EARNINGS MANAGEMENT, BUYOUT GROUP REPUTATION AND POST-OFFERING LONG-RUN STOCK PERFORMANCE OF REVERSE LBOS

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Abstract

This paper examines earnings management of private equity-backed IPOs around security offerings in a comprehensive sample of Reverse LBOs between 1981 and 2006. These RLBO companies are found to have positive level of discretionary current accruals (DCAs) at a much smaller magnitude compared to other IPOs. Buyout group's size is negatively related with the level of DCAs, suggesting that PE reputation mitigates accounting manipulations. Furthermore, PE reputation rather than earnings management can explain post-offering performance of RLBO companies.

Key words: Reverse leveraged buyouts; Earnings management; Buyout group reputation; Financial performance

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1. Introduction

I. Earnings Management in Security Offerings

In a typical leveraged buyout, a company is acquired by a private equity firm using a relatively small portion of equity and a relatively large portion of outside debt financing. In a typical buyout transaction, the PE firm buys majority control of an existing or a mature firm. This arrangement is distinct from VC firms that typically invest in young or emerging companies, and usually do not contain majority control. There are two types of post-buyout behaviors. One is to keep the firm private for a significant time. The other is to take the firm public in a reverse leveraged buyout. Reverse LBOs can result when the buyout sponsor attempts to time the market for the target firm's stock, buying when the price is low and selling when the price is high. Selling at the highest possible price for the reverse LBO could involve manipulating earnings upwards in order to boost the offer price.

The literature of earnings management in security offerings abounds. Teoh, Welch, and Wong (1998a) and DuCharme, Malatesta, and Sefcik (2004) find unusually high abnormal accounting accruals around IPO, supporting the view that some firms opportunistically manipulate earnings upwards before IPO. Rangan (1998), Teoh, Welch, and Wong (1998b), Shivakumar (2000) and DuCharme, Malatesta, and Sefcik (2004) provide evidence of earnings management around SEO. Teoh, Welch, and Wong (1998b) and Rangan (1998) suggest that investors naively extrapolate pre-issue earnings, and ignore relevant information contained in pre-issue discretionary current accruals. DuCharme, Malatesta, and Sefcik (2004) support the view that some firms opportunistically manipulate earnings upward before stock issues while Shivakumar

(2000) conclude that seasoned equity issuers' earnings management may not be designed to mislead investors, but may merely reflect the issuers' rational response to anticipated market behavior at offering announcements. Perry and Williams (1994) and Wu (1997) provide evidence of manipulation of reported earnings in the year preceding the public announcement of management's intention to bid for control of the company in management buyouts. Reverse leveraged buyouts are a special form of IPO in which a company that is acquired by a specified investment firm returns to public. Chou, Gombola, and Liu (2006) provide evidence of earnings management around security offerings for a sample of reverse LBOs between 1981 and 1999. They find positive and significant discretionary current accruals coincident with offerings of reverse LBOs.

In this study, I adopt discretionary current accruals as a measure of earnings management and examine the extent of it using a comprehensive sample of reverse LBOs offered between 1981 and 2006. I find positive discretionary current accruals in the fiscal year of reverse LBOs. However, the level of discretionary current accruals for reverse LBOs is much lower than that for the other IPOs, suggesting that reverse LBOs are less aggressive in reporting earnings than the other IPOs.

My idea is the existence of private equity sponsors will affect the opportunity o f earnings management by the reverse LBO firms because of PE firm's reputation concern. On the one hand, prestigious private equity sponsors will invariably attempt to reduce the probability of selling 'lemons', since such business could ultimately damage the reputation of the sponsors themselves. Therefore, they will set stricter standards when evaluating their targets and choose those attend to be conservative. Although conservativeness may prove to be costly in the short run, greater long-run benefits are

private equity sponsors' primary aims. On the other hand, prestigious sponsors will also actively monitor the quality of the financial information due to three reasons. First, since reverse LBO involves repeat business with a finite number of competitors, investors can readily engage in the ex-post evaluation of the quality of the buyout sponsor's deal. It would be very difficult and costly for the buyout sponsor to sell future targets if the underwriters and investors involved had already been misled by the same buyout sponsors in their prior reverse LBOs. Second, the more reputable the buyout sponsor is, the more power it has in negotiation with its target firms when it attempts to restrict the extent of earnings management. Furthermore, buyout sponsors must protect the enhanced 'reputation' capital that they already possess. Therefore, more prestigious buyout sponsors have much stronger incentives to prevent any aggressive earnings management.

In the present study, I examine the association between buyout sponsor reputation and earnings management around reverse LBOs. I find that buyout sponsor's size has a significant negative correlation with earnings management, suggesting that PE reputation mitigates earnings manipulation. My result is consistent with my first hypothesis that reverse LBOs backed by more prestigious private equity groups may have lower level of discretion current accruals around offerings.

II. Post-Issue Stock Performance of Reverse LBOs

Several studies find the initial public offerings underperform after the issue. Stoll and Curley (1970), Stern and Borstein (1985), Ritter (1991), Loughran and Ritter (1995), and Teoh, Welch, and Wong (1998a) find poor subsequent performance for IPOs.

In contrast to the IPO literature, studies in reverse LBOs fail to find evidence of long-run stock price underperformance following the equity offerings: Holthausan and

Larker (1997) find no evidence of abnormal common stock performance after the reverse LBOs. There is even some evidence of positive abnormal returns after the offerings: Degeorge and Zeckhauser (1993) find reverse LBOs outperform control samples of comparable firms over two- to three-year periods following the offering. Mian and Rosenfeld (1997) find that reverse LBOs outperform over two- to three-year periods following the offering but not during the first year. Cao and Lerner (2009) examine three- and five-year stock performance following the reverse LBOs of a sample of 496 reverse LBOs between 1980 and 2002 and find reverse LBOs consistently outperform other IPOs and the stock market as a whole, with economically and statistically meaningful positive returns. They also find that there's no evidence of a deterioration of returns over time despite the growth of the buyout market.

In this paper, I examine the post-issue stock performance of reverse LBOs using a comprehensive sample of reverse LBOs offered between 1981 and 2006. In line with the literature, I find no evidence of underperformance or performance deterioration.

Chou, Gombola, and Liu (2006) find that earnings management can explain post-offering returns of reverse LBOs, even in the absence of post-offering underperformance. However, PE reputation is not considered in their study. In this present study, I examine what actually explain post-issue stock performance, adding buyout group reputation as a factor. As expected, when the interaction effect between earnings management and buyout group reputation is included within the regression model, the effect of earnings management becomes statistically insignificant, whereas the interaction effect is highly significant from the second year after the offerings. These results highlight the effects of buyout group reputation on the post-issue long-run stock performance of reverse LBOs

and are consistent with my second hypothesis that PE reputation, rather than the level of DCAs, can explain the post-issue long-run stock performance of reverse LBOs.

My paper contributes to the literature in three ways: First, it employs a comprehensive sample of 594 reverse LBOs from 1981 to 2006, covering several complete cycles of the RLBO market. Second, it offers new evidence of the factors that influence reverse LBO firms' choice of reported earnings. Finally, it offers new evidence that reputation can explain the long-run stock price performance of reverse LBOs after the offerings.

The remainder of this paper is organized as follows. The data and sample selection are presented in Section 2. Section 3 presents the methodology and empirical results and Section 4 concludes.

2. Data

I. The Sample---reverse leveraged buyouts

As showed by Cao and Lerner (2009), one of the main barriers to research in this area is the identification and characterization of the reverse LBOs. The difficulty in identifying the buyout-backed IPOs arises from two factors: The first is the secretive nature of buyout organizations. Unlike venture capital organizations, these private equity groups rarely disclose new investments on web sites or in press release. As a result, the coverage of the major databases is considerably less complete than that of venture-backed transactions. The second complication comes from the fact that the boundaries between venture capital and buyout investments are increasingly blurred. For example, private equity firms that typically make buyout investments have in the past decade also often made venture capital type of investments. Hence, one cannot infer the deal type by just looking at the attributes of the investors. This gives rise to ambiguity in identifying the reverse LBOs among the private equity-backed IPOs.

I adopt the criteria to identify reverse LBOs of Cao and Lerner (2009) and Cao (2008 working paper). An IPO transaction is considered as a reverse leveraged buyout if it satisfies two conditions: First, it must have previously received LBO financing sponsored by a buyout group; Second, the LBO investment must be characterized by immerse use of leverage. The reverse leveraged buyout transactions are identified using two types of sources. The first included the Securities Data Company's (SDC) Corporate New Issues database, which flag IPOs with an identifier indicating a previous leveraged buyout, and LBO databases that indicate whether any transaction subsequently went public. For the period from 1981 through mid-1998, 229 RLBO firms are identified using the first source. As of the middle of 1998, the SDC no longer identified reverse LBOs in

their IPO database. For the time period from the remainder of 1998 to 2006, the second set of sources is used. It includes Dealogic and Capital IQ, both of which report IPOs backed by financial sponsors, as well as a search of new stories on Factiva using the same criteria. These sources generate an additional 297 reverse LBOs, resulting in a total final sample of 594 reverse LBOs for the period from 1981 through 2006. My sample ends in 2006 in order to allow for the availability of three years of post-offering returns in the Center for Research in Security Prices (CRSP) monthly returns file. To be included in the sample, a reverse LBO firm meets the following criteria: First, the offer price is at least five dollars; Second, the offer size is at least five million; Third, the issue is not a unit trust, a closed-end fund, or an ADR; Fourth, real estate investment trusts (REITs) are included because they make up a fair number of the sample. Additionally, IPOs not listed on CRSP within six months of issuing are excluded from the sample.

Panel A of Table 1 provides the time distribution for our sample of 594 reverse LBOs and other IPOs. In general, there have been significant increases in reverse LBO activity in the 1990s and the 2000s. However, the level of reverse LBO activity remains modest in relation to that of IPOs as a whole: only 6.47% of the IPOs by number between 1981 and 2006 are reverse LBOs. Reverse LBO distribution is highly correlated with the buyout cycles in a lagged fashion. In the early years, there were relatively few reverse LBOs. The first LBO wave that occurred in the late 1980s caused the first reverse LBO wave: clustering in 1986 and 1987. However, after the collapse of the junk bond/LBO markets, reverse LBO market shrank, with 4 RLBOs in 1988 and 3 in 1989. In 1992, when many LBOs acquired during the late 1980s began to return to the public market, there were 63 offerings. The second LBO wave accompanied the stock market boom of

the mid-late 1990s and ended with the burst of tech bubble in 2000, and the most recent wave started in 2004 and has just recently slowed down because of the credit crisis in the sub-prime mortgage market.

Among the 594 reverse LBO firms, 20 cannot find their sic codes in either COMPUSTAT database or SDC IPO database. Panel B of Table 2 provides the industry distribution for our reduced sample of 574 RLBOs and all IPOs occurred during 1981 and 2006 using Fama-French 12-industry classification. The wholesale and retail industry has 17.77% of all the RLBOs, with the business equipment industry and the manufacturing industry having 13.41% and 13.07%, respectively. The other IPOs concentrate in the business equipment industry, the finance industry and the healthcare industry.

II. Financial and supplemental Data

The financial accounting data and earnings data used to study earnings management behavior are collected from the COMPUSTAT fundamentals annual files and archives. Each firm should have available data in COMPUSTAT for the fiscal year prior to the IPO, as well as the fiscal year of the IPO. Return and price information were taken from the Center for Research in Security Prices (CRSP) Monthly Stock files. This step reduces the sample size. The benchmark of non-buyout backed IPOs is collected from the SDC Corporate New Issues Database. American Depository Receipts, unit trusts, closed-end funds, IPOs with an offering size smaller than $5 million, IPOs with offer prices below $5 per share and IPOs not listed on CRSP within six months of issuing are excluded from the sample. Real Estate Investment Trusts (REITs) are included because they make up a fair number of the sample. Furthermore, in order to be used in the analysis of earnings management, similar to the firms in the reverse LBO sample, each

firm should have available data in COMPUSTAT for the fiscal year prior to the IPO, as well as the fiscal year of the IPO.

Table 2 presents summary statistics for our sample of reverse LBO firms and other IPO firms in the fiscal year of the offering. The firm characteristics include: gross IPO proceeds, total assets, net income, size, book-to-market ratio, leverage, operating income /sales. IPO proceeds are collected from the SDC Corporate New Issues Database. Total Asset is COMPUSTAT item 6). Size is computed as market capitalization on the first day of listing on CRSP tapes. BM is the firm's book-to-market ratio, calculated as the ratio of book equity (COMPUSTAT item 60) for the fiscal year ending in calendar year t-1, to market capitalization at the end of December t-1 (on the first day of listing for RLBOs and other IPOs). Leverage is computed as the sum of the firm's long-term debt (COMPUSTAT item 9) and debt in current liabilities (COMPUSTAT item 34), divided by the firm's total assets (COMPUSTAT item 6) at the beginning of the fiscal year. Operating Income/Assets is the firm's operating income before depreciation (COMPUSTAT item 13) scaled by sales (COMPUSTAT item 12).

The mean proceeds for reverse LBOs ($161.04 million) are almost twice those for the other IPOs ($88.16 million). Reverse LBOs are larger, with a mean market capitalization of $579.68 million, versus $400.80 million for the other IPOs. Consistent with the earlier literature, reverse LBOs are more leveraged than the other IPOs and are those with less growth opportunities. Reverse LBOs have better financial performance than other IPOs. The mean operating income before depreciation/sales is 0.13, much larger than -0.73 for the other IPOs.

III. The Buyout Sponsor

Buyout firms/funds that engage primarily in buyout investment activities are indentified from Thomson's VentureXpert and Standard and Poors' Capital IQ. The sample excludes investments by buyout organizations that more closely resemble venture capital. Panel A of Table 3 presents the 20 most active leading buyout sponsors of our sample, together with the number of sample deals backed by each and average gross proceeds. As can be seen, the bulk of offerings are by well-known groups such as KKR, Warburg Pincus, GRCR Golder Rauner, and Morgan Stanley Private Equity. Note if there are several private equity sponsors participating in the buyout, only the leading one (oldest or largest one) is recorded.

For the each buyout group sponsoring the transaction, I determine the year of formation of its first fund and its total capital raised from its first fund to the most recent fund before the reverse LBO using hand-collected information from the SDC VentureXpert database. This step reduces the sample size to 509. In addition, ownership data and board information at the time of the IPO were hand-collected from the IPO prospectus, while post-issue ownership data were taken from the proxy filing statements on the SEC's EDGAR website. Data availability issues further reduce the sample size to 312. The smaller sample of 312 is used whenever buyout sponsor reputation and IPO ownership data is analyzed. Otherwise, the larger sample is used.

Panel B of Table 3 presents that summary statistics for the buyout groups sponsoring the reverse LBOs. An average reverse LBO firm stays private for 3.53 years after its LBO. The mean age of buyout sponsors is 16.07 years old at the time of the reverse LBOs. The total capital raised by the buyout sponsors before the reverse LBOs

(used as the size of buyout sponsors later in this paper) averages 4.6 billion. Both the age and size of buyout sponsors are with a great deal of diversity. The buyout sponsor or sponsors (if there are multiple sponsors backing the deal) hold an average of 58.82% of the reverse LBO firm's shares before the IPO and decrease its ownership to 40.42% immediately after the offering. Managers and directors as a whole also hold large bundle of equity stakes: 54.83% pre-IPO and 38.36% post-IPO.

3. Methodology and Empirical Results

I. Measures of Earnings Management

Reported earnings consist of two parts: cash flows from operations and accounting adjustments. There are two kinds of adjustments: accruals—differences between revenues recognized and cash received; and deferrals—differences between expenses recognized and cash expenditures. These adjustments to cash flows are supposed to reflect the underlying business condition of the firm more accurately. However, when the firms have discretion over the adjustments, it is hard to tell what roles the accruals play. Some accruals are reasonable and expected by the investors, while the other accruals are discretionary.

Total accruals can be decomposed into long-term accruals and current accruals. Long-term accruals are less likely to be subject to manipulation because they the accounting choices of a firm remain consistent for as long as several years. By contrast, current accruals, which are associated with short-term accounting decisions, are much easier to manipulate. Thus, we focus on current accruals.

$$CA = (\Delta RECT + \Delta INVT + \Delta ACO) - (\Delta AP + \Delta TXP + \Delta ACO),$$

CA is the firm's current accrual. ΔRECT is the change in the firm's accounts receivables (COMPUSTAT item 21). ΔINVT is the change of the firm's inventory (COMPUSTAT item 3). ΔACO is the change in the firm's other current assets (COMPUSTAT item 68). ΔAP is the change in the firm's accounts payable (COMPUSTAT item 70). ΔTXP is the change in the firm's taxes payable (COMPUSTAT item 71). ΔACO is the change in the firm's other current liabilities (COMPUSTAT item 72).

I follow Teoh, Welch, and Wong (1998a), (1998b), and use an extension of the cross-sectional Jones (1991) model to decompose current accruals into two components, one that reflects the underlying business condition of the firm and one that is managed by the firm. The difference between the Teoh, Welch, and Wong (1998a), (1998b) model and the Jones (1991) is that the former includes the adjustment for income taxes. Expected level of CAs are estimated from a cross-sectional regression of CAs in a given year on the change in sales using an estimation sample that includes all firms with the same two-digit SIC code as the reverse LBO issuer, but excludes the issuer and the other reverse LBO firms.

$$\frac{CA_{j,t}}{TA_{j,t-1}} = \alpha_0\left(\frac{1}{TA_{j,t-1}}\right) + \alpha_1\left(\frac{\Delta Sale_{j,t}}{TA_{j,t-1}}\right) + \varepsilon_{j,t},\ j \in \text{estimation sample}$$

where ΔSale is the change in sales (COMPUSTAT item 12). TA is the firm's total assets (COMPUSTAT item 6). The scaling by total assets corrects for the fact that in any large sample of firms that include companies of various sizes, we cannot make any meaningful comparison among the raw level of accruals.

Similar to Teon, Welch, and Wong (1998a), (1998b), DuCharme, Malatesta, and Sefcik (2004), and Chou, Gombola and Liu (2006), the coefficients α_0 and α_1 are estimated cross-sectionally by industry and time period. In each year, the industry-specific coefficients are calculated using data from all the firms in that industry, excluding the reverse LBO issuers. We omit industry years that do not contain at least seven firm observations for the accruals decomposition regression. Using A2, we create a

database of coefficients for all industry years in the COMPUSTAT universe for the fiscal years 1981 to 2006.

The non-discretionary current accruals (NDCA) for firm i in year t are estimated as:

$$NDCA_{i,t} = \hat{\alpha}_0 \left(\frac{1}{TA_{i,t-1}} \right) + \hat{\alpha}_1 \left(\frac{\Delta Sales_{i,t} - \Delta RECTR_{i,t}}{TA_{i,t-1}} \right),$$

where $\hat{\alpha}_0$ is the estimated intercept, $\hat{\alpha}_1$ is the slope coefficient for firm i in year t, and $\Delta RECTR_{i,t}$ is the change in trade receivables (COMPUSTAT item 151) for firm i in year t. The change in trade receivables is subtracted from the change in sales to allow for the possibility of credit sales manipulation by the issuer.

Earnings management is reflected in an abnormal level of accruals relative to the firm's business activity. Discretionary current accruals (DCA) are then the deviations from the expected level of accruals (NDCA):

$$DCA_{i,t} = \frac{CA_{i,t}}{TA_{i,t-1}} - NDCA_{i,t},$$

DCAs are a measure of abnormal accruals and are the proxy for earnings management in this study.

The financial accounting data and earnings data used to study earnings management behavior are collected from the COMPUSTAT fundamentals annual files and archives. Each firm should have available data in COMPUSTAT for the fiscal year prior to the IPO, as well as the fiscal year of the IPO. A total of 347 firms from our

sample of 594 reverse LBO firms can be identified in the COMPUSTAT database and, at the same time, have available financial data for the calculation of DCAs. To ensure that the estimates are not unduly influenced by outliers, I winsorize the discretionary current accruals data at the 1st and 99th percentile.

Summary statistics for the level of discretionary accruals are presented in Table 4. Of the 3307 firms that had IPO during 1981 and 2006 and for which DCA information is available, 347 are reverse LBO firms. Reverse LBO firms are more conservative, with a mean discretionary accruals of 0.0170, versus 0.0876 for non-reverse LBO firms. The mean can be interpreted as DCAs comprising 1.7% of total assets for the year in which the reverse LBO firm goes public. This value as a percentage of total assets is much smaller than that reported by Chou, Gombola, and Liu (2006). They find DCAs comprise an average of 4.36% of total assets for their sample of reverse LBO firms. The reason for the difference may be the sample of longer time period I used.

In Panel B, I examined the DCAs of the reverse LBO firms for earlier and later halves of the sample period. The first half is from 1981 to 1993 and the second is from 1994 to 2006. As can be seen from Panel B, reverse LBOs are more prevalent in the second half of the sample period: 266 out of 347 reverse LBOs occurred during 1994 and 2006 while 81 was offered during 1981 and 2006. There is a great deal of difference between the mean values of DCAs for these two periods. The mean level of DCAs for reverse LBOs during 1981 to 1993 is 0.0546, significant at the 0.01 level (t=2.77). This number is much larger than that of the full sample (n=347), indicating reverse LBOs offered during the 1980s and early 1990s are more aggressive in earnings management.

In Panel C, the firms in my sample are grouped into quartiles based on size (market capitalization). For the IPO firms as whole, there is no significant pattern of DCAs. However, for our sample of reverse LBO firms, there is. Both the mean and the median values of DCAs decrease as size increases. Firms in the largest size quartile have negative (not significant) mean and median values of DCAs. Firms in the smallest size quartile have the largest and the most significant DCAs by far, with the mean DCA significant at the 0.05 level and nearly three times as large as the mean DCA for the overall sample, suggesting that earnings management is most evident in small reverse LBO firms. To address the issue of size effects on DCAs, I will control for size effect in later sections.

II. The role of the buyout sponsors in a reverse LBO

As presented in Section A, the mean level of DCAs for my sample of reverse LBO firms is 0.0170, much lower than that for the other IPOs. However, reverse LBOs are, in general, larger, more leveraged and with smaller book-to-market ratios than other IPOs. They also financially perform better than other IPOs. To control for facts which may pre-dispose firms to manage earnings upwards, I adopt a dummy variable to test the relation between earnings management and the existence of buyout groups based on the following cross-section regression model:

$$DCA_{i,t} = \alpha_{pe} PE_i + \alpha_{sz} SZ_i + \alpha_{bm} BM_i + \alpha_{lev} LEV_i + \alpha_{oi/sale}(OIBDP/SALE) + \varepsilon \quad ,$$

Where DCA is the level of discretionary accruals for the firm in the fiscal year of IPO, PE is an indicator variable taking the value one if the firm is a reverse LBO firm and zero otherwise. SZ is the logarithm of the firm's market capitalization ($mm). Larger firms

may have more power in exploiting latitude in accounting standards to manage earnings. Conversely, larger firms may have less opportunity to exercise earnings management since they are more likely to be researched by security analysts. BM is the firm's book-to-market ratio, Higher growth firms may be more likely to manage earnings upward. LEV is leverage. Firms with high leverage may have a strong tendency to manage earnings upwards in order not to violate debt covenants. OIBDP/SALE is the firm's operating income before depreciation scaled by sales. It is to control for the correlation between earnings management and firm performance.

The results of the estimation equation for the firm's IPO fiscal year are presented in the first column of Table 5. The coefficient of PE dummy is negative and is significant at the 1% level, indicating reverse LBO firms are more conservative in reporting earnings than the other IPO firms in their IPO fiscal year. The loading of the control variables are signed as expected. The coefficient of LEV is significantly positive, indicating firms with high leverage tend to manage earnings more aggressively in order to avoid violation of debt covenants. The coefficient of EARNINGS is also positive and significant at the 1% level, indicating firms with good performance may tend to manage earnings upwards in order to keep earnings consistent. As expected, both SZ and BM have positive coefficients, but not significant. The results presented in Table 5 supports the argument that the buyout sponsor plays an important role in limiting the reverse LBO firm's earnings management.

III. Cross-sectional relation between the buyout sponsor's reputation and the level of the reverse LBO firm's DCAs

In this section, I proceed to test my first hypothesis that reverse LBO firms backed by more prestigious buyout groups manage earnings less aggressively. In order to examine the relation between the buyout sponsor's reputation and the level of DCAs of the firm it invested in, I adopt a cross-sectional model in which I use the private equity fund size and age as two proxies for buyout group reputation.

$$DCA_{i,t} = \alpha_0 + \alpha_1 ControlVariables + \alpha_3 REPUTATION + \alpha_4 Dur + \alpha_5 Ownership + \varepsilon ,$$

where Control Variables are: logarithm of the market capitalization, book-to-market ratio, leverage, operating income scaled by sales. I use two variables as the proxy for buyout group reputation. One is the buyout group size, which is total capital raised from its first fund to the most recent fund before the reverse LBO. The other is buyout group age, calculated as the years between the year of formation of its first fund and the year of reverse LBO. I take the logarithms of both variables. Dur is the logarithm of the length of time between a reverse LBO firm's buyout and IPO. The longer the buyout groups hold the firms, the more likely they are to spend real effort in increasing value. On the contrary, buyout groups who flip tend to manipulate earnings aggressively in order to earn speculating profits. Ownership refers to the share of equity held by buyout sponsor or sponsors post-IPO. The larger stake of shares a buyout sponsor owns after the reverse LBO, the more effort it will spend in suppressing earnings manipulation by firms which it invests in. This is because firms engaging in aggressive earnings management usually suffer from the reverse of stock price after the offerings.

The cross-sectional regression results on the relation between private equity group reputation and the level of earnings management are presented in Table 6. The model tests the relation between PE firm's reputation and the level of DCAs while controlling for other factors. We find that the coefficient on PE firm's size is significantly negative (weak). The coefficient on PE firm's age is negative as well, although not significant. The results are consistent with my first hypothesis, indicating PE reputation mitigates earnings management.

IV. Post-Issue Performance of Reverse LBOs

Several studies find the initial public offerings underperform after the issue. Stoll and Curley (1970), Stern and Borstein (1985), Ritter (1991), Loughran and Ritter (1995), and Teoh, Welch, and Wong (1998a) find poor subsequent performance for IPOs. In contrast to the IPO literature, studies in reverse LBOs fail to find evidence of long-run stock price underperformance following the equity offerings. In this section, I re-examine the post-issue stock performance of reverse LBOs, using a longer sample from 1981 to 2006.

Previous studies are not in agreement regarding the proxy for long-run stock performance following reverse LBOs. Many studies on long-run performance report buy-and-hold returns because they are most relevant for an investor. But Fama (1998) questioned the use of buy-and-hold returns in long-run performance studies. Buy-and-hold returns are problematic because their distribution is skewed, so small initial differences can be exaggerated through compounding, and the time-period overlap introduces cross-correlation problems. Therefore, I report both BHARs (buy-and-hold

abnormal returns) and CARs (cumulative abnormal returns), which are calculated relative to the CRSP value-weighted and equal-weighted market indexes. BHARs are defined as

$$BHAR_T = \frac{\sum_{i=1}^{N}[\prod_{t=1}^{T}(1+R_{j,t}) - \prod_{t=1}^{T}(1+R_{benchmark,t})]}{N},$$

Where $R_{i,t}$ is the monthly raw return for firm I in month t and $R_{benchmark}$ is the monthly raw return of the CRSP value-weighted/equally weighted market index. CARs are defined as

$$CAR_T = \frac{\sum_{t=1}^{T}[\sum_{i=1}^{N}(R_{i,t} - R_{benchmark,t})]}{N},$$

where $R_{i,t}$ and $R_{benchmark}$ are defined previously. I estimate both BHARs and CARs using the CRSP monthly returns file.

If earnings management results in stock prices being manipulated upward, then the post-issue stock returns should suffer when earnings manipulation is either uncovered or revered (Teoh, Welch, Wong (1998a)). However, when the discovery or reversal will occur remains unclear. As a result, I examine a variety of holding periods from as short as three months to as long as forty-eight months post-offering.

Table 7 reports abnormal post-offering stock return performance for out sample of 594 reverse LBO firms. The results are consistent with Cao and Lerner (2009): RLBOs in general outperform or at least do not underperformance the market. And there is no evidence that reverse LBO firms experience post-issue stock return deterioration. Given that reverse LBO firms do manage earnings upwards surrounding the offerings (we find positive DCAs around IPO), this result is not consistent with that in the IPO literature.

Whether the firm inflates its reported earnings surrounding IPOs is only one consideration when the market values the stock. Kaplan, S.N. and Sromberg, P. (2009) argued that reverse LBO firms used to be those without good opportunities or those with inefficient operations and management. After the buyout sponsor purchased the reverse LBO firms and applied the three sets of change (financial, governance and operational engineering) to them, the target firms get improvement both financially and operationally. The outperformance and enhancement of post-issue stock returns of reverse LBOs reflects the value creation part of reverse LBOs and the confidence of the market in the buyout sponsors. In the next section, I test my second hypothesis that reverse LBOs backed by more prestigious buyout groups have better post-issue long-run performance.

V. Cross-sectional ration between buyout group reputation and post-issue long-run stock performance

In this section, I further examine the relation between the post-issue stock performance of reverse LBOs and the reputation of buyout sponsors in a cross-sectional regression model that includes a couple of control variables for firm characteristics including the book-to-market ratio and firm size and for the level of earnings management surrounding IPO. The dependent variable is the holding-period stock return adjusted for the CRSP value-weighted market index. Fama and French (1993) argue that the book-to-market ratio and firm size are important predictors of long-run stock returns. Brav, Geczy, and Gompers (2000) report that the underperformance of IPOs and SEOs is concentrated in small firms with a high book-to-market ratio. Chou, Gombola, and Liu (2006) report that earnings management can explain post-offering (from three months to nine months) returns of reverse LBOs, even in the absence of post-offering underperformance. The cross-sectional regression model is

$$AR_{i,t} = \alpha_0 + \alpha_1 \log PESIZE_i + \alpha_2 \log PEAGE_i + \alpha_3 DCA_i + \alpha_4 BM_i + \alpha_5 \log SIZE_i + \varepsilon_i ,$$

where $AR_{i,t}$ is the buy-and-hold abnormal return adjusted by value-weighted market index for company i for hold period t beginning the month following the offering month; $LOG(PESIZE)_i$ is logarithm of buyout group size and $LOG(PEAGE)_i$ is logarithm of buyout group age; DCA_i is the DCAs for firm i during the offering fiscal year; BM_i is the ration of book value of equity to market value of equity for the offering firm i in the fiscal year of the offering; $LOG(SIZE)_i$ is the logarithm of the market capitalization of the offering firm in the IPO fiscal year.

Table 8 reports the results of estimating the model for various post-issue holding periods ranging from twelve months to forty-eight months following the reverse LBO. The model is estimated separately for each holding period. A positive relation between post-issue BHARs and the size of the buyout sponsor is found as early as 3 months following the offering. The relation has become significant from the second year following the offering. This result indicates that in the long run, it is PE firm's size that predicts post-issue stock performance.

Consistent with Chou, Gombola, and Liu (2006), I find a negative and significant relation between the level of DCAs around reverse LBOs and BHARs within 9 months following the offerings. However, after controlling for the effects of PE firm's size and age, the significance disappeared. It is possible that the positive effect of PE firm's size is overwhelmed by the negative effect of the level of DCAs. The sign of the coefficients on BM and SIZE is consistent with that suggested by Fama and French (1993) and Brav,

Geczy, and Gompers (2000), indicating smaller firms and firms with a higher book-to-market ratio are more likely to experience post-issue stock return underperformance.

The results in Table 9 confirm my hypothesis that reputation of the buyout sponsor is a predictor of post-issue stock performance in the long run. By controlling for a variety of firm characteristics and the level of DCAs, results of the cross-sectional regressions indicate buyout sponsor reputation is embedded into the valuation model when the market determine the value of the reverse LBO firm's stock in the long run. Firms backed by more prestigious buyout sponsor have better stock return performance in the long run.

4. Conclusion

In this thesis, I examine earnings management of private equity-backed IPOs around security offerings in a comprehensive sample of Reverse Leveraged Buyouts between 1981 and 2006. These RLBO companies are found to have positive level of discretionary current accruals (DCAs) at a much smaller magnitude compared to other IPOs. This finding suggests that reverse LBOs are less aggressive in reporting earnings than the other IPOs.

The existence of private equity sponsors will affect the opportunity of earnings management by the reverse LBO firms because of PE firm's reputation concern. I examine the association between buyout sponsor reputation and earnings management around reverse LBOs. I find that buyout sponsor's size has a significant negative correlation with earnings management, suggesting that PE reputation mitigates earnings manipulation.

In the literature of IPO, several studies find the initial public offerings underperform after the issue. In contrast to their findings, studies in reverse LBOs fail to find evidence of long-run stock price underperformance following the equity offerings. In this study, I use a sample of reverse LBOs offered between 1981 and 2006 to examine the post-issue stock performance. In line with the literature, I find no evidence of underperformance or performance deterioration.

Earlier studies have found that earnings management can explain post-offering returns of reverse LBOs. In this present study, I examine what actually explain post-issue stock performance, adding buyout group reputation as a factor. As expected, when the interaction effect between earnings management and buyout group reputation is included

within the regression model, the effect of earnings management becomes statistically insignificant, whereas the interaction effect is highly significant from the second year after the offerings. These results suggest that PE reputation rather than earnings management can explain post-offering performance of RLBO companies.

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Appendix

Table 1 Distribution of Reverse LBO firms

The sample consists of 594 reverse LBOs and other IPOs from January 1981 to December 2006. American Depository Receipts, unit trusts, closed-end funds, IPOs with an offering size smaller than $5 million, IPOs with offer prices below $5 per share and IPOs not listed on CRSP within six months of issuing are excluded from the sample. Real Estate Investment Trusts (REITs) are included because they make up a fair number of the sample. Panel A of Table 1 presents the year distribution of the sample and other IPOs. Panel B presents the industry distribution of the sample and the other IPOs. The distribution is reported based on Fama-Frech 12-industry classification. SIC codes of firms are collected from both SDC and COMPUSTAT databases. 20 reverse LBOs cannot find their SICs in either COMPUSTAT or SDC database.

Panel A: Year Distribution of Reverse LBOs				
Calendar Year	**Reverse LBO**	**%**	**IPO**	**Reverse LBOs as a fraction of IPOs (%)**
1981	1	0.17	221	0.45
1982	0	0.00	93	0
1983	2	0.34	550	0.36
1984	3	0.51	242	1.24
1985	7	1.18	266	2.63
1986	14	2.36	552	2.54
1987	22	3.70	389	5.66
1988	4	0.67	159	2.52
1989	3	0.51	147	2.04
1990	9	1.52	134	6.72
1991	33	5.56	325	10.15
1992	63	10.61	479	13.15
1993	45	7.58	668	6.74
1994	25	4.21	562	4.45
1995	25	4.21	538	4.65
1996	37	6.23	833	4.44
1997	38	6.40	612	6.21
1998	25	4.21	362	6.91
1999	36	6.06	512	7.03
2000	31	5.22	384	8.07
2001	28	4.71	96	29.17
2002	25	4.21	95	26.32
2003	15	2.53	84	17.86
2004	38	6.40	244	15.57
2005	38	6.40	209	18.18
2006	27	4.55	207	13.04
Total	**594**	**100**	**8963**	**6.47**

Panel B: Industry Distributions of Reverse LBOs				
Industry	**RLBO(n=574)**		**All IPOs(n=8956)**	
	Frequency	%	Frequency	%
Consumer NonDurables	59	10.28	418	4.67
Consumer Durables	30	5.23	183	2.04
Manufacturing	75	13.07	573	6.40
Energy	19	3.31	214	2.39
Chemicals and Allied Products	16	2.79	109	1.22
Business Equipment	77	13.41	2284	25.50
Telephone and Television Transmission	25	4.36	393	4.39
Utilities	5	0.87	72	0.80
Wholesale, Retail and Some Services	102	17.77	977	10.91
Healthcare, Medical Equipment and drugs	34	5.92	1063	11.87
Finance	41	7.14	1414	15.79
All others	91	15.85	1256	14.02
Total	**574**	**100**	**8956**	**100**

Table 2 Summary Statistics of the Reverse LBOs

The sample consists of 594 reverse LBOs occurred during 1981 and 2006. The benchmark of non-buyout backed IPOs is collected from the SDC Corporate New Issues Database using the same criteria as for reverse LBOs. The financial accounting data is collected from the COMPUSTAT fundamentals annual files and archives. Each firm should have available data in COMPUSTAT for the fiscal year prior to the IPO, as well as the fiscal year of the IPO. Price information is taken from the Center for Research in Security Prices (CRSP) Monthly Stock files. IPO proceeds are collected from the SDC Corporate New Issues Database. Total Asset is COMPUSTAT item 6). Size is computed as market capitalization on the first day of listing on CRSP tapes. BM is the firm's book-to-market ratio, calculated as the ratio of book equity (COMPUSTAT item 60) for the fiscal year ending in calendar year t-1, to market capitalization at the end of December t-1 (on the first day of listing for RLBOs and other IPOs). Leverage is computed as the sum of the firm's long-term debt (COMPUSTAT item 9) and debt in current liabilities (COMPUSTAT item 34), divided by the firm's total assets (COMPUSTAT item 6) at the beginning of the fiscal year. Operating Income/Assets is the firm's operating income before depreciation (COMPUSTAT item 13) scaled by sales (COMPUSTAT item 12).

At IPO	**All issues**				**Reverse LBO firms**				**Other IPO firms**			
Variable	N	Mean	Median	Std Dev	N	Mean	Median	Std Dev	N	Mean	Median	Std Dev
IPO Proceeds($MM)	8963	92.65	29.00	384.26	549	161.04	87.50	253.15	8414	88.18	27.00	390.88
Total Assets ($MM)	4977	997.47	64.11	10406.71	461	783.50	286.47	1760.11	4516	1019.31	55.18	10910.39
Size ($MM)	5010	417.44	139.35	1387.58	466	579.68	325.84	855.71	4544	400.80	127.76	1430.02
Book-to-Market	3623	0.32	0.04	2.06	373	0.16	0.06	0.59	3250	0.33	0.04	15.79
Leverage	3645	0.45	0.21	0.68	377	0.58	0.50	0.60	3268	0.44	0.19	0.69
Operating Income/Sale	4621	-2.17	0.12	32.61	447	0.13	0.13	0.34	4174	-2.41	0.11	34.30

Table 3: Summary Statistics for Buyout Sponsor

Panel A of Table 3 presents the 20 most active leading buyout sponsors. Column 3 reports the average gross proceeds of deals backed by each. Panel B reports summary statistics for the buyout groups sponsoring the 594 firms in my sample. The variables include: LBO duration (years between the buyout and the reverse LBO), the total capital raised by the buyout group before the date of reverse LBO (used as buyout sponsor size later in this paper), buyout sponsor age (the years between the group's first fund vintage and the reverse LBO), the share of equity held by buyout sponsor or sponsors pre- and post-IPO, and the share of equity held by insiders (the management and directors as a whole) pre- and post-IPO. Buyout group size and age information is hand-collected from the SDC VentureXpert database. Ownership data and board information at the time of IPO are hand-collected from the IPO prospectus, while post-issue ownership data were taken from the proxy filing statements on the SEC's EDGAR website.

Panel A: leading buyout sponsor distribution of reverse LBOs

Name of buyout sponsors	**Deal**	**Average gross proceeds ($mm)**
KKR	24	213.96
Warburg Pincus	17	112.45
GTCR Golder Rauner	16	140.49
Morgan Stanley Private Equity	16	179.64
Welsh,Carson,Anderson&Stowe	16	114.87
Bain Capital	14	199.54
Thomas H. Lee Partners	12	233.32
Hicks,Muse,Tate & Furst	11	284.12
Kelso & Company	11	128.92
Citicorp Venture Capital	10	111.08
Texas Pacific Group	10	224.74
Apollo Group	9	223.91
Blackstone Group	9	402.17
DLJ Merchant Banking Partners	9	115.44
Forstmann Little & Co.	9	253.94
Leonard green & Partners	9	148.44
Madison Dearborn Partners	9	144.81
Merrill Lynch	9	69.03
Goldman Sachs	8	178.33
Lehman Brothers	8	120.66

Panel B: Summary Statistics for Buyout Sponsor					
	Mean	**Median**	**SD**	**Min**	**Max**
LBO Duration	3.53	2.88	41.65	0.11	17.49
Buyout Sponsor Capital Managed Prior to RLBO ($mm)	4555.51	1800.00	7066.75	2.80	38990.00
Buyout Sponsor Age	16.07	15.00	9.43	0	58.00
Buyout Sponsor Ownership (%)					
Before IPO	58.82	59.00	25.99	4.60	100.00
After IPO	40.42	39.90	19.90	0.00	85.10
Insider Ownership (%)					
Before IPO	54.83	60.10	34.95	0	100.00
After IPO	38.36	37.55	26.37	0.15	96.90

Table 4 Discretionary Current Accruals (DCAs) for Reverse LBOs and Subsamples by Various Partitions

Discretionary current accruals (DCAs) are calculated using the cross-sectional model used by Teon, Welch, and Wong (1998a), (1998b), DuCharme, Malatesta, and Sefcik (2004), and Chou, Gombola and Liu (2006) following the description in the methodology section. Panel A reports the results of whether DCAs differ significantly from zero for my sample. A firm is defined as having 'aggressive accounting' practices if its level of DCAs places it in the top decile of DCAs for all firms in COMPUSTAT in that year. Panel B and C report the results for subgroups based on time periods and firm sizes. The t-test is used for testing the DCA mean. The benchmark firms used to estimate expected DCAs are matched to sample firms by two-digit SIC codes. T-values appear in parentheses for mean values.

Sample/Subsample	**All Issues**			**Reverse LBO firms**		**Other IPO firms**		
	N	**Mean**	**Median**	**Mean**	**Median**	**N**	**Mean**	**Median**
Panel A. Full Sample								
Full sample	3307	0.0789***	0.0160	347	0.0170*	0.0014	2960	0.0876***	0.0192
		(8.07)			(1.70)			(7.90)	
Panel B. Subsample by Time Periods								
First half (1981-1993)	886	0.0525***	0.0214	81	0.0546***	0.0128	805	0.0525***	0.0223
		(3.79)			(2.77)			(3.42)	
Second half (1994-2006)	2421	0.0885***	0.0128	266	0.0056	-0.0075	2155	0.1007***	0.0185
		(7.17)			(0.49)			(7.14)	
Panel C. Subsample by Firm Size								
Largest Size Quartile	820	0.0699***	0.0037	86	-0.00794	-0.0173	734	0.1075***	0.0085
		(3.44)			(0.7041)			(4.42)	
Quartile 2	821	0.0789***	0.0160	87	0.00178	-0.0003	734	0.0890***	0.0189
		(4.87)			(0.9241)			(3.96)	
Quartile 3	820	0.0703***	0.0133	87	0.0317	0.0076	734	0.0738***	0.0114
		(4.04)			(0.1165)			(3.64)	
Smallest Size Quartile	820	0.0783***	0.0359	86	0.0431**	0.0138	733	0.0837***	0.0373
		(3.89)			(2.01)			(3.83)	

***, **, * denote significance at the 1%, 5% and 10% levels (for a two-sided test), respectively.

Table 5 Earnings management following IPO

This table presents the results of regression analysis of the level of earnings management in IPO firms, proxied for by DCAs. The model tests for the difference in level of earnings management between reverse LBO firms and other IPO firms. The test uses a regression model with fixed effects for industry and year. The regression uses the level of DCAs as the dependent variable. The control variables are the logarithm of market capitalization, book-to-market ratio, leverage and operating before depreciation scaled by sales. Results are presented for the fiscal year of the offering, which includes both pre-IPO and post-IPO months.

	Dependent Variable: Discretionary Current Accruals				
Variables	**Coeff.**	**Coeff.**	**Coeff.**	**Coeff.**	**Coeff.**
Intercept	0.0858***	0.0792**	0.0792**	0.0813**	0.0790**
	(8.30)	(1.98)	(1.98)	(2.03)	(1.97)
Private Equity Backing	-0.0657**	-0.0923***	-0.0936***	-0.1195***	0.0792**
	(0.04)	(-2.86)	(-2.81)	(-3.16)	(-2.13)
Logsize		0.0048	0.0048	0.0044	0.0048
		(0.63)	(0.63)	(0.57)	(0.63)
Book-to-Market Ratio		-0.0284*	-0.0289*	-0.0279*	-0.0282*
		(-1.93)	(-1.91)	(-1.90)	(-1.92)
Leverage Ratio		0.0126***	0.0126***	0.0123***	0.0126***
		(5.02)	(5.02)	(4.90)	(5.02)
OIBDP/SALES		0.0154***	0.0154***	0.0154***	0.0155***
		(5.62)	(5.62)	(5.61)	(5.63)
PE dummy*BM Ratio			0.0088		
			(0.15)		
PE dummy*Leverage				0.0446	
				(1.37)	
PE dummy*OIBDP/SALE					-0.0965
					(-0.72)
Industry Fixed Effects	Included	Included	Included	Included	Included
Year Fixed Effects	Included	Included	Included	Included	Included

***, **, * denote significance at the 1%, 5% and 10% levels (for a two-sided test), respectively.

Table 6 Relation between Buyout Group Reputation and the level of Earnings Management

This table presents the results of regression analysis of the relation between buyout group reputation and the level of earnings management. The model tests the hypothesis that reverse LBO firms backed by more prestigious buyout groups manage earnings less aggressively. Control Variables are: logarithm of the market capitalization, book-to-market ratio, leverage, operating income scaled by sales. I use two variables as the proxy for buyout group reputation. One is the buyout group size, which is total capital raised from its first fund to the most recent fund before the reverse LBO. The other is buyout group age, calculated as the years between the year of formation of its first fund and the year of reverse LBO. I take the logarithms of both variables. Dur is the logarithm of the length of time between a reverse LBO firm's buyout and IPO. Ownership is the share of equity held by buyout sponsor or sponsors post-IPO.

	Dependent Variable: Discretionary Current Accruals		
Variable	**Coeff.**	**Coeff.**	**Coeff.**
Intercept	0.0796	0.0804	0.1613
	(1.25)	(1.20)	(0.99)
Book-to-Market Ratio			-0.0551
			(-0.84)
Leverage			-0.0076
			(-0.37)
OIBDP/SALE			-0.0874
			(-0.74)
Log (Size)			0.0060
			(0.28)
Log	-0.0137*	-0.0137*	-0.0300*
(Buyout group size)	(1.67)	(-1.66)	(-1.67)
Log	-0.0163	-0.0164	-0.0404
(Buyout group age)	(0.95)	(0.94)	(1.17)
Log		-0.0006	-0.0074
(LBO duration)		(-0.05)	(-0.82)
Buyout group			-0.4718**
ownership after RLBO			(-2.06)
Industry Fixed Effects	Included	Included	Included
Year Fixed Effects	Included	Included	Included

***, **, * denote significance at the 1%, 5% and 10% levels (for a two-sided test), respectively.

Table 7 Mean Market-adjusted Performance after reverse LBOs

This table reports the post-issue stock performance of reverse LBOs. I report both BHAR (buy-and-hold abnormal returns) and CARs (cumulative abnormal returns), which are calculated relative to the CRSP value-weighted and equal-weighted market indexes. The holding periods range from as short as three months to as long as forty-eight months post-offering. T-statistics are reported in parentheses.

Return (%)	**3 months After IPO**	**6 months After IPO**	**9 months After IPO**	**12 months after IPO**	**24 months after IPO**	**36 months after IPO**	**48 months After IPO**
Buy-and-hold Abnormal return							
Raw returns	6.64***	11.64***	15.96***	19.64***	29.35***	43.17***	60.20***
	(4.77)	(5.62)	(6.16)	(6.43)	(6.61)	(6.04)	(5.91)
Market-adjusted	4.51***	6.84***	8.33***	8.86***	6.01	8.91	9.84
(Value-weighted)	(3.49)	(3.49)	(3.35)	(2.98)	(1.37)	(1.27)	(0.98)
Market-adjusted	4.24***	6.31***	7.32***	6.71**	1.00	-0.71	-3.69
(Equally-weighted)	(3.28)	(3.23)	(2.99)	(2.29)	(0.23)	(0.1)	(-0.37)
Cumulative Abnormal return							
Raw returns	2.19***	5.67***	9.70***	14.36***	28.47***	38.69***	54.12***
	(4.35)	(9.95)	(16.72)	(23.36)	(34.17)	(33.55)	(40.58)
Market-adjusted	0.83	0.87**	2.21***	3.91***	7.48***	9.72***	14.38***
(Value-weighted)	(0.27)	(2.05)	(4.41)	(6.57)	(7.79)	(7.83)	(9.34)
Market-adjusted	-0.97	0.33	1.05***	1.54***	2.09***	1.62***	1.84***
Equally-weighted	(-0.44)	(1.09)	(2.86)	(3.75)	(3.74)	(2.81)	(3.00)

***, **, * denote significance at the 1%, 5% and 10% levels (for a two-sided test), respectively.

Table 8 Relation between buyout group reputation and post-issue stock performance

This table reports the results of analysis of the relation between buyout sponsor reputation and post-issue stock performance. The control variables include logarithm of market capitalization, book-to-market ratio and the level of DCAs in the fiscal year of reverse LBOs. The dependent variable is post-issue buy-and-hold return adjusted by the CRSP value-weighted market index. Two variables are proxies for buyout group reputation: logarithm of buyout group size and logarithm of buyout group age. The holding periods range from as short as three months to as long as forty-eight months.

	Post-Issue 3-month Period		**Post-Issue 6-month Period**		**Post-Issue 9-month Period**		**Post-Issue 12-month Period**		**Post-Issue 24-month Period**		**Post-Issue 36-month Period**		**Post-Issue 48-month Period**	
Intercept	0.340	0.236	0.217	0.360	0.200	0.185	0.293	0.178	0.566	0.060	0.907	0.146	0.797	0.096
	(2.25)	(1.81)	(1.27)	(1.80)	(1.30)	(0.91)	(1.65)	(0.74)	(1.95)	(0.16)	(1.44)	(0.24)	(1.25)	(0.12)
PE size		0.020		0.016		0.004		0.017		0.086*		0.144**		0.203**
		(1.30)		(0.67)		(0.16)		(0.58)		(1.93)		(2.13)		(2.15)
PE age		-0.038		-0.053		-0.008		0.027		0.118		0.108		0.085
		(-1.26)		(-1.14)		(-0.17)		(0.47)		(1.31)		(0.77)		(0.41)
DCAs	-0.480***	-0.070	-0.510***	-0.094	-0.110*	-0.105	-0.129*	-0.124	-0.115	-0.120	-0.621	-0.660	-0.557	-0.616
	(-3.33)	(-1.64)	(-3.26)	(-1.44)	(-1.68)	(-1.57)	(-1.70)	(-1.60)	(-0.94)	(-0.96)	(-1.39)	(-1.45)	(-0.88)	(-0.92)
Size	-0.043*	-0.040	0.005	-0.045		-0.021	-0.036	-0.052	-0.089*	-0.168***	-0.106	-0.252***	-0.124	-0.308**
	(-1.73)	(-1.97)	(0.08)	(-1.44)		(-0.67)	(-1.22)	(-1.39)	(-1.86)	(-2.82)	(-1.33)	(-2.67)	(-1.16)	(-2.40)
Book-to-market ratio	-0.020	-0.003	-0.024	0.009		0.011	0.016	0.036	0.122	0.147	0.467**	0.381*	0.625**	0.686**
	(-0.32)	(-0.06)	(-0.86)	(0.14)		(0.17)	(0.27)	(0.47)	(1.33)	(1.24)	(2.47)	(1.96)	(2.52)	(2.44)
N	296	296	295	295	294	294	290	290	264	264	230	230	191	191

***, **, * denote significance at the 1%, 5% and 10% levels (for a two-sided test), respectively.