01	11.96	2.71*
Outside directors/ board size	0.48	0.38	5.26**
Board size	9.9	11.2	0.53
Equity-based compensation/ total compensation	0.11	0.12	0.67

\*\*\*, \*\*, and \* denote that the buyout sample differs significantly from the recap sample at the 0.01, 0.05, and 0.10 levels, respectively.

**Table VI**  
**Multivariate Logit Regression on the Choice between Leveraged Recapitalizations and Leveraged Buyouts**

This table provides the results of multivariate logit regressions from the comparison between leveraged recapitalizations and leveraged buyouts. The leveraged recapitalization sample consists of 41 firms that distribute at least 20% of their market value of equity in a debt-financed special dividend or nontargeted tender offer repurchase (but not a leveraged buyout) between 1985 and 1990. The buyout sample consists of 106 firms that use debt financing to go private between 1985 and 1990. The dependent variable equals zero if the firm chooses a LBO and one if it chooses a recapitalization. Operating income over total assets is industry-adjusted by subtracting the median value for all Compustat firms with the same four-digit SIC code. The BID dummy equals one if there is an active takeover threat prior to the first HLT proposal and zero otherwise. Coefficient p-values are in parentheses.

	Regression					
	(1)	(2)	(3)	(4)	(5)	(6)
Operating income/ total assets	13.62** (0.01)	13.97** (0.01)	14.81** (0.01)	14.22** (0.01)	14.07** (0.02)	14.13** (0.01)
CEO equity ownership	-0.099** (0.05)			-0.098** (0.05)	-0.082* (0.08)	-0.085* (0.06)
Equity ownership of of outside blockholders		0.035* (0.09)		0.028 (0.11)		0.029* (0.10)
Outside directors/ board size			3.299** (0.04)		4.407** (0.03)	3.990** (0.03)
Market value of equity	0.281 (0.22)	0.268 (0.27)	0.224 (0.22)	0.233 (0.38)	0.237 (0.25)	0.180 (0.63)
BID dummy	1.712*** (0.00)	1.836*** (0.00)	1.791*** (0.00)	1.774*** (0.00)	1.805*** (0.00)	1.827*** (0.00)
Pseudo-R <sup>2</sup>	80.7	78.9	80.3	82.8	83.8	84.1

\*\*\*, \*\*, and \* denote significance at the 0.01, 0.05, and 0.10 levels, respectively.

**Table VII**  
**Comparisons of Sample Firms Using Size-Matched Pairs**

This table provides summary statistics and difference tests for the size-matched samples. The full leveraged recapitalization (LR) sample consists of 41 firms that distribute at least 20% of their market value of equity in a debt-financed special dividend or nontargeted tender offer repurchase (but not a leveraged buyout) between 1985 and 1990. The full buyout sample consists of 106 firms that use debt financing to go private between 1985 and 1990. Each LR is matched to a buyout with a similar market value of equity. Whenever possible, a LR is matched to a buyout with full governance data available. If no buyout with a market value of equity within 20 percent of the LR's is available, the LR is not used in this analysis. Each LBO is used as a match only once. Operating income over total assets and over employees are industry-adjusted by subtracting the median value for all Compustat firms with the same four-digit SIC code. Tests for differences use a t-test on the mean difference and a sign rank test on the median difference.

	Leveraged recapitalizations mean (median)	Leveraged buyouts mean (median)	<u>Tests for Differences</u>	
			t-stat (z-stat)	number of pairs
<b>Profitability</b>				
Operating income/ total assets	0.041 (0.027)	0.010 (0.011)	2.72** (3.16)**	35
Operating income/ employees	5.83 (2.80)	1.47 (0.52)	1.81* (2.39)**	35
<b>Governance</b>				
CEO equity ownership	2.67 (0.60)	6.94 (1.85)	2.22** (2.10)**	33
Equity ownership of all officers and directors	7.42 (3.80)	12.83 (6.40)	2.00* (2.74)**	33
Equity ownership of of outside blockholders	13.05 (9.11)	14.51 (11.48)	1.31 (1.45)	33
Board size	10.5 (10.0)	10.9 (11.0)	0.56 (0.92)	33
Outside directors/ board size	0.47 (0.50)	0.40 (0.40)	1.62 (1.84)*	33

\*\*\*, \*\*, and \* denote significance at the 0.01, 0.05, and 0.10 levels, respectively.