

## **Managerial Divestment in Leveraged Buyouts**

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## **ABSTRACT**

We examine changes in managers' investment in the firm by means of a leveraged buyout and find evidence of agency costs opposite of those described in the extant literature. In the majority of leveraged buyouts during 1997-2007, managers divested a portion of their pre-LBO share holdings while maintaining an ownership stake in the post-LBO firm. We find that such divestment opportunities encourage managers to behave in a way that benefits existing shareholders but is costly to new investors. Specifically, we provide evidence of a positive relation between management's divestment and pre-LBO upward accrual-based and real earnings management, market timing, more aggressive buyout negotiations and higher buyout premium. We also find that following the buyout, private equity investors mitigate risk taking and low effort tendencies of divesting managers.

Leveraged buyouts (LBOs) have received a lot of attention in academic literature as a unique organizational form that is effective at reducing agency costs of managerial discretion. In fact, at the peak of buyout activity in 1980's the argument for this new organizational form was so convincing that Jensen (1989) famously wrote about the "eclipse of the public corporation". In LBOs, the reduction in agency costs stems from three changes to corporate governance. First, managers' incentives are improved through an increase in their post-buyout equity stakes. Second, the large amount of debt used to finance the buyout transaction encourages financial discipline by diverting free cash flow to debt payments. Third, the concentration of equity in the hands of private investors leads to closer monitoring and better representation on the board of directors. This monitoring effort is strengthened by yet another group of actively monitoring stakeholders – creditors. In other words, these changes in firm governance simultaneously strengthen the alignment of managers' and new investors' objectives.

However, the success of this new governance structure crucially depends on the assumption that managers invest a significant share of own wealth into the buyout firms. If, instead, managers reduced their investment in the firm, the alignment of managers' and new investors' objectives may no longer hold as the managers' objectives would be aligned with those of the selling shareholders and not the buyout team and creditors. Our paper examines agency problems brought on by managerial divestment.

It is commonly assumed that when a firm is taken private in a buyout, managers are encouraged to commit substantial personal wealth to acquire partial ownership in the post-buyout firm. This gives assurance to the outside investors and creditors that managers objectives are aligned with theirs and ensures capable management during the first two to three years following an LBO (i.e., the seasoning stage), which are considered to be the high risk part of the deal. However, in firms where managers already hold a significant equity stake, the buyout allows managers to sell their pre-LBO equity for cash at a sizeable buyout premium and then reinvest only a fraction of that amount in the post-LBO firm.

According to Kaplan and Stein (1993), during the early phase of the 1980's buyout wave, managers reinvested more than a half of their cashed-out equity back into the firm. Such significant commitment of personal wealth worked well to align the interests of managers and post-buyout shareholders, reinforcing the standard view of leverage buyout. As the buyout wave of the 1980's progressed, the amount of reinvested equity decreased and so did the incentive for well structured deals. In other words, the interests of managers became more similar to the interest of selling shareholders rather than new buyout investors. Although the post-LBO managerial ownership remained significant, despite a decrease in reinvestment levels, it was not sufficient to overcome the negative effects of managerial divestment. Such shift in management reinvestment tendencies warrants a reexamination of the relation between changes in managers' personal wealth, effectiveness of a buyout in resolving agency problems and emergence of new agency problems.

We focus our attention on managers' actions due to the divestment-related agency problems. We highlight the differences in agency problems associated with high divestment buyouts (new buyouts) and buyouts with investment or low divestment (old buyouts). Specifically, we compare agency problems that arise prior to the buyout, during the buyout process, and following the buyout. These differences provide the foundation for our empirical analyses and are summarized in Table 1.

[Insert Table 1 here]

Our analysis is based on the assumption that the managers' objective function is a weighted average of gains received from selling their pre-buyout equity stake and potential gains from the post-buyout equity stake. Therefore, prior to the buyout when managers contribute additional personal equity (*Investment*), reinvest all of their dollar investment in the firm (*Rollover*) or realize a small divestment (*Low Divestment*) there may be an incentive to take actions to depress pre-buyout firm value, trading off

future gains for current gains.<sup>1</sup> However, in a high divestment (*High Divestment*) buyout where managers intend to cash out a significant part of their shareholdings, there is a strong opposite incentive to increase short term firm value prior to buyout, trading off current for future gains. The existing literature uses earnings management and changes in stock price among several other measures as evidence of such incentives. Although management shareholders are likely to eventually make large personal financial gains in both scenarios, the agency costs of investment, rollover or low divestment buyouts are likely to be detrimental to the firm's existing shareholders, whereas agency costs of high divestment buyouts are likely to come at the expense of new investors (private equity and creditors).

The method of firm sale itself can have wealth implications for the firm's managers. While unexplored in the context of buyouts, the mergers and acquisitions literature suggests that auctioned-off firms can generate greater wealth effects and higher likelihood of merger completion than firms sold through negotiations with a sole buyer.<sup>2</sup> Applied to buyouts, this suggests that firms with managerial investment, rollover or low divestment may encourage negotiated sales that are likely to result in fewer competing bids and, possibly, a lower buyout premium. Firms with higher managerial divestment are more likely to initiate an auction by soliciting bids from numerous strategic and financial parties, potentially leading to more competing bids and a higher buyout premium.

Lastly, changes in managerial wealth by means of a buyout can negatively affect post-buyout performance even despite the positive effect that post-LBO ownership stake has on managers' effort levels. Bitler, Moscovitz and Vissing-Jorgensen (2005) find that, while there is a positive relation between an entrepreneur's ownership and effort, personal wealth and effort are negatively related. In investment, rollover or low divestment buyouts, the effect of high post-LBO managerial ownership often

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<sup>1</sup> See, for example, Fischer and Louis (2008) and Perry and Williams (1994).

<sup>2</sup> Recent studies examine the relation between method of sale and wealth gains to the firms existing shareholders. See, for example, Dasgupta and Hansen (2008), Boone and Mulherin (2008), Anilowski, Macias, Sanchez (2009).

combined with a high personal wealth investment can motivate managers to apply more effort and increase firm performance. In high divestment buyouts, however, the negative effect of a large increase in personal wealth taken out of the firm offsets the positive effect of the much smaller amount committed to maintain managerial ownership. Additionally, the new incentive structure may not only affect the level but also the volatility of post-LBO cash flows. After cashing out most of their wealth, managers may view their relatively small remaining equity in the firm as a bonus in the form of cheap call option and improve its upside potential by making risky investments [Jensen and Meckling (1976)].

We find that in 79% of LBO deals the management team cashes out some wealth at the time of the LBO. Moreover, in 44% of the LBO firms, managers cash out more than 50% of their pre-LBO holdings. Our results support significant agency costs of such divestments. First, we observe a positive relation between pre-LBO accrual-based and real manipulation and managerial divestment. We also find evidence of market timing in that high divestment buyouts are preceded by stock runups. Second, we find that buyout pricing is also affected by the divesting managers' incentives. Divesting managers are more likely to sell the firm through an auction process, negotiate the transaction more aggressively and obtain higher buyout prices. Third, following the buyout, firms, in which managers have made divestments, perform slightly worse and have slightly greater earnings volatility than firms with investments and rollovers of managerial equity. This evidence should be interpreted with caution because of the small sample size and disciplining role of private equity investors.

The fact that managers could obtain such significant liquidity of their share holdings as a result of LBO is relatively unexplored. The most comprehensive summary of changes in managerial ownership and wealth around leveraged buyouts is conducted by Crawford (1987) who analyzes a sample of 30 deals completed over 1981-1985. Not only does he find evidence of large cash-outs but he also provides

investment leverage<sup>3</sup>, which averages around 23. In other words, continuing management can typically purchase the same ownership stake in the new company as it had in the pre-LBO company for about one-twenty third of the price paid for their stock in the buyout!<sup>4</sup> This figure supports the idea that divesting managers could easily cash out more than pre-buyout wealth without giving up control, or substantial stake in the new firm. Kaplan and Stein (1993) find that managerial divestment increased during the LBO wave of the 1980's and that it had a positive affect on likelihood of firm's subsequent financial distress. Frankfurter and Gunay (1992) suggest that most buyouts are motivated by insiders need for liquidity and find that the level of insiders' divestment translates to wealth gains for pre-buyout shareholders. Elitzur, Halpern, Kieschnick and Rotenberg (1998) model the effect of reduction of managerial wealth in post-LBO firm on the structure of a buyout and manager's efforts in the post-buyout firm. Their model suggests a negative relation between managerial divestment and post-LBO performance. The recent wave of buyout activity has also led to many lucrative opportunities for firm insiders that have been reported in financial press. One of the largest divestments took place during the 2007 buyout of Aramark, when Joseph Neubauer, the firm's CEO, received roughly \$940 million for his 23 percent stake in the firm, and, after reinvesting \$250 million, netted out \$690 million.

This study makes several contributions. First, it documents the level of managerial divestment during the recent wave of LBOs extending the 1980's evidence. Second, it contributes to the literature on pre-buyout earnings management and reconciles its conflicting findings possibly because of heterogeneity due to managerial divestment. Additionally, our study updates previous studies that analyzed earnings management data from the first buyout wave in the 1980s. Since then, two securities litigation acts, which might have reduced the threat of litigation over earnings management, were passed

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<sup>3</sup> He defines investment leverage as the value management received for its stock at the buyout price relative to the value of the stock bought in the post-LBO firm to maintain the same percent ownership.

<sup>4</sup> The value of equity in the post-LBO firm decreases dramatically allowing managers buy the same stake in the post-LBO firm at a small fraction of its pre-LBO price.

by Congress in 1995 and 1998, increasing the incentives to manage earnings. Third, it documents that the extent of management divestment influence the method of firm sale, attributes of the negotiations process and buyout pricing. Lastly, the paper provides new evidence relating divesting buyouts to value creation by examining post-buyout performance.

The remainder of this study is structured as follows. Section 1 reviews the relevant literature and develops the hypotheses, Section 2 discusses the sample, Section 3 describes the data and methodology, Section 4 discusses the results, and Section 5 concludes the paper.

## **1. Previous Research and Hypothesis Development**

Changes in managerial wealth following leveraged buyouts, whether in the form of investment or divestment, create differing agency problems, as the interest of management switches from being aligned with the interests of the buyout team to being aligned with the interests of the selling shareholders. In this section we develop hypotheses about the effects of management's divestment on pre-buyout performance, method of sale, attributes of the bidding process, buyout pricing and post-buyout performance.

### ***Pre-buyout performance***

In the context of leveraged buyouts, Lowenstein (1985) and Schadler and Karns (1990) argue that managers may employ multiple accounting and non-accounting techniques to affect pre-announcement share price. One example of such manipulation, earnings management, has been explored in several empirical studies.

The early literature on accrual-based earnings management prior to leveraged buyouts draws evidence from the sample on management buyouts in which managers typically (although, not always)



roll their investment over or commit additional personal funds. DeAngelo (1986) suggests that, in this setting, managers have an incentive to report less favorable earnings prior to initiating a buyout to reduce the buyout price. However, she finds no downward earnings management in a sample spanning 1973-1982. Perry and Williams (1994) examine a similar hypothesis by applying a different methodology to a sample of buyouts over 1981-1988 and find negative accruals in the year preceding the buyout. They attribute the difference in results to the use of different samples. In a more recent study, Fischer and Louis (2008) suggest that earnings management prior to management buyouts is affected by two conflicting objectives, namely, maximizing the value of personal gain from buyout while securing and reducing the cost of buyout financing. The study finds significantly negative pre-buyout accruals in the fiscal year preceding the buyout announcements. However, managers who depend on the external funds the most, report less negative accruals prior to the buyout. Cornelli and Li (2006) theoretically argue that in cases when management has a chance to increase their ownership stake considerably, such as a management-led buyout, managers may take actions prior to the announcement of the buyout to depress the offer price. Moreover, they go as far as stating that “nobody pays attention to the ex-ante perverse effects” associated with a change in ownership structure over the LBO episode.

We argue that differing findings with respect to the extent of earnings management in management buyouts could also be due to the variation in the proportions of investing versus divesting managers in different samples, reflecting opposite incentives to manipulate earnings. Actions depressing short term firm value are likely to be observed in instances where managers buy into the firm; however, in case of buyouts with significant managerial divestment, managers will have an incentive to increase short term market valuation. The net result of such reporting incentives for divestment firms will be

higher accrual-based and real earnings manipulation measures.<sup>5</sup> Such earnings manipulation activities may also correlate with high stock returns. First, the divestment buyout itself may be timed to a period of high stock returns. Second, earnings management may either be necessary to hide or justify such high market values or may even lead to higher market values as higher cash flows as investors translate them into higher stock prices. Lastly, pre-buyout rumors may also positively affect the stock price. Thus, we formulate our first hypothesis.

Hypothesis 1: *The amount of managerial divestment is positively related to pre-LBO accruals and stock returns.*

### ***Method of sale and buyout pricing***

Leveraged buyout pricing and the factors affecting it have received significant attention in the literature. However, the majority of the literature has been built on the connection between buyout pricing to various sources of wealth gains.<sup>6</sup> Fewer studies have focused on such factors as method of sale, bidding competition, bid jumps and the role of pre-buyout runup.

The evidence on method of sale and wealth effects to the target is somewhat mixed and is limited to non-LBO evidence to the best of our knowledge. Most buyouts are carried out via two methods: through a negotiated sale or an auction. In a negotiate sale the LBO firm contacts the bidder directly (or is contacted by an unsolicited bidder) and negotiates the sale. An auction process typically begins with the firm contacting multiple potential strategic and financial acquirers. Contacted parties then indicate their interest and submit several rounds of bids until the winning bidder emerges. Often, firms receive unsolicited bids from their own management teams, strategic bidders or private equity firms. The

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<sup>5</sup> The issue of whether pre-LBO run-up can be advantageous to the insiders is an open one. Schwert (1996) finds that bidders are likely to interpret run-ups as increase in target's value. However, Betton, Eckbo and Thornburn (2008) suggest that while pre-offer run up is costly to the buyer, the pre-offer run-up is likely to substitute for the intended merger premium.

<sup>6</sup> See, for example, Kaplan (1989b), Lehn and Poulsen (1989), Kieschnick (1998).

independent committee evaluating fairness of the merger may then elect to conduct a “market check” or solicit indications of interest from additional bidders, which resembles an auction sale.

Mulherin and Boone (2008) find that wealth effects of auctions and negotiated sales are similar after controlling for cross-sectional differences. Anilowski, Macias and Sanchez (2009) demonstrate that merger targets that are sold via auctions rather than negotiated sales or hostile takeovers have higher wealth gains. These results suggest that divesting managers may choose the sales method to maximize their personal gain from the sale of the firm. Moreover, auctions often generate bidder competition. Lowenstein (1985) and Easterwood, Singer, Seth and Lang (1994) report that premium in buyouts with competing bidders is significantly larger than the premium in deals with no competing bids.

There is little empirical evidence on bid revisions in takeover literature. Betton and Eckbo (2000) examine a sample of tender offers and find significant bid revisions (13%) following the initial bid. Betton and Eckbo (2000) and Betton, Eckbo, and Thorburn (2008) also report that the initial offer premium (percentage change from pre-offer price to initial bid) in offers where the initial bidder succeeds with the first bid is slightly higher than the initial offer premium in takeovers with competing bidders. This is consistent with the argument that bidders may increase initial bid premiums to deter competition [Fishman (1988)]. Such preemptive bidding may result in fewer and lesser revisions from the initial to final bid. Betton, Eckbo, and Thorburn (2008) find support of such lower revisions. However, the probability of rival bidder entry appears unaffected by the initial offer premium.

Consistent with these studies we expect that divesting managers will attempt an auction sale by soliciting bids from a group of potential bidders or, in the event of an unsolicited bid, perform a “market check”. Additional observable outcomes of this sales process will be more aggressive bidding as measured by the number of bid revisions and, possibly, higher revision from the initial to final bid, if the preemption effect is weak. Thus we formulate our next hypothesis

Hypothesis 2. *Buyout premium, likelihood of an auction sale, and the number and magnitude of bid revisions are positively related to the amount of managerial divestment.*

### ***Post-buyout performance***

A substantial body of empirical work supports the notion that leveraged buyout deals create value. Since the availability of post-LBO data is limited, studies focus on different value-related aspects of leveraged buyouts and find positive changes in value from pre-buyout to a later corporate event, such as an IPO or second LBO, positive changes in post-buyout operating performance, and positive relations between merger premium and variables related to value creation.

Kaplan and Stein (1993) is one of the first papers to note the post-buyout performance incentives of managers that owned a large portion of pre-LBO equity and “cashed out” through the LBO. They find that in a sample of 124 large management buyouts taking place during the 1980’s LBO wave, the degree of “cashing out” by the firm’s management was positively associated with the probability of default. This suggests greater risk taking or low effort levels by the managers with less personal wealth at risk. A study by Elitzur, Halpern, Kieschnick, and Rotenberg (1998) further build on the idea that the managers’ net dollar investment also affects their efforts at managing the post-buyout firm. They develop a model in which the management's net dollar investment in the post-buyout firm is an important factor in both how the management buyout is structured and in how the firm performs after the buyout. Nikoskelainen and Wright (2007) examine realized gains from exited UK buyouts and conclude that the governance mechanisms of buyouts do not solve agency problems associated with free cash flow and increase equity value. Instead their study supports the heterogeneous view of buyouts, particularly with respect to the size of the transaction and whether it is driven by insider or outsider management. In a related vein, Bitler, Moskowitz and Vissing-Jorgensen (2005) find that entrepreneur’s effort is inversely related to his wealth. They also find that while ownership has a positive effect on

effort, the independent effect of wealth is negative and significant. We expect that in firms where management has increased personal (non-firm) wealth significantly through divestment, the post-LBO effort is diminished.

While the negative relation between wealth and effort may prevail in some firms, risk-taking may dominate in others. After divesting a significant portion of pre-LBO share holdings, managers can engage in risk-taking to maximize the value of their remaining ownership in the firm [Jensen and Meckling (1976)]. If risk-taking dominates, we expect greater volatility in post-LBO earnings for a subset of firms where managers have divested much of their pre-LBO ownership. Ultimately, distinguishing between these two effects is an empirical matter. Thus, we formulate our last two hypotheses,

Hypothesis 3a. *Post LBO performance is decreasing in management divestment.*

Hypothesis 3b. *Post LBO cash flow volatility is increasing in management divestment.*

## **2. Data and Variable Construction**

We obtain our initial sample of LBO deals from SDC's Mergers and Acquisitions database. The initial sample consists of 3,341 transactions over 1997-2006 that have been categorized as LBOs by SDC.<sup>7</sup> We further restrict the sample to completed deals (2866 transactions) with available deal size (1252 transactions) and require that the target is a public company (363 transactions). Additionally, we require that the firm is taken private by a non-operating firm or the firm's management team (260 transactions). After screening the firms on availability of Compustat and CRSP data and verifying each transaction from news wires to make sure that the firm is taken private by its management or a private equity firm, we arrive at the sample containing 229 observations. We then access each firm's pre-LBO, LBO and post-LBO filings to hand-collect our key analysis variables: management's pre-LBO and post-

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<sup>7</sup> This time period has reliable coverage in the SEC Edgar database containing LBO-related filings.

LBO ownership, change in net dollar investment in the firm, sales method, whether the firms performed a market check, number and amount of merger bids, and presence of competing bidders. We also collect three additional variables that have been shown in prior literature to affect insider divestment: the average age of top 3 officers, whether the firm is family owned and whether the founder serves as a top 3 officer. Lastly, we record the reasons for the buyout and the date when the firm started considering strategic alternatives. Although merger filings are available for 167 buyouts, four deals in our sample have a large amount of missing information which would consistently exclude them from most of our analyses. We chose to eliminate these observations, which results in the final sample size of 163 deals. The sample size compares favorably to other studies analyzing LBOs, which typically rely on 100-200 observations.

### ***Variable construction and descriptive statistics***

We define pre-LBO managerial ownership as the total number of shares owned by the management team on a fully diluted basis divided by the total number of shares outstanding from the same ownership report. The management team consists of all named executive officers. The ownership report is typically obtained from LBO filings and represents most current pre-LBO ownership information. If the ownership information is missing from LBO filings, we use the most recently filed 10-K or proxy statement. Additionally, we obtain pre-LBO holdings by the top 3 executives (Chairman of the Board, Chief Executive Officer, and President). We compute post-LBO holdings of the management team in a similar fashion. Unfortunately, the post-LBO ownership data is missing for a third of our sample.

One of our key analysis variables is *Net Dollar Divestment*. We also refer to this variable as managerial cash-out. This variable is defined as the amount received by management for their shares

valued at LBO offer price less the amount reinvested in the firm. The negative values of this variable indicate net investment. There is much variability in how firms choose to report divestment information. Some filings provide dollar cash-outs net of reinvestment for each member of the management team. Others combine individual net dollar divestment into one value. For a handful of firms with available reinvestment amounts, we compute the net dollar gain to management by subtracting the dollar amount reinvested in the firm from the dollar value of managerial holdings at LBO offer price. The dollar value of managerial holdings at LBO is calculated as the LBO offer price multiplied by the number of fully diluted shares held by the management team prior to the LBO. Additionally, in some cases executive stock options are terminated at the time of the LBO. We incorporate the cash-out due to options into *Net Dollar Divestment* by computing the difference between the purchase price and the strike price.<sup>8</sup> However, the value of options represents a small fraction of managers wealth, which is consistent with other studies that examine changes in insider wealth around tender offers and mergers [Cotter and Zenner (1994), Hartzell, Ofek and Yermack (2004)]. We then construct a measure of *Relative Divestment* defined as *Net Dollar Divestment* scaled by pre-LBO dollar management ownership. In nine deals managers invest additional personal equity in the firm and in two of these deals the amount of invested equity is substantial. To minimize the effect of outliers, we windzorize *Relative Divestment* to the interval [-1,1].

Table 2 shows the annual distribution of deal activity and managerial divestment for our data set. The number of LBOs exhibits an increasing trend from 1997 before peaking in 2000; it rebounds and remains high during 2003-2006. This is consistent with the hot merger and LBO market of the late 1990s and early-to-mid 2000s. The total amount of personal wealth taken out by executives during our 11-year sample period is large in economic terms and is \$4,656 million. Moreover, the relative divestment, which includes firms with rollovers and net investments, averages about 0.401, or 40% of

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<sup>8</sup> This is true for options that are ITM. OTM options are cancelled and no payment is made.

managers' personal wealth in the pre- buyout firms. We also report the percentage of firms with divestments and large divestments (50%+). In 79% of deals managers realized some divestment, while in nearly 44% of the deals they cashed out more than 50% of their pre-LBO ownership. While there is no detectible time trend in either of the divestment variables, periods of larger deal volume tend to go together with larger divestments.

Although our sample includes only 163 firms, we suspect that buyouts serving as an exit strategy for their managers/owners are quite widespread. In the process of selecting a useable sample, we discard 889 completed LBOs with available transaction values simply because the target is not public and, therefore, not suitable for our analyses. Half of these observations are subsidiaries of public firms, whereas the other half are private firms. The SDC deal summaries indicate that most of these private firms are bought out by private equity funds. Since managers of private firms hold a large fraction of their firms' equity, private equity buyouts of these firms most likely result in sizeable managerial divestment.

[Insert Table 2 here]

In Table 3 we provide summary statistics pertaining to the buyout reasons as well as deal- and firm-specific characteristics of LBO firms in our sample. In Panel A of Table 3 we report the buyout reasons for three groups of deals. We examine investment and rollover deals separately from divestments. We then split divestments into two groups: *Low Divestments* (firms with below median *Relative Divestment*) and *High Divestment* (firms with above median *Relative Divestment*).

It is apparent that buyouts in the *Investment/Rollover* group are motivated by low liquidity, undervaluation, poor operating performance, miscellaneous costs of maintaining public status, and the insiders' need for control. In contrast, buyouts in the *High Divestment* group are less affected by these



considerations and, instead, are more influenced by the insiders' desire to diversify their holdings, favorable buyout price and market conditions.

In Panel B, we provide several divestment and buyout characteristics. By construction, for an average firm in the *Investment/Rollover* column executives put an additional \$0.4 million of funds into the firm. Executives in the *Low Divestment* group divest \$12 million, while executives in the *High Divestment* group divest about \$60.1. Buyouts in the *Investment/Rollover* group are smaller than those in the High Divestment group (\$177 million vs. \$1572 million) and command lower per share prices as well (\$9 vs. \$20.5).

We also report *Management Ownership* before and after the LBO as well as the *Top 3 Ownership* before the LBO. On average, the management team in *Investment/Rollover* firms owns 0.322 of the firm prior to the buyout. It is higher than managerial ownership in *High Divestment* deals (0.180). The *Top 3 Ownership* is also larger in *Investment/Rollover* deals.

In *Investment/Rollover* and *Low Divestment* deals managers increase their percent ownership after the buyout. The post-LBO ownership doubles from its pre-LBO levels for *Investment/Rollover* deals (from 0.322 to 0.656) and almost doubles for *Low Divestment* deals (from 0.307 to 0.577). The median increases are significantly larger. For the rest of the sample, management ownership drops from 0.180 to 0.138. In *Low Divestment* deals managers increase their ownership while reducing their dollar investment. One caveat is in order: post-LBO managerial ownership is not available for about 1/3 of our sample.

We also provide statistics pertaining to private equity participation since there is well-documented heterogeneity among management buyouts and buyouts with participation of private equity investors. Private equity involvement varies in its intensity and ranges from no private equity involvement or management-led deals (*Management Buyout*) to multiple private equity firm

participation (*Club Buyout*). It is important to note that even in the deals that are not led or co-led by the firm's management (*Single Private Equity Buyout* or *Club Buyout*) managers continue to be employed by the firm in the majority of deals. As expected, *Investment/Rollover* buyouts tend to be led by these firms' management teams, while the buyouts of *High Divestment* firms tend to be led by a single or multiple private equity funds.

These results are not surprising in that some firms with high managerial ownership are taken private by managers seeking to maintain or increase their control of the firm. First, if preserving control is a primary consideration, managers will not agree to the acquisition by a private equity firm. Second, firms with low managerial ownership tend to be large. These firms may have difficulty securing debt financing without the help of a private equity sponsor. Firms with high managerial ownership tend to be smaller and may be able to obtain debt financing more easily.

In the last Panel of Table 3 we report pre-buyout financial characteristics of sample firms. The value of total assets measured by their book value is smaller for *Investment/Rollover* firms than for *High Divestment* firms. This is consistent with differences in deal values reported earlier. All three groups of firms have comparable leverage measured by total liabilities divided by total assets.

However, there are significant differences between *Investment/Rollover* and *High Divestment* in operating performance measured by *EBITDA/sales* (0.092 vs. 0.142) and *Market-to-Book* ratio calculated as stock price four weeks prior to the announcement divided by book value per share (0.092 vs. 0.142).

We find that in instances where executives increase or maintain their investment, firms experience a large decrease in stock value prior to buyout announcements. The stock returns are measured by 12-month buy-and-hold abnormal returns ( $BHAR(-12,-1)$ ) relative to the buyout announcement. The buy-and-hold abnormal returns are computed by subtracting compound return to

the value-weighted CRSP index (with distributions) from the compound return of LBO firm over the same period. In the *Low Divestment* group, stock returns are less negative (-0.072) while in *High Divestment* group, they are positive (0.064). These differences are large and economically significant. In Figure 1, we plot monthly BHARs for all three groups. The plots add some additional intuition about stock price behavior prior to LBOs in that the differences between the groups get larger as firms near buyout announcements. This pattern is consistent with studies that document market-timing patterns around corporate events.

Lastly, we find that the volatility of monthly stock returns over one year leading up the buyout announcement is the largest for *Investment/Rollover* firms. Additionally, these firms have lower liquidity measured by the average daily share turnover over the pre-announcement year. Overall, these findings are consistent with the reasons for buyouts in that *Investment/Rollover* firms are influenced by poor operating performance, undervaluation, low growth prospects and liquidity and *High Divestment* firms act more opportunistically with respect to the buyout timing..

[Insert Table 3 here]

[Insert Figure 1 here]

### **3. Main Results**

In this section we test our hypotheses about the relation between the change in management's investment in the firm and firm performance around the LBO. To test our first hypothesis of whether pre-LBO earnings management is positively related to managerial divestment, we use two approaches to earnings manipulation. More specifically, we examine both accrual-based and real earnings management. While the prior literature on leveraged buyouts has focused on accrual-based manipulation, there is evidence that real earnings manipulation may be preferred to accrual

manipulation. First accruals can be easier to detect and, second, relying on accruals alone can be a risky strategy. To capture accrual-based earnings management we use the modified cross-sectional Jones model as implemented by Teoh, Welch and Wong (1998) to compute discretionary current accruals (DCA). To calculate real earnings management, we follow Roychowdhury (2006) and estimate abnormal levels of cash flows from operations, discretionary expenses (advertising, R&D, SG&A) and production costs. Lastly, we combine these three variables into one comprehensive measure of earnings management.

In Panel A of Table 4 we report our measures of accrual-based and real earnings management. Our measure of accrual-based manipulation, *DCA*, is the component most likely to be affected by managerial manipulation. This variable picks up abnormal changes in current accruals due to more advanced recognition of revenues and delayed recognition of expenses. Discretionary current accruals is negative for *Investment/Rollover* deals (-0.014), small and positive for *Low Divestment* deals (0.014) and large and positive for *High Divestment* deals (0.046), consistent with the incentives to depress share prices in the former and boost prices in the latter case. However, in unreported analyses we find that accruals are statistically different from zero only in the *High Divestment* group. This finding is consistent with DeAngelo (1986) study, which studies management buyouts that are most similar to the *Investment/Rollover* and *Low Divestment* sub-samples.

Our real manipulation measures are based on the premise that firms try to minimize reporting losses in three ways. First, they attempt to increase sales by speeding them up or generate additional sales by offering generous price discounts and relaxed credit terms. Such strategies will temporarily increase sales volumes but may decrease cash flows in the current period. Second, firms may reduce cost of goods sold (COGS) through increased production. This is accomplished by spreading overhead costs over more units, lowering fixed costs per unit. As long as this fixed cost reduction is not offset by the

increase in variable cost per unit, total cost per unit declines. However, firms can still incur other production costs, which can lower cash flows for a given level of sales. Third, firms aggressively reduce aggregate discretionary expenses. This strategy can boost current earnings and could also lead to higher current period cash flows if the firm paid for such expenses in cash.

Overall, price discounts and overproduction may have an ambiguous effect on production costs. On one hand, the firm may incur holding and production costs that may not be recovered in the same time period through sales. On the other hand, managers are more likely to resort to overproduction if the reduction in product costs offsets increase in other costs. If overproduction results in higher abnormal production costs, it will have a negative effect on contemporaneous CFO, while the reduction in discretionary expenses will have a positive effect. The offsetting strength of these effects is ultimately an empirical matter.

After constructing three measures of real earnings management, we combine them into one comprehensive measure. We construct this measure (*Real Earnings Management Proxy*), following Cohen, Dey and Lys (2007) by adding abnormal discretionary expenses and abnormal production costs to abnormal cash flows. We modify their formula by multiplying both production costs and discretionary expenses by -1 so that higher values of this composite variable indicate greater real manipulation.

Our real manipulation numbers in Table 4 reveal that real earnings management has a more positive effect on the abnormal cash flows of *High Divestment* firms than on *Investment/Rollover* firms (0.081 vs. 0.057). It appears that the increase in abnormal cash flows comes from the reduction in discretionary expenses rather than production costs. The real earnings management proxy supports greater earnings manipulation for *High Divestment* firms only for mean values. The medians are slightly lower than those of *Investment/Rollover* firms.

This evidence validates our hypothesis that the insiders may manage earnings upward more aggressively if they plan to cash out. Lastly, as an additional support for deliberate earnings management, we provide the number of days lapsed between the first discussion of strategic alternatives by the firm and buyout announcement. This amount of time is a little under a year, which gives firms ample opportunity to manage earnings.

In Panel B of Table 4, we report several measures of LBO pricing and characteristics of buyout process that are likely to vary with managerial incentives. One measure of buyout premium is calculated as percent difference between the LBO offer price per share and stock price four weeks before the LBO announcement. The other measure of premium is computed relative to the stock price 12 months before the announcement. While this measure is not a common pricing multiple, it is not affected by the stock price runup that we observe prior to the LBO. Additionally, some buyouts are priced relative to the average stock price over several months prior to the buyout, which also mitigates the influence of unusual price behavior on buyout pricing.

As an additional measure of buyout pricing we construct a commonly-used transaction multiple of deal value to revenues (*Deal/Sales*). Although this measure is unaffected by pre-LBO stock price movements, it may negatively affected by earnings management. However, if new investors fail to recognize earnings management, they pay higher multiples for what they perceive to be better ability to generate cash. Other commonly used transaction multiples employ EBITDA or book value of equity. Since some firms in our sample size have negative EBITDA and book value of equity, we chose not to use them as transaction multiples.

Overall, we find that the buyout premium is likely affected by managerial divestment: *Deal/Sales* averages increase with divestment from *Investment/Rollover* to *High Divestment* (1.034 and 1.464) and so does the premium relative to stock price 12 months prior to the announcement (0.275 and 0.607).

This measure is particularly impressive as divesting managers can increase their wealth gain by over 60% in one year! The four week premium declines in both means and medians, which indicates that buyout specialists may take into account pre-offer runup in setting the buyout price.

We also present several characteristics of method of sale and other characteristics of buyout negotiations that are likely to be influenced by managers' potential divestment. First, we examine whether the firm attempted an auction sale by soliciting offers from multiple potential bidders. Such form of sale is more likely to translate into competing bids and higher LBO premium than single-bidder negotiated bids. (It is important to note that soliciting bids from multiple parties does not always guarantee an auction process and multiple competing bids). We find that 0.118 or 11.8% of all LBOs in the *Investment/Rollover* sub-sample try to sell the firm via an auction. This contrasts sharply to *High Divestment* deals, where more than half of all firms (0.615) attempted an auction. Second, in those instances, where firms receive unsolicited bids, we examine whether a "market check" was conducted. In several cases, firms conduct an additional "market check" even after an initial auction. Among *Investment/Rollover* deals, 0.353 of all LBOs attempted an initial auction or market check. This fraction is still much larger for *High Divestments* and is 0.892. Lastly, we find that the effort to generate competition is likely to pay off in that a larger fraction of *High Divestment* deals experience competing bids (0.615) than *Investment/Rollover* deals (0.294).

We also provide evidence that firms with higher managerial divestment negotiate slightly more aggressively, as evidenced by the number of winning bidder's price revisions. Firms in *Investment/Rollover* group require 2.765 revisions, while firms in the *High Divestment* group on average require 3.154 revisions. Lastly, we examine the magnitude of percent revisions from the winning bidder's initial to final bid. Our initial expectation with respect to this measure was influenced by two factors. First, firms with divesting managers should negotiate more aggressively and, combined

with bidder competition, they should receive higher revisions. Second, the anticipation of a bidding war may force potential bidders to increase their initial bids to discourage competition, which would lead to lower revisions. We find that firms in *High Divestment* group experience lower revisions (0.075) than *Investment/Rollover* firms (0.129), which is consistent with bidders having to make higher initial bids. Therefore, we later reexamine this relationship in a multivariate model with controls for method of sale and the size of the initial bid. In summary, our results suggest that divesting managers are more likely to choose a sale method that generates best pricing and bargain more aggressively.

[Insert Table 4 here]

In Table 5 we examine the determinants of managerial divestment. This analysis is important because it helps us understand the drivers of the decision to divest and address endogeneity issues in subsequent analyses. One potential criticism of testing the relationship between managerial divestment and managerial actions before, after and following the buyout is that the decision to cash out and the decision to, for example, manage earnings may be jointly determined, i.e., it could be that firms make a decision to do both simultaneously. If left unaddressed, endogeneity reduces the usefulness of OLS results from a single equation model as it introduces bias into regression coefficients.

To examine the determinants of divestment, we model the decision to divest as a function of managers' and firm characteristics as of  $t=-2$  relative to the year of LBO announcement.

$$\begin{aligned}
 D_{it} = & \beta_0 + \beta_1 Age_{it-2} + \beta_2 FamilyDummy_{it-2} + \beta_3 FounderDummy_{it-2} + \beta_4 Top3Ownership_{it-2} + \beta_5 StockReturn_{it-2} + \\
 & \beta_6 LogTotalAssets_{it-2} + \beta_7 Leverage_{it-2} + \beta_8 EBITDA/Sales_{it-2} + \beta_9 Market-to-Book_{it-2} + \\
 & \beta_{10} ManagementOwnership_{it-2} + \varepsilon_{it}
 \end{aligned} \tag{1}$$

In (1), the dependent variable  $D_{it}$  is managers' *Relative Divestment*. Since the dependent variable falls in the interval  $[-1,1]$ , we use a two-boundary Tobit model to estimate regression equation (1).



We use firm characteristics at  $t=-2$  as they precede year  $t=-1$  in which earnings management takes place. Since personal characteristics of managers are likely to affect the decision and amount of divestment, we control for the average age of top 3 officers (*Age*) as proximity to retirement can trigger divestment. Moreover, the top 3 officers may initiate a buyout, especially if they hold a large equity stake. Therefore, we include the ownership of top 3 officers (*Top3Ownership*), a dummy variable for a family firm (*FamilyDummy*), and a dummy variable for whether the founder continues to serve as a top 3 executive officer (*FounderDummy*).

Firm founders have stronger incentives to pass the firm to their heirs making the decision to divest less likely [Anderson and Reeb (2003)]. Additionally, in most family firms, family members serve as the firm's CEO or members of top management to maintain family control; there is an additional incentive to preserve family shareholdings and protect family managers from external influence [Schulze, Lubatkin, Dino, and Buchholtz (2001)]. Moreover, controlling families are generally not willing to lose their control of the firm [Gomez-Mejia, Nunez-Nickel, and Gutierrez (2001)].

Stock returns are also included to control for the contrarian trading behavior of insiders who tend to sell more shares after high stock returns [Lakonishok and Lee (2001)]. Other controls include firm size ( $\log(\text{Total Assets})$ ), debt (*Leverage*), operating performance (*EBITDA/sales*), growth opportunities (*Market-to-Book*). We include them as firm performance may affect the decision to divest. These four variables also serve as control variables in subsequent regressions. Lastly, we control for the amount of pre-LBO managerial ownership (*ManagementOwnership*). Although our measure of managerial equity holdings is collected from LBO filings rather than  $t=-2$  filings, we believe it to be reasonably good proxy for managerial holdings prior to the decision to manage accruals. First, according to their own LBO filings, most firms in our sample are illiquid, which makes any large pre-LBO dispositions unlikely. Second, Harlow and Howe (1993) find no insider trading prior to buyouts led by private equity firms,

but do report evidence of share accumulation prior to management-led buyouts. This accumulation is due to non-selling rather than acquiring additional shares. We also conduct a quick check of pre-LBO insider trading activity by examining insider trading data from Thomson Financial. We find that only 77 firms in our sample have some insider trading during the pre-LBO year. However, on average, net insider sales (sales-purchases) are small and not significantly different from zero.

Our results in Table 5 indicate that individual managerial characteristics serve as main determinants of the decision to divest. We find that the age of top 3 officers is positive and significant, suggesting that the desire to hold more liquid and diversified assets associated with retirement may motivate divestment. These results are consistent with Frankfurter and Gunay (1992) who suggest that the need for liquidity is a driver of many buyouts. Family firm and founder dummies are both negative and significant, highlighting the importance of control in these types of firms. Additionally we find that stock returns are also a positive and significant determinant of managerial divestment confirming market timing. These results suggest that that the decision to divest or invest in the firm is heavily influenced by personal managerial characteristics, somewhat reducing endogeneity concerns in subsequent analyses.

[Insert Table 5 here]

In Table 6 we test the predictions of our first hypothesis by modeling pre-LBO accrual-based and real earnings manipulation as a function of managerial divestment and control variables likely to affect the dependent variable.

$$E_{it-1} = \beta_0 + \beta_1 \text{RelativeDivestment}_{it-2} + \beta_2 \text{LogTotalAssets}_{it-2} + \beta_3 \text{Leverage}_{it-2} + \beta_4 \text{EBITDA/Sales}_{it-2} + \beta_5 \text{Market-to-Book}_{it-2} + \beta_6 \text{ManagementOwnership}_{it-2} + \varepsilon_{it} \quad (2)$$

Specification (2) is used to fit three OLS models. In the first model, the dependent variable  $E_{it-1}$  is discretionary current accruals (*DCA*) in year  $t-1$  prior to the announcement; in the other two models the dependent variables are abnormal cash flow (*Abnormal CFO*) and an aggregate measure of real

earnings management (*Real Earnings Management Proxy*). Since our measures of earnings management are constructed over year  $t=-1$  relative to the fiscal year of LBO announcement, we use control variables as of  $t=-2$  where possible. These lagged financials represent the information available to managers prior to earnings manipulation.

We treat realized insider divestment as an expectation. The remaining set of control variables includes the log of total assets (*LogTotal Assets*), as larger firms tend to be more transparent and better monitored, making earnings management and other return-enhancing actions more difficult. Previous empirical research shows that managers are more likely to select income-increasing accounting policies, the closer a company is to violate its accounting-based debt covenant [Sweeney (1994)]. Following Dechow, Sloan and Sweeney (1996), we use *Leverage* to proxy the closeness to debt violations. Additionally, firms with poor operating performance (*EBITDA/sales*) are more likely to engage in earnings management.

The effect of market-to-book ratio on earnings management is expected to be positive. First, greater information asymmetry of growth firms may make earnings management difficult to detect. Second, high market valuation may put more pressure on management to produce good results. We also control for the ownership of the management team (*Management Team Ownership*). Lastly, in the two real earnings management models we include a *Manufacturing Industry* dummy, which is equal to 1 if the firm belongs to the single SIC code 2 or 3. We introduce this control because overproduction is more relevant for manufacturing firms.

In the first column of Table 6, we find that managerial divestment is a positive and significant predictor of pre-LBO accruals with the coefficient significant at 1 percent level. We also find that market-to-book ratio and managerial ownership are positively related to accrual management. In the second column we provide parameter estimates for the *Abnormal CFO* regression. Our parameter

estimates in the second column of Table 6, indicate that expected managerial divestment is also positively and significantly related to stock returns at 10 percent level. However, the aggregate measure of real earnings management is not significantly affected by managerial divestment. Interestingly, we find that in both real earnings management models operating performance is positively and significantly related to the extent of real earnings management. Additionally, we find that pre-LBO managerial ownership is also related to real earnings manipulation in both models. Overall, these results provide support for our first hypothesis.

[Insert Table 6 here]

Our second hypothesis tests the effect of managerial divestment on the method of sale and buyout pricing. In Table 7 we present parameter estimates of two Logit regressions that use the same set of independent variables as model (2). All control variables in this regression are as of  $t=-1$  relative to the LBO announcement. In the first model, the dependent variable equals 1 if the firm attempted an auction sale and 0 otherwise. In the second, model we append our definition of an auction with market checks. In other words, the dependent variable equals 1 if the firm attempted an auction or a market check and 0 otherwise. Specifically, we examine whether the likelihood of an auction attempt increases with expected managerial divestment.

We find that the likelihood of auction initiation increases with managerial divestment, operating performance (*EBITDA/sales*) and growth opportunities/market valuation (*Market-to-Book*). Managerial divestment is significant at 1 percent levels and *EBITDA/sales* and *Market-to-Book* are significant at 10 and 5 percent, respectively. This suggests that divesting managers are more likely to attempt an auction sale and that earnings management leading to higher operating performance measures and, potentially, higher market values may make the firm more attractive to bidders and allow for a successful auction.

In the second regression, the managerial divestment variable and market-to-book ratio remain positive and significant predictors (at 1 percent and 10 percent level, respectively) and managerial ownership enters with a negative coefficient significant at 10 percent. This suggests that in firms with high managerial ownership the incremental value of a market check is small since the managers have enough bargaining power to negotiate the best price with an interested unsolicited suitor. Overall, our results in Table 7 indicate that divesting managers are more likely to attempt auction sales and/or conduct market checks.

In Table 8 we test the buyout pricing prediction of our second hypothesis by regressing several measures of buyout premium and offer price revisions on a set of control variables. In these OLS models, we employ the same set of control variables as in model (2) and append it with a dummy variable *MBO*, which equals 1 if the LBO has no private equity participation and 0 otherwise. We also add a control for the level of competition by constructing a *Competition* variable that equals 1 if there is more than one bidder and 0 otherwise. We expect a negative coefficient on *MBO* dummy and positive coefficient on *Competition* dummy. The dependent variable in our first regression is the LBO premium relative to the firm's value four weeks before announcement date. In this regression the relation between divestment and premium is not significant.

To account for the effect of stock run-ups, we calculate LBO premium relative to stock price one year before the announcement date and regress it on managerial divestment and control variables in the second column of Table 8. We find a significant and positive effect of divestment and operating performance (at 5 percent and 10 percent, respectively), indicating that divesting managers succeed in obtaining better buyout pricing and that earnings management is likely to have a positive effect on offer pricing. Lastly, we use yet another measure of buyout pricing based on a transaction multiple *Deal/Sales*. This variable also confirms a positive and significant relation between buyout pricing and

divestment. Firm size and leverage also enter regression with significant coefficients but their signs are opposite from those in four-week premium regression.

Finally, we examine offer price revisions in the last column of Table 8. This regression is appended with yet two additional variables to control for the preemption effect of Fishman (1988). The first is a dummy variable is for whether the firm attempt an auction (*Auction*). The second is a premium of market price four weeks prior to the date of the initial bid to the initial bid (*Initial Premium*). Both variables capture the tendency of bidders to make higher initial bids in the presence of competition. We expect the offer price revision to be negatively related to both variables. We find that the effect of divestment remains positive at 10-percent level. We also find that revisions are negatively related to operating performance. Management buyouts tend to have larger revisions possibly because of fear of litigation or because they are so undervalued that overpayment is not a concern. Lastly, *Initial Auction* is inversely related to revisions consistent with Fishman (1988) preemption argument. Overall, we find that divesting managers structure and negotiate LBO sales in a way that is most likely to generate favorable wealth effects.

[Insert Table 8 here]

Thus far, we have shown that managers tend to act opportunistically prior to LBOs and their actions appear to pay off. Now, we turn to post-LBO performance. For our primary measure of post-LBO performance, we hand-collect select financial data for a subset of LBO firms. After going private, most firms are not required to file their annual reports with the SEC. The filings are only available for firms that file voluntarily, firms that have outstanding public debt issues, firms that have back-filled financials after going public again, and, in some cases, firms that are subsequently acquired by public firms<sup>9</sup>. We were able to locate such filings and extract post-LBO financial data for 47 firms. For this

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<sup>9</sup> Typically, IPO or merger filings contain two to three years of back-filled financial data for the issuer or the target firm. The availability of financial data on post-LBO firms is a common problem for studies that examine value creation in LBOs.

subset of firms, we examine operating performance measured by *EBITDA/sales* in year  $t=1$  through year  $t=3$  relative to the LBO.

As an additional and cruder measure of post-LBO performance, we examine the final disposition of the firm following the LBO.<sup>10,11</sup> This information is collected from the newswires and company websites. We classify all status-altering outcomes into three broad groups: IPO, sale, and bankruptcy/distress. We view IPO as a lucrative exit for the private investors and consider it a result of a successful restructuring. Sale is also a positive disposition that is assigned to a company if it is bought by another private equity firm or strategic acquirer or if the company has a second LBO. We do not include financial distress-induced sales into our *Sales* category. Instead, we assign them to *Bankruptcy/Distress*, which is considered a restructuring failure.

We report post-LBO operating performance in Panel A of Table 9. The results are provided for three groups of firms based on the change in management's investment similar to Tables 3 and 4. The average raw *EBITDA/sales* ratios indicate that the post-LBO performance in the sample of *Investment/Rollover* deals is somewhat better than in the sample of *High Divestments*. These differences are particularly obvious in means at  $t=1$  and  $t=2$ . In the first year after the buyout, the average *EBITDA/sales* of *Investment/Rollover* deals exceeds that of *High Divestments* by almost a factor of 2.5 (0.226 vs. 0.099). In the second year, the difference declines but remains rather large (0.156 vs. 0.107). The medians, however, are quite similar. The robustness of this comparison for  $t=3$  is somewhat limited by the available sample size, which in the sub-sample of *Investment/Rollover* deals consists of only 5 firms. Therefore, we put more weight on the comparisons of the first two years of post-LBO data.

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<sup>10</sup> Kaplan and Stein (1993) examine how the change in managerial ownership around the LBO episode affects the likelihood of subsequent financial distress. Guo, Hotchkiss and Song (2007) also examine post-LBO outcomes.

<sup>11</sup> We collect disposition measures during the seven-year period following the LBO since the majority of private equity funds exits their investment in that time.

We also generate a measure of *Excess EBITDA/sales*, which is adjusted for mean-reversion that is especially likely to affect performance after earnings management. We match each of our 47 firms to a sample of Compustat firms with the same industry affiliation and similar operating performance in year  $t=-1$ . We then average operating performance of five best matching firms to construct a benchmark. We were able to generate operating performance benchmarks for all but 4 firms in our sample of 47 deals. The difference between the LBO firm's post-buyout *EBITDA/sales* and the control firms' *EBITDA/sales* is *Excess EBITDA/sales*. Similar to the raw measures of post-LBO operating performance, the excess measures are larger for the *Investment/Rollover* sub-sample than the *High Divestment* sub-sample. However, medians of these two groups are quite similar.

Another cost of high divestment deals is the tendency of managers to engage in risk-taking that leaves creditors with downside risk. As a measure of risk-taking we use annual cross-sectional standard deviation or dispersion of post-LBO operating performance. We find that standard deviations based on both the raw and excess measures of performance are comparable in magnitude for *Investment/Rollover* and *High Divestment* firms in year  $t=1$ . However, if compared to the mean, the standard deviation is higher for the *High Divestment* firms. In year  $t=2$ , the standard deviation for the *High Divestment* group exceed that of *Investment/Rollover* group by a factor of five. Similar patterns hold for measures of excess performance. These results provide weak evidence that after taking personal wealth out of the firm managers may engage in risk taking behavior.

Lastly, we examine post-LBO disposition of firms in our sample as another measure of post-LBO performance. We find very similar rates in IPO and sale incidences between *Investment/Rollover* and *Divestment* firms (0.088 vs. 0.092 and 0.176 vs. 0.154). A slightly larger difference is observed in bankruptcy rates which are 0.118 for *Investment/Rollover* firms and 0.169 for *High Divestment* firms. These results suggest that managers that invest additional personal funds in the firm at the time of the



LBO perform slightly better after the LBO. However, these results should be interpreted with caution because of the limited sample size. Such small differences in post-LBO performance do suggest that changes in post-LBO governance partially mitigate the agency problem and more work is needed to answer the question conclusively.

[Insert Table 9 here]

### ***Endogeneity***

One issue affecting the robustness of our results is potential endogeneity of managerial divestment. First, not only divestment and earnings management or buyout pricing can be determined simultaneously as a function of the same firm characteristics, but the causality can be reversed as well. If divestment is endogenous then our parameter estimates are of limited use. We have partially addressed the issue of reverse causality by demonstrating that the decision to sell the firm takes place almost a year prior to buyout announcement and that deliberate earnings management takes place prior to the buyout. Moreover, we have shown in Tables 3 and 5 that the decision to invest or divest is consistent with managerial characteristics associated with the need (or lack of it) for control. Proximity to retirement and the need to maintain control of the family firm or the firm founded by the executive officer suggest that the causality is more likely to flow from the need to divest to the actions decreasing or increasing buyout pricing. Moreover, this reduces the concern over the simultaneous determination of divestment and such actions. However, we do find that divestment is positively related to stock returns, suggesting that managers may change the amount divested depending on firm performance. We, therefore, re-estimate our models using a two-stage procedure. First, we estimate model (1) and then use the estimated divestment from this regression in place of realized divestment in all subsequent regression

models (Tables 6-8). We adjust the lags of control variables in model (1) to match the lags in the second-stage models.

Most of our results are robust to this endogeneity adjustment. The first two models in Table 6 maintain a significant coefficient on divestment. In Table 7, the coefficient on estimated divestment is marginally insignificant in the first model, but remains significant in the second model. Lastly, in Table 8, in the first model the coefficient of estimated divestment becomes significant, remains significant in the second model, but turns insignificant in the last two models.

### ***Club deals***

Club deals have been the subject of recent controversy with respect to the ability of private equity funds' collusive practices to purchase target firms at more favorable terms. The Justice Department started inquiring into private equity's bidding practices as early as 2003 and stepped up the effort in 2006, which was promptly followed by several civil suits by the shareholders of the companies acquired by private equity clubs.

The academic literature has not yet reached a consensus on whether club deals are associated with lower buyout prices. Officer, Ozbas and Sensoy (2008) find that existing shareholders receive 10% less in club deals. Cao (2008) comes to the opposite conclusion that club deals increase the wealth of the existing shareholders. Li (2008) finds comparable pricing for club and non-club deals, while Guo, Hotchkiss and Song (2009) trace the sources of pricing differences to the private equity firms' ability to identify best performers rather than the ability to eliminate the competition. A relatively large proportion of our sample (23%) is made up of club deals, which allows us to test for the effect of club deals on buyout pricing. In unreported regressions, we add a *Club* dummy variable to the four buyout pricing

models in Table 8. The variable is not statistically significant in all regressions, indicating similar pricing for club and non-club buyouts.

## **5. Conclusions**

Using a hand-collected data set of LBO transactions, we find that the average management team reduces its dollar investment in the firm while maintaining a significant ownership stake in the post-buyout firm. This leads to a set of agency problems opposite to those predicted for a more familiar type of LBOs involving commitment of managers' personal wealth. We provide evidence that managerial divestment is positively associated with pre-LBO earnings management and market timing. Moreover, managerial divestment leads to a greater likelihood of an auction sale and higher buyout pricing, which erodes private equity returns. Such evidence questions the ability of private equity funds to detect such manipulation. Moreover, if private equity investors are aware of manipulation, why are they willing to pay higher prices?

One explanation has been advanced by Kaplan and Stein (1993) in an effort to make sense of the abrupt decline in buyout activity in the early 1990's. They suggested that the success of the 1980's buyout wave attracted a large inflow of funds and by the end of the 1980's "too much financing was chasing too few good deals", which led to many overpriced and poorly structured transactions. Our data in Table 2 demonstrates that the increase in buyout activity positively correlates with larger divestment. Additionally, these periods also coincide with higher stock market returns, which is consistent with pressure on private equity firms to allocate excess funds.

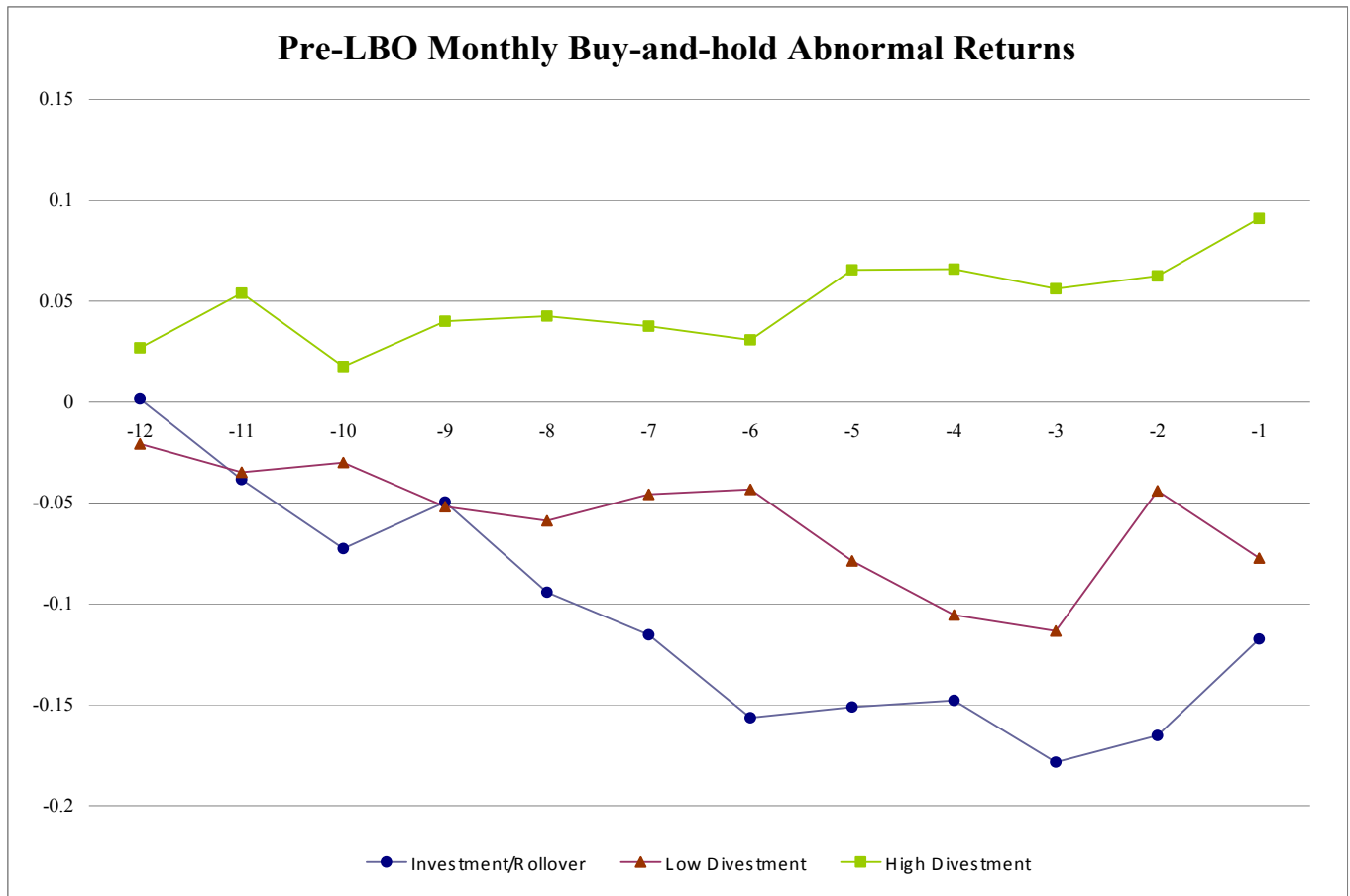
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### Figure 1. Pre-LBO Buy-and-Hold Abnormal Returns

This figure shows monthly buy-and-hold abnormal returns (BHAR) over the twelve months prior to announcement. The BHARs are computed by subtracting compound return to the value weighted CRSP index) from the compound return of LBO firm over the same period. The sample is divided into three groups according to the managers' divestment. Investment/Rollover are deals to which managers contributed additional personal equity or fully reinvested their pre-LBO equity. Divestments are split into two groups: Low Divestment (below median of relative divestment sub-sample) and High Divestment (above median of relative divestment sub-sample).



**Table 1. Summary of Agency Costs by LBO Type**

<b>LBO Types</b>		
	<b>Investment/Rollover, Low Divestment :</b>	<b>High Divestment:</b>
	buyouts in which managers act as buyers and contribute additional personal or borrowed wealth or reinvest 100% of their pre-LBO firm dollars in the post-LBO firm.	buyouts in which managers act as selling shareholders and convert part of their shareholdings to cash. The degrees of such divestment vary from low to high.
<i>Alignment of interests</i>		
<i>a. Managers vs. shareholders</i>	Not aligned	Aligned
<i>b. Managers vs. new investors</i>	Aligned	Not aligned
<i>Agency problems/managers actions</i>		
<i>a. Pre-LBO</i>	Incentive to minimize purchase price as managers are buyers. May take actions to decrease short term firm value: manipulate earnings via negative accruals, real manipulation. Go private during periods of low market values.	Incentive to maximize buyout price as managers are selling shareholders. May take actions to increase short term firm value: manipulate earnings via positive accruals, real manipulation. Go private during periods of high market values.
<i>b. At LBO</i>	Negotiated bid sale, little competition, less bidding activity, low price revisions, lower premium.	Auction sale, bidding competition, high bidding activity, high price revisions, higher premium.
<i>c. Post-LBO</i>	Low incentives for risk taking, high performance incentives.	High risk taking incentives, potentially low effort incentives.

**Table 2. Annual Distribution of LBOs and Managerial Divestment**

This table reports the distribution of the LBOs, net dollar divestment and relative divestment in our primary sample. Net dollar divestment is the amount received by management for the shares valued at LBO price less the amount reinvested in the firm. Negative values of this variable represent net investment. Relative divestment is net dollar divestment scaled by the dollar value of pre-LBO management team ownership.

<b>Year</b>	<b>Number of LBOs</b>	<b>Total Net Dollar Divestment</b>	<b>Relative Divestment</b>	<b>% Deals with Divestment</b>	<b>% Deals with 50%+ Divestment</b>
1997	7	527.571	0.601	0.857	0.857
1998	14	191.676	0.593	0.857	0.643
1999	16	238.090	0.280	0.813	0.313
2000	27	321.004	0.364	0.630	0.370
2001	17	60.313	0.201	0.706	0.235
2002	7	9.385	0.203	0.714	0.286
2003	20	67.649	0.100	0.700	0.100
2004	15	406.559	0.389	0.733	0.333
2005	14	493.263	0.553	0.929	0.571
2006	19	1437.880	0.711	1.000	0.737
2007	7	903.102	0.647	1.000	0.857
Total	163	4656.490	0.401	0.791	0.436



**Table 3. Sample Characteristics by Buyout Type**

This table reports reasons for buyout deal, divestment and buyout characteristics classified according to management divestment. Investment/Rollover are deals to which managers contributed additional personal equity or fully reinvested their pre-LBO equity. Divestments are split into two groups: Low (below median of relative divestment sub-sample) and High (above median of relative divestment sub-sample). Net dollar divestment is the amount received by management for the shares valued at LBO price less the amount reinvested in the firm. Relative divestment is net dollar divestment divided by pre-LBO dollar management team ownership. In Panel A. the number of buyouts associated with Sarbanes Oxley (SOX) Act is scaled by the number of deals announced after SOX enactment. Deal value is the dollar amount paid by the acquirer for the target. Price per share is the price paid by acquirer for each share of the target. Management ownership is the percentage of shares owned by all named executive officers in the proxy statements on a fully diluted basis. Top 3 ownership is percentage of shares owned by the President, CEO, and Chairman of the Board, on a fully diluted basis. Management team post-LBO ownership is the percentage of shares owned by the management team in the post-buyout firm. Management deals are transactions where management is the sole acquirer. Management and private equity deals are transactions where management teams up with private equity to make the acquisition. Single private equity deals are deals where a single private equity fund is the acquirer. Club deals are buyouts where two or more private equity funds team up to make an acquisition. Total assets is the book value of assets. Leverage is total liabilities divided by total assets. EBITDA is operating income before depreciation. Market-to-book is stock price divided by book value per share. Stock return is a buy-and-hold abnormal return (BHAR (-12,-1)) computed by subtracting compound return to the value weighted CRSP index from the compound return of LBO firm over months (-12,-1) relative to announcement. Volatility is the standard deviation of monthly returns over the same horizon. Liquidity is the average daily turnover over the same time horizon.

	<b>Divestment</b>					
	<b>Investment/Rollover</b>		<b>Low</b>		<b>High</b>	
	N.	%	N.	%	N.	%
<i>Panel A. Reasons for LBO</i>						
Low stock liquidity	25	0.735	28	0.438	11	0.169
Undervaluation	24	0.706	38	0.594	27	0.415
Limited growth potential	9	0.265	22	0.344	12	0.185
Poor performance	16	0.471	21	0.328	16	0.246
Low institutional ownership	8	0.235	8	0.125	1	0.015
Poor access to capital	7	0.206	10	0.156	3	0.046
Cost of maintaining public status	18	0.529	19	0.297	8	0.123
Cost of Sarbanes Oxley Act	4	0.364	10	0.333	5	0.152
Market pressure to meet short term goals	8	0.235	15	0.234	7	0.108
Management/block. wants control	6	0.177	5	0.078	5	0.077
Management/block. wants diversification	0	0.000	3	0.047	10	0.154
Good offer price	3	0.088	7	0.109	17	0.262
Opportune time to sell firm	0	0.000	2	0.031	16	0.246
Obs.	34		64		65	

	Divestment					
	Investment/Rollover		Low		High	
	Mean	Median	Mean	Median	Mean	Median
	<i>Panel B. Divestment and LBO characteristics</i>					
Net dollar divestment	-0.432	0.000	11.987	3.177	60.062	22.347
Relative divestment	-0.096	0.000	0.213	0.211	0.844	0.844
Deal value	177.415	28.907	367.155	69.603	1571.990	316.890
Price per share	9.136	6.000	13.751	10.675	20.485	16.750
Management team ownership	0.322	0.202	0.307	0.268	0.180	0.113
Top 3 ownership	0.289	0.161	0.262	0.203	0.148	0.066
Post-LBO management ownership	0.656	0.950	0.577	0.755	0.138	0.065
Management buyout	0.647	1.000	0.484	0.000	0.077	0.000
Management with private equity buyout	0.147	0.000	0.094	0.000	0.123	0.000
Single private equity buyout	0.118	0.000	0.203	0.000	0.492	0.000
Club buyout	0.088	0.000	0.219	0.000	0.308	0.000
	<i>Panel C. Pre-LBO Firm Characteristics</i>					
Total assets	342.950	81.726	366.422	121.002	1021.09	257.552
Leverage	0.567	0.578	0.522	0.511	0.530	0.525
EBITDA/sales	0.092	0.097	0.084	0.093	0.142	0.119
Market-to-book	1.454	0.874	1.901	1.115	2.842	1.655
Stock return	-0.186	-0.285	-0.072	-0.180	0.064	-0.046
Volatility	0.210	0.150	0.165	0.150	0.130	0.115
Liquidity	3.046	3.536	5.062	3.237	5.478	4.801
Obs.	34		64		65	

**Table 4. Method of Sale and LBO Pricing Summary Statistics**

This table presents summary statistics for firm characteristics prior to the buyout, method of sale and buyout pricing characteristics. The sample is divided into three groups according to the managers' divestment. Investment/Rollover are deals to which managers contributed additional personal equity or fully reinvested their pre-LBO equity. Divestments are split into two groups: Low (below median of relative divestment sub-sample) and High (above median of relative divestment sub-sample). Net dollar divestment is the amount received by management for the shares valued at LBO price less the amount reinvested in the firm. Relative divestment is net dollar divestment divided by pre-LBO dollar management team ownership. Strategic alternatives evaluation to announcement is the number of days between the decision to sell the firm and buyout announcement. Discretionary current accruals are calculated using the modified Jones methodology. Abnormal CFO, abnormal discretionary expenses and abnormal production costs are calculated following Roychowdhury (2006). Real earnings management proxy is the sum of these three measures. Premium 4 wk (1yr) is the percent change from the stock price four weeks (1 year) before buyout announcement to buyout price. Deal/sales is a transaction multiple computed as deal value divided by net sales. Auction is a dummy variable equal to 1 if the target firm attempts an auction sale and 0 otherwise. Auction and/or market check is a dummy variable that equals 1 if the firm attempts an auction, or, in case of an unsolicited bid, performs a "market check", and 0 otherwise. Competition is a dummy variable that equals 1 if there is more than one bidder and 0 otherwise. Number of bid revisions is the number of bid revisions by the winning bidder. Offer revision is the percent change from the initial to final bid. All financial variables are as of t=-1 relative to the year of LBO announcement.

	<b>Divestment</b>					
	<b>Investment/Rollover</b>		<b>Low</b>		<b>High</b>	
	<b>Mean</b>	<b>Median</b>	<b>Mean</b>	<b>Median</b>	<b>Mean</b>	<b>Median</b>
<i>Panel A. Pre-LBO Financial Manipulation</i>						
Strategic altern. evaluation to ann. (days)	326.500	219.500	354.984	274.500	300.703	267.500
DCA	-0.014	-0.013	0.014	0.000	0.046	0.006
Abnormal CFO	0.057	0.033	0.054	0.032	0.081	0.049
Abnormal discretionary expenses	-0.042	-0.102	-0.079	-0.091	-0.180	-0.090
Abnormal production costs	-0.085	-0.033	-0.010	-0.004	-0.011	-0.018
Real earnings management proxy	0.184	0.170	0.145	0.112	0.297	0.133
<i>Panel B. LBO Pricing and Buyout Process Characteristics</i>						
Premium 4 wk	0.514	0.471	0.414	0.344	0.336	0.275
Premium 1 yr	0.275	0.138	0.259	0.159	0.607	0.453
Deal/sales	1.034	0.336	0.747	0.502	1.464	0.874
Auction	0.118	0.000	0.422	0.000	0.646	1.000
Auction and/or market check	0.353	0.000	0.594	1.000	0.892	1.000
Competition	0.294	0.000	0.406	0.000	0.615	1.000
Number of bid revisions	2.765	3.000	2.906	3.000	3.154	3.000
Offer revision	0.129	0.077	0.073	0.064	0.075	0.048
Obs.	34		64		65	

## Table 5. Determinants of Managerial Divestment

The table reports parameter estimates from the Tobit regression. The dependent variable is relative divestment defined as net dollar divestment divided by pre-LBO dollar management team ownership. Log total assets is the logarithm of the book value of total assets. EBITDA/sales is operating income before depreciation divided by net sales. Leverage is total liabilities divided by total assets. Market-to-book is stock price divided by book value per share. Management ownership (Top 3 ownership) is the percentage of shares outstanding owned by all named executive officers (top 3 officers) in the pre-LBO proxy statements on a fully diluted basis. Age is the average age of top 3 officers. Founder dummy equals 1 if the firm founder is an executive officer and 0 otherwise. Family dummy equals 1 if the firm is family owned and 0 otherwise. Stock return is one-year BHAR computed by subtracting compound return to the value weighted CRSP index from the compound return of LBO firm. All financial variables are as of  $t=-2$  relative to the year of LBO announcement. Robust t-statistics are reported in ( ). Values significantly different from zero at the 10%, 5% and the 1% level are marked \*, \*\* and \*\*\* respectively.

	Relative Divestment
Intercept	-0.242 (-1.1)
Log total assets	0.037 (1.5)
EBITDA/sales	0.087 (0.3)
Leverage	-0.185 (-1.6)
Market-to-book	0.026 (1.6)
Management ownership	0.335 (0.6)
Top 3 Ownership	-0.851 (-1.5)
Age	0.013*** (3.7)
Founder Dummy	-0.267*** (-3.9)
Family Dummy	-0.137* (-1.9)
Stock Return	0.109** (2.3)
Obs.	163
Pseudo R2	0.302

**Table 6. Pre-LBO Earnings Management**

The table reports parameter estimates from two OLS regressions. The dependent variable in the first model is DCA defined as discretionary current accruals in year  $t-1$  relative to buyout announcement; stock return is one year BHAR. DCA is calculated using the modified Jones methodology. Relative divestment is net dollar divestment divided by pre-LBO dollar management team ownership. Log total assets is the logarithm of the book value of total assets. EBITDA/sales is operating income before depreciation divided by net sales. Leverage is total liabilities divided by total assets. Market-to-book is stock price divided by book value per share. Management ownership the percentage of shares outstanding that is owned by all named executive officers in the proxy statements on a fully diluted basis before the LBO. Manufacturing industry dummy is equal to 1 if the firm is in the single SIC code 2 or 3. All financial variables are as of  $t-2$  relative to the year of LBO announcement unless specified otherwise. Robust t-statistics are reported in ( ). Values significantly different from zero at the 10%, 5% and the 1% level are marked \*, \*\* and \*\*\* respectively.

	<b>DCA</b>	<b>Abnormal CFO</b>	<b>Real Earnings Management Proxy</b>
Intercept	0.004 (0.1)	0.078 (1.2)	0.078 (0.4)
Relative divestment	0.072*** (2.6)	0.059* (1.7)	0.116 (1.1)
Log total assets	-0.007 (-0.7)	-0.007 (-0.6)	0.008 (0.2)
EBITDA/sales	-0.010 (-0.2)	0.245*** (2.8)	0.525* (1.8)
Leverage	-0.001 (-0.0)	-0.080** (-2.4)	-0.191 (-1.4)
Market-to-book	0.006* (1.7)	-0.005 (-0.8)	0.015 (1.2)
Management ownership	0.100* (1.7)	0.107* (1.7)	0.355* (1.9)
Manufacturing industry		-0.017 (-0.6)	-0.075 (-1.1)
Obs.	163	159	141
R2	0.071	0.083	0.099

### Table 7. Choice of Sale Method

The table reports parameter estimates from two Logit regressions. The dependent variable in the first model (Auction) is dummy variable equal to 1 if the target firm attempts an auction sale and 0 otherwise. The dependent variable in the second model (Auction and/or Market Check) is a dummy variable that equals 1 if the firm attempts an auction, or, in case of an unsolicited bid, performs a “market check” and 0 otherwise. Relative divestment is net dollar divestment divided by pre-LBO dollar management ownership. Log total assets is the logarithm of the book value of total assets. EBITDA/sales is operating income before depreciation divided by net sales. Leverage is total liabilities divided by total assets. Market-to-book is stock price divided by book value per share. Management ownership the percentage of shares outstanding that is owned by all named executive officers in the pre-LBO proxy statements on a fully diluted basis. All financial variables are as of  $t=-1$  relative to the year of LBO announcement unless specified otherwise. Robust t-statistics are reported in ( ). Values significantly different from zero at the 10%, 5% and the 1% level are marked \*, \*\* and \*\*\* respectively.

	<b>Auction</b>	<b>Auction and/or Market Check</b>
Intercept	-0.710 (-0.8)	0.123 (0.2)
Relative divestment	1.913*** (3.9)	2.200*** (3.9)
Log total assets	-0.037 (-0.3)	-0.030 (-0.2)
EBITDA/sales	1.966* (1.7)	0.961 (0.5)
Leverage	-0.725 (-0.9)	-0.739 (-1.0)
Market-to-book	0.117** (2.0)	0.425* (1.6)
Management ownership	-0.745 (-0.9)	-1.591* (-1.8)
Obs.	163	163
R2	0.159	0.244

### Table 8. Target Wealth Effects

The table reports parameter estimates from four OLS regressions. The dependent variable in the first (second) model is Premium 4 wk. (1 yr.) which is a percent change from stock price 4 weeks (1 year ) before announcement to buyout price. The dependent variable in the third model is Deal/sales, computed as deal value divided by net sales. The dependent variable in the last model is the percent change from the initial bid by the winning bidder to the final bid. Relative divestment is net dollar divestment divided by pre-LBO dollar management ownership. Log total assets is the logarithm of the book value of total assets. EBITDA/sales is operating income before depreciation divided by net sales. Leverage is total liabilities divided by total assets. Market-to-book is stock price divided by book value per share. Management ownership the percentage of shares outstanding that is owned by all named executive officers in the pre-LBO proxy statements on a fully diluted basis. MBO is a dummy variable equal to 1 if the buyout was completed without private equity participation and 0 otherwise. Competition is a dummy variable that equals 1 if there is more than one bidder and 0 otherwise. Initial premium is a percent change from stock price 4 weeks before the initial bid date to the initial bid. Auction is a dummy variable that equals 1 if the firm attempts an auction and 0 otherwise. All financial variables are as of t=-1 relative to the year of LBO announcement unless specified otherwise. Robust t-statistics are reported in ( ). Values significantly different from zero at the 10%, 5% and the 1% level are marked \*, \*\* and \*\*\* respectively.

	Premium 4 wk	Premium 1 yr	Deal/Sales	Revision
Intercept	0.548*** (5.0)	-0.156 (-0.4)	0.547 (1.6)	-0.020 (-0.4)
Relative divestment	-0.086 (-1.1)	0.479** (2.5)	0.641*** (2.9)	0.049* (1.8)
Log total assets	-0.050*** (-3.2)	-0.029 (-0.5)	0.124** (2.5)	0.006 (0.6)
EBITDA/sales	-0.095 (-1.4)	1.434* (1.7)	-0.248 (-0.6)	-0.113** (-2.6)
Leverage	0.296** (2.3)	0.415 (1.2)	-0.896*** (-3.0)	0.052 (0.7)
Market-to-book	-0.005 (-0.8)	0.043 (1.1)	0.061 (1.4)	-0.000 (0.0)
Management ownership	0.005 (-0.6)	0.027 (0.1)	-0.223 (-0.7)	0.068 (1.0)
MBO	0.058 (0.8)	0.236 (1.5)	-0.153 (-0.8)	0.072*** (2.9)
Competition	0.023 (0.5)	0.164 (1.3)	0.018 (0.1)	0.005 (0.2)
Initial premium				0.013 (0.9)
Auction				-0.049** (-2.1)
Obs.	157	155	163	147
R2	0.085	0.131	0.254	0.167

**Table 9. Post-LBO Performance**

This table shows post-LBO operating performance. The sample is divided into three groups according to the managers' relative divestment. Investment/Rollover are deals to which managers contributed additional personal equity or fully reinvested their pre-LBO equity. Divestments are split into two groups: Low (below median of relative divestment sub-sample) and High (above median of relative divestment sub-sample). Net dollar divestment is the amount received by management for the shares valued at LBO price less the amount reinvested in the firm. Relative divestment is net dollar divestment divided by pre-LBO dollar management ownership. Panel A shows measures of operating performance for the first three years after the LBO. Excess EBITDA/sales is adjusted for mean reversion and industry effects. Panel B provides firm disposition after the LBO. IPO indicates the percentage of firms that went public. Sale represents the percentage of non-distress sales to another party or secondary LBO. Bankruptcy indicates the percentage of firms that filed for bankruptcy.

	Investment/Rollover				Divestment							
					Low				High			
<i>Panel A. Post-LBO Operating Performance</i>												
	Mean	Median	Std.	Obs.	Mean	Median	Std.	Obs.	Mean	Median	Std.	Obs.
EBITDA/sales $t=1$	0.226	0.144	0.292	10	0.120	0.111	0.091	15	0.099	0.123	0.253	22
EBITDA/sales $t=2$	0.150	0.136	0.080	6	-0.009	0.094	0.392	11	0.039	0.152	0.465	17
EBITDA/sales $t=3$	0.161	0.129	0.082	5	0.099	0.110	0.056	8	0.127	0.137	0.257	13
Excess EBITDA/sales $t=1$	0.089	0.012	0.301	10	-0.004	-0.011	0.062	15	-0.087	0.004	0.278	18
Excess EBITDA/sales $t=2$	0.038	0.012	0.081	6	-0.140	-0.001	0.422	11	-0.029	0.029	0.362	14
Excess EBITDA/sales $t=3$	0.046	0.010	0.077	5	-0.029	-0.024	0.068	8	-0.006	0.045	0.227	13
<i>Panel B. Post-LBO Disposition</i>												
IPO				0.088				0.047				0.092
Sale				0.176				0.188				0.154
Bankruptcy/Distress				0.118				0.094				0.169
Obs.				34				64				65