

What Role Does Private Equity Play When Leveraged Buyouts Go Public?

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Abstract:

This research studies buyout sponsors' incentive and corporate control in Reverse Leveraged Buyouts (RLBOs). By and large, buyout sponsors take LBOs public when LBO structure has achieved the most improvement. Contrary to previous literature, RLBO firms do not experience significant operating performance deterioration after going public. In this study, I empirically measure sponsor incentive using LBO relative size to buyout sponsor capital as a proxy. Buyout sponsors with weaker incentives are more likely to quick flip a deal; quick flip leads to poorer subsequent performance. Generally, buyout sponsors' decisions to take LBOs public are consistent with a partial equilibrium. I find a negative relationship between the buyout sponsors' ownership before IPO and the firms' long-term value after IPO. Buyout sponsors maximize benefits of control through staged exit strategy. For example, they are more likely to continue to hold equity in cash-rich firms while sell their stakes through subsequent takeovers in firms with higher ownership concentration. Overall, this paper helps us to understand buyout sponsors' organizational role in RLBOs.

Keywords: IPO Private Equity LBO Corporate Control Cashing Out Incentives

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Introduction

The recent Initial Public Offering (IPO) market has witnessed a wave of the so-called Reverse Leveraged Buyouts (RLBO).² Transition from the LBO organization forms to public owned corporations has become a widespread and economically significant phenomenon. In 2005, approximately 53% of all IPOs were private equity-backed; there were 42% in 2006. Cao and Lerner's (2007) study of long-run stock performance of RLBOs reveals that these firms strongly outperform other IPOs while they marginally outperform the market as a whole. This research goes on to explicitly examine the organizational role of buyout sponsors as LBOs go public.

Very little is known about why LBOs revert to public ownership and what role buyout sponsors have in that process. It is not unusual for private equity investors to be slammed as "short-term opportunists". Contrary to common knowledge, buyout sponsors often stay at the public firms REWORK backed much longer than critics presume. Labeled as active investors in LBOs, whether buyout sponsors continue to be active investors after LBOs go public remains an open question. Public offerings do not offer an immediate means for firms to generate big returns and attract new investors for future deals. For example, buyout firms typically have lockups in RLBOs that prevent them from dumping their shares. The risk associated with buyout sponsors holding shares in RLBOs is clearly not the same as your average "Joe" or diffuse public shareholder. Buyout sponsors seem to enjoy a significant advantage over diffuse shareholders regarding the importance of their role in influencing management decisions and corporate control.

This is the first study to systematically examine the organizational roles of buyout sponsors in RLBOs, particularly their decision of quick flip, taking LBOs public and cashing out ex post. In this study I find it often takes buyout sponsors several years to sell their shares — if they do so at all. On average, buyout sponsors sell less than 10% of shares in IPOs, which implies they sit on big paper gains in RLBO firms. Consequently, buyout sponsors have incentives to make sure their interest is not at risk if the market tumbles or firm profitability deteriorates. If corporate control in RLBOs strictly benefits sponsors, potential conflicts of interest between buyout sponsors and diffuse shareholders could arise.

² RLBOs are Initial public offerings of firms that had previously been bought out by professional later-stage Leveraged Buyout funds of private equity investors.

In this research, corporate decisions made by buyout sponsors such as quick flip, going public and takeovers will be endogenized in the context of incentive and corporate control. Two theories are relevant in explaining why buyout sponsors take LBOs public. The behavioral theory of Degeorge and Zeckhauser (1993) outlines the IPO performance-timing hypothesis. It essentially states the decision for LBOs to go public is driven by buyout sponsors' opportunistic behaviors. They empirically find RLBO firms exhibit deterioration in operating performance following IPOs, which they attribute to insider manipulation or propitious IPO timing. I herein will reexamine the IPO performance-timing hypothesis using a much larger and more comprehensive sample of RLBOs in the hope of reflecting the market changes in the private equity industry and the LBO market. More generally, I propose a new measure to proxy buyout sponsor's incentives in RLBO relative size of LBO (book asset value before IPO) to buyout sponsor's size (total capital raised since inception). The logic is buyout sponsors will have more economic and reputation stake in LBO firms with relatively more assets. Therefore, buyout sponsors are more likely to allocate more resources in monitoring and improving relatively larger LBOs, *ceretus paribus*.

In contrast to Degeorge and Zeckhauser's performance timing hypothesis, I develop and test two hypotheses from the rational IPO theory proposed by Zingales (1995). Zingales argues that the decision to go public is an equilibrium decision, hence a "value-maximizing strategy" made by incumbent owners who eventually want to sell their stake. In the context of RLBOs, buyout sponsors seek two possible benefits: the increase in cash flow and the increase in private benefits of control. The main implication of his model is incumbent owners (buyout sponsors) will optimize their ownership structure through IPOs (equity optimization) and adopt a staged exit strategy by selling cash flow and control rights sequentially to maximize total control benefits (staged exit). Buyout sponsors take LBOs public when the value added from ownership concentration ceases to outweigh monitoring cost. Under the equity optimization hypothesis, buyout sponsors take LBOs public as an equilibrium choice. The equilibrium indicates a negative relationship between firm value and buyout sponsors' ownership *ex ante* and a non-negative relationship between firm value and ownership *ex post*. The staged exit hypothesis states buyout sponsors are more likely to exit if firms have less cash flow, and

they are more likely to sell their stakes through subsequent takeovers if firms have more concentrated ownership ex ante.

The empirical analysis helps us to better understand buyout sponsors' rationale in taking LBOs public and their subsequent role in RLBOs. Our study is related to Muscarella and Vetsuypens (1990), which views stock market listings as an exit opportunity for professional pre-IPO investors such as buyout sponsors. Brau et al. (2003) examine the choice between going public and selling the firm to a publicly traded buyer. They find private firms are more likely to choose the IPO route over a takeover when their size is larger and the industry market-to-book ratio is lower. Contrastingly, this paper will focus exclusively on LBO firms that go public. The public market hence provides buyout sponsors an option for subsequent takeovers to cash out.

The interplay among buyout sponsors' incentives, corporate control and corporate decisions is a critical issue for researchers and investors. Particularly for private equity backed IPOs there is an on-going debate about the controversial role buyout sponsors play in RLBOs. The following case clearly illustrates this hotly debated role. Warner Music, a business that was bought in March 2004 for \$2.6 billion by a group led by Thomas H. Lee Partners and Edgar Bronfman Jr., was taken public 14 months later. Along the way, the sponsors had Warner Music pay them dividends worth more than \$1 billion. When Warner went public, analysts and investors said they expected the private equity firms to sell their stakes to lock in their gains. But the firms still control a majority stake worth about \$2 billion after the offering. In fact, Warner Music rejected a buyout offer from EMI, another big music publisher, and as a defensive strategy, made a counterbid. The Warner Music example raises at least three important questions: Why did Warner Music reject the takeover offer? What role do buyout sponsors have in such processes? To what extent are the interests of sponsors and diffuse shareholders aligned? One purpose of this research is to understand buyout sponsors' role in corporate governance and control of RLBO firms.

Due to the limited availability of data on private LBOs, I will infer the rationale and incentives of buyout sponsors to take LBOs public by examining the ex ante characteristics of the firms that go public and from the ex post investment and financial consequences of this decision.

First, I examine organizational structures of RLBO firms and how they change both in the short run, during the IPO, and in the long run, after going public. I look into

the dynamics of operating performance, governance and ownership structure to deduce why LBOs go public. The examination of corporate governance structure such as board composition and sponsors' ownership reveals whether publicly owned RLBO firms are very different from LBO forms³, and whether buyout sponsors continue to be active investors in publicly owned RLBOs.

Second, I examine the sponsors' decision to quick flip a firm. I relate such quick flipping decision to exogenous or pre-determined variables such as the relative size of a LBO firm to its buyout sponsors' total historical capital (total capital raised since inception). Quick flip might be driven by IPO market condition as well. In hot market, sponsors will find it easier to turn a LBO investment into quick cash with a reasonable return. Furthermore, for buyout sponsors, the incentives in LBOs vary cross-sectionally according to projected economic gains and reputation stake. Larger LBOs will realize greater returns per unit of monitoring effort (time of traveling or attending board meeting), *ceteris paribus*. Such scale effect of monitoring induces buyout sponsors to exert disproportionately more effort in larger LBO deals. I empirically proxy their effort level with a dummy for quick flip. The faster to flip a deal, the less effort is exerted.

Third, I empirically examine the relationship between ownership structure and firm value in RLBOs. In the equilibrium, buyout sponsors should adjust ownership structure in the IPO only if the benefit of such adjustment outweighs the cost of maintaining the existing ownership structure. RLBOs, in effect, serve as a mechanism to optimize buyout sponsor ownership structure. Empirically, we will test a non-negative relationship between firm value and buyout sponsor's ownership post IPO and a negative relationship between firm value and ownership before IPO.

Finally, I endogenize buyout sponsors' cashing out choices from RLBO firms. More than one-third of RLBOs are acquired after trading as public firms, suggesting that the subsequent sale of control rights is critical for buyout sponsors. I therefore relate posterior sale of control rights and exit decision to cash flow measures and ownership structure. I test the prediction that buyout sponsors will be less likely to exit from firms with more cash flow, while they are more likely to sell control rights in firms with larger ownership through posterior takeovers.

³ Jensen argues that LBO organizational forms are efficient due to their corporate governance structure, mainly the enhanced monitoring of buyout sponsors.

The following are the key findings of the paper:

- LBOs go public when sales growth peaks at the year of IPO; there is no operating performance deterioration following IPO.
- Buyout sponsors continue to be active investors after IPOs: they hold large ownership in RLBOs post-IPO, and they retain significant control of board and board committees.
- Quick flip is negatively associated with the relative size of RLBOs to buyout sponsors; quick flip leads to poorer long-term performance.
- Buyout sponsors hold more equity in RLBOs with larger relative size; sponsor's ownership before IPO is negatively associated with Tobin's Q; ownership post IPO has no value impact.
- Buyout sponsors play active roles selectively: they are more likely to quickly exit if firms have less cash flow; they induce more subsequent takeovers if the firms' ownership is highly concentrated.

The organization of the paper is as follows: section 2 provides literature review and background, section 3 discusses the methodology, section 4 summarizes the data and sample statistics, section 5 describes the result of the certification role of buyout sponsors in IPOs, section 6 presents the main analysis of the role of buyout sponsors in RLBO firms post-IPO, and the final section concludes the paper.

2. Literature Review and Background

This research is related to literature about the choices of going public with large insider ownership. Zingales (1995) is the most closely related paper since it theoretically models how the decision to go public will be affected by considerations of corporate control. Degeorge and Zeckhauser (1993) propose that LBOs going public is more likely to be driven by opportunistic behaviors of insiders who try to time performance. In the context of VC-backed IPOs, Black and Gilson (1998) consider going public as an exit opportunity for venture capitalists and a mechanism for entrepreneurs to reacquire control from the venture capitalists.

This paper is also related to research that studies source of performance improvement in RLBOs. Muscarella and Vetsuypens (1990) find that going private transactions and the resulting increase in ownership concentration or improvement in

governance structure is the source of value in LBOs. Holthausen and Larcker (1996) find RLBO firms have better accounting performance post-IPO than the industry and these firms' accounting performance decreases as ownership concentration of management and other insiders declines. One concern with these early works on RLBOs is they often use a small sample from the 1980s, when the buyout market was in its rudimentary stage. Cao and Lerner (2007) is a recent effort that attempts to adopt a more systematic examination on RLBO firms' stock performance.

There is a comprehensive work on large equity ownership concentration and firm performance and value. Demsetz and Lehn (1985) find no significant relationship between ownership concentration and accounting performance. In contrast, McConnell and Servaes (1990) identify a concave relation between Tobin's Q and the fraction of common stock owned by corporate insiders. They find a positive relation when insider ownership is smaller than 40% and a negative but insignificant relation when insider ownership reaches above 40%. While these studies typically use the aggregate ownership of corporate insiders, I will focus more exclusively on ownership concentration of buyout sponsors.

RLBOs differ from other IPOs or VC-backed IPOs with distinguished institutional features. Buyout sponsors hold equity of RLBO firms through LBO funds. LBO funds are often contracted to last for a limited life, usually 10-12 years. That life cycle means buyout sponsors need to exit from RLBO firms as funds approach maturity. buyout sponsors' compensation schemes are largely based on carried interest⁴. This structure gives buyout sponsors incentives to extract maximum profits from their investments. As buyout sponsors stand ready to cash out, their interests are not aligned with outside shareholders. This gives rise to a potential conflict of interest for buyout sponsors, though such problems can be mitigated by reputation concerns. Chou et al. (2006) find significant discretionary current accruals coincident with offerings of reverse LBOs.

Private Equity firms are in business to generate returns for their investors. The faster they can do it, the better. There is a concern, however, that the delivery of quick profits in LBOs is based on sacrificing public shareholders, particularly in quick flipped

⁴ Carried interest is a right to receive a specified share (20 percent to 25 percent) of the profits ultimately earned by an investment fund over some previously agreed upon benchmark return.

RLBOs. Unlike other RLBOs, quick flips imply buyout sponsors bring a LBO firm public shortly after the LBO transaction (less than one year). Quick flips have recently received scrutiny since improvement is made on neither operation nor governance when they go public. The deep suspicion is whether buyout sponsors add any value in quick flips and what incentives buyout sponsors have to quick-flip certain firms.

More generally, the scrutiny of RLBOs stems from the potentially deleterious moral hazard problems that can result when buyout sponsors push problematic firms public with certain “inside knowledge.” One concern is “problematic” firms are flipped public before these hidden “problems” unfold, transferring the expected bankruptcy risk and loss to public investors. In addition to quick flips, I examine such perverse incentive in firms going delisting ex post by studying their accounting performance dynamics around IPOs. There are 61 delisting, or above 10% of RLBOs, and most of them go bankrupt by filing Chapter 11 or Chapter 7. Such examination would reveal whether buyout sponsors or insiders use accounting manipulation such as accrual to prop up the performance. Figure 2 shows the accounting performance of RLBOs around IPO, for those going delisting (within 5 years). There is a clear pattern of increase in ROA right before IPO and drastic deterioration after, while in comparison, other RLBOs do not exhibit such pattern. This evidence is indicative of potential extent of performance propping up in RLBOs.

3. Methodology

3.1 Empirical Measures

To empirically proxy the buyout sponsor’s incentives in the RLBO firms, I define the relative asset, which is ratio of LBO book asset to buyout sponsor’s total historical (raised since its inception) capital.

$$\text{Relative Size} = \text{LBO Firm Asset} / \text{Buyout Sponsor's Capital}.$$

The relative size works as a predetermined variable to measure the potential economic importance and reputation stake of a given LBO firm to buyout sponsors. For a given buyout sponsor, relatively smaller LBO firms contribute less to his total eventual profit, ceteris paribus. Monitoring usually entails attending board meetings and working with management on a regular basis. As such, buyout sponsors make tradeoffs between scale

of return and time input in a given LBO deal. Buyout sponsors, therefore, have less incentive to monitor relatively smaller firms⁵.

One concern with the relative size as a proxy for incentive is whether the variable is endogenous. Buyout sponsors might make decisions regarding time or efforts to right at structuring LBO deals. The problem of using LBO deal size is the lack of sufficient data. Another disadvantage is that buyout sponsors typically engage asset sale in restructuring LBOs. I therefore use firm size prior to IPO. The empirical investigation is to understand what affects buyout sponsors' monitoring (measured by ownership) and efforts (measured by a dummy for quick flip).

Tobin's Q is used as a proxy for firms' value, as suggested by Kaplan and Zingales (1997). It is defined as the ratio of the market value⁶ of assets divided by the book value of assets. I use sales growth to measure firms' growth. To measure a firm's operating performance, I use net income/assets or EBIDTA/sales, both used in the previous literature.

3.2 Regression Specifications of Quick Flips

I investigate the effects of quick flipping on firms' subsequent performance using Heckman Heckman's selection regressions. Estimates are based on the following two-step estimation procedures:

First Step: $\text{Probit}(\text{Quick Flip}) = \alpha_0 + \alpha_1 \cdot \text{Controls} + \varepsilon$

Second Step: $\text{Performance} = \alpha_0 + \alpha_1 \cdot \text{Quick Flip} + \alpha_2 \cdot \text{Controls} + \alpha_3 \cdot \text{Lambda} + \varepsilon$ (1).

In the first-step probit regression, the dependent variable is *Quick Flip* dummy. The identifying instrument is the relative size of LBO firms to their buyout sponsors' capital. This instrument will capture the economic significance and reputation consideration as buyout sponsors consider a quick flip. For instance, buyout sponsors are more likely to quick flip a firm if it has a relatively smaller size. In the second-step regression, I include *Lambda*, the inverse Mills Ratio imputed from the Probit estimates as an additional control variable. The dependent variables are net income/assets and bankruptcy dummy.

⁵ Yasuda and Metrik (2007) find buyout business is more scalable than VCs since buyout managers raise larger funds and work on fewer larger deals.

⁶ The market value of assets equals the book value of assets plus the market value of common equity less the sum of the book value of common equity (item 60) and balance sheet deferred taxes (item 74).

3.3 Regression Specification of Performance and Ownership Relation

To examine the role of buyout sponsors in RLBO firms, I use cross-sectional regressions of long-run firm performance on buyout sponsors' ownership level after IPO. The performances are the averages of the following years: IPO+1, IPO+2 and IPO+3. The regressions are specified as

$$\text{Performance} = \alpha_0 + \alpha_1 \cdot \text{Posterior Ownership} + \alpha_2 \cdot \text{Control Variables} + \varepsilon \quad (2).$$

If the buyout sponsors' ownership after IPO is optimal, as the model predicts, I should expect $\alpha_1=0$ in the regressions with Tobin's Q. Monitoring of buyout sponsor suggests a significant positive relation between ownership of buyout sponsors and EBIT/sales.

Buyout sponsors' ownership after IPO is an endogenous choice since they can adjust it at IPO by selling secondary shares or buying more shares. I will therefore use ownership level before IPO which is less subject to the endogeneity problem. One concern with ownership before IPO is that buyout sponsors structure LBO transactions because they have certain "knowledge" of firms' prospects. There may be omitted variables correlated with firms' future performance and buyout sponsors' ownership level. In order to address this endogenous problem, I use the instrumental variable approaches with 2 SLS regressions. In the first stage of Tobit regression, sponsors' ownership before IPO (always less than or equal to 1) is regressed on a set of pre-determined instruments:

$$\text{First Stage: Tobit (Prior Ownership)} = \alpha_0 + \alpha_1 \cdot \text{Instruments} + \varepsilon$$

$$\text{Second Stage: Performance} = \alpha_0 + \alpha_1 \text{ Predicted (Prior Ownership)} + \alpha_2 \text{ Controls} + \varepsilon \quad (3).$$

The identifying instrument is the relative size (RLBO firm's assets before IPO to sponsors' total capital raised). If buyout sponsors' ownership is instrumented on the relative size of a portfolio firm to its sponsor's capital, the predicted ownership would be uncorrelated with private information of buyout sponsors from RLBO firms' perspective. This approach will help mitigate the endogenous bias. The null hypothesis of ownership optimization suggests a negative relation between buyout sponsors' ownership before IPO and Tobin's Q, $\alpha_1 < 0$.

I furthermore examine the relationship between sponsors' ownership post-IPO and subsequent year performance using panel regressions with fixed effects. The regression is specified as:

$$Performance_{i,t} = \alpha_0 + \alpha_1 \cdot Ownership_{i,t-1} + \alpha_2 \cdot Control\ Variables_{i,t} + \varepsilon_{i,t}, t = IPO, IPO+1, IPO+2, IPO+3, i=1, \dots, N \quad (4).$$

I control leverage, governance, and firm size in the regressions. The regressions with ownership of buyout sponsors in IPO do not take into account that buyout sponsors can sell their ownership after lock-up period. Furthermore, the cross-sectional regressions assume homogeneity across all RLBO firms and ignore the unobserved heterogeneity in RLBO firms. This could result in the biased estimates of the covariance matrix of errors. Both problems will be controlled in the panel regressions (3) with fixed firm effects.

3.3 Regression Specification of Posterior Exit

Buyout sponsors are active investors. Their presence will help monitor and discipline management by resolving the free-rider problem and facilitating takeovers. More generally, buyout sponsors make tradeoffs between cash flow rights and control benefits. This suggests that they will endogenize their exit choice between liquidation of shares in the open market and facilitation of takeovers. I will use Probit regressions to investigate both decisions. The Probit regressions for takeovers are specified as:

$$Merger\ dummy = \Phi(\alpha + \beta * Cash\ Flow + \delta * Ownership + \gamma * Control\ Variables + \varepsilon) \quad (5).$$

Φ is a cumulative probability function for normal distribution. The dependent variable is a posterior merger dummy. (1 if a firm is acquired within 5 years of IPO). I test that prior EBIT/sales (cash flow) of RLBO firms is negatively predicative of posterior mergers: $\beta < 0$. I also test that prior ownership of buyout sponsors is positively predicative of posterior mergers: $\delta > 0$. Alternatively I use liquidation of shares through open market within 3 years of IPO as another proxy for exit. I test $\beta < 0$ and $\delta < 0$. Buyout sponsors are more likely to retain an equity stake in firms with stronger cash flows or with larger prior ownership.

4. Data and Summary Statistics

4.1 Data

The sample of RLBOs between 1981 and 2003 is taken from Cao and Lerner (2007). The more recent RLBOs between 2004 and 2006 are compiled from Dealogic,

Factiva and Capital IQ according to the same criteria specified in Cao and Lerner (2007). The final sample includes 594 RLBOs from 1981 to 2006.

The accounting data is obtained from COMPUSTAT and the accounting variables are measured at the end of the calendar or fiscal year. Return, price or delisting information is obtained from CRSP. I also obtain IPO data from SDC's new issue dataset. The IPO list excludes companies with offer sizes below \$5 million, offer prices below \$5.00 per share, unit trust, closed-end funds, ADRs, and IPOs not listed on CRSP within six months of issuing. Realty Estate Investment Trusts (REITs) are included since there are a fair number. The underwriter reputation data and IPO firm's founding year are obtained from Jay Ritter's website⁷. The underwriter reputation measure is the amended version of Carter and Manaster (1990).

I collected the ownership data and board information before and after IPO from the IPO prospectuses. In studying corporate governance and ownership structure in the long run post IPO, I required a three-year window and collected ownership data from proxy statements at the SEC's EDGAR website. The availability of data limits our analysis to a sub-sample from 1995 through 2003, a total 190 RLBOs. The sub-sample is used in studying the relation of ownership and performance post-IPO. A list of RLBO firms that pay special dividends to sponsors pre-IPO is manually collected from Factiva press search.

4.2 Sample Summary

Table 1 summarizes the year distribution of RLBO offerings. The buyout cycles have dominant impact, especially in the late 80s and early 90s. For example, 1986 and 1987 have 14 and 22 RLBO offerings respectively, in contrast to only a few offerings in previous years. After the collapse of the junk bond market, RLBO activity dries up with only four offerings in 1988 and three (you can usually write out numbers less than 10) in 1989. There are a staggering 63 offerings in 1992, as many LBOs acquired in the late 80s return to public market (REWORK). Since 1994, however, RLBO offerings had been fairly steady. There are 70 quick flips, most of which took place in 1987 and between 1997-1998.

⁷ <http://bear.cba.ufl.edu/ritter>

Table 1 also reports the attrition rate for RLBOs. Overall, there are 61 firms that were subsequently delisted, non-merger related. This is equivalent to 10% of firms go bankruptcy. Paying special dividends to buyout sponsors is a more recent practice. 28 firms pay special dividend to buyout sponsors right before IPOs. Finally, 199 firms are merged after going public, accounting for about one-third of total RLBO firms. The result suggests buyout sponsors play important role in corporate control.

4.3 Dynamics of Performance and Leverage in RLBO Firms

Table 2 summarizes the dynamics of performance and debt in RLBO firms at each year from IPO-2 to IPO+2. The purpose of this examination is to understand the rationale for buyout sponsors to bring LBOs public. The operating performances of RLBO firms do not exhibit consistent patterns of change: net ROA (net income/assets) gradually increases and peaks at IPO+1. Sales growth reaches its peak of about 55% at year of the IPO, and it gradually deteriorates afterwards. Operating performances such as EBIT/sales or operating income before depreciation/assets remain stable around IPOs. The overall pattern suggests buyout sponsors time IPO and they bring LBOs public when the firms are growing the most rapidly. This evidence indicates that buyout sponsors bring portfolio firms public when LBO restructure achieves the most efficiency.

Next, the leverage and debt dynamics show improvement of financial conditions. Leverage ratio (total debt/assets) peaks at one year before IPO. Net long-term debt issue/asset has a large negative value at the year of IPO, while it is positive in other years. This suggests that LBOs issue debt before IPO, pay down a large portion of debt at IPO, and they continue issuing debt after IPO. During this process, debt structure also improves. The percentage of subordinated debt in long-term debt decreases from IPO-1 to IPO, and it continues to decrease after IPO. Similarly, the ratio of convertible debt and preferred stock/long-term debt decreases substantially after IPO. These decreases suggest that a large portion of subordinated debt is paid down following IPO and that a large portion of equity-linked debt is either converted into common stock or retired. The percentage of maturing debt in long-term debt shows an increasing pattern after IPO: debt maturing in 2 years/long-term debt increases from 8% at IPO-2 to 16.25% at IPO. The results are similar for debt of other maturing years. This evidence supports a possibility

of debt timing. In anticipation of a large portion of debt approaching maturity, RLBO firms go public to improve financial flexibility.

4.4 Benchmark-adjusted Performance of RLBO Firms

I compare performance of RLBO firms with three benchmarks: industry-matched new firms (less than 3 years after IPO), industry-matched mature firms (more than 3 years after IPO), and year-matched LBOs (to be acquired within 3 years). For each firm, I first match it using the industry average of new or mature firms as well as year average of LBOs. I report both the mean and median of averages across the following three years: IPO, IPO+1 and IPO+2. The results are presented in Table 3.

RLBO firms are larger in size, more leveraged and have better operating performance. RLBO firms have similar Q and market-to-book ratios compared to new firms in the same industry. Compared to mature firms or LBOs, however, they have higher Q, market-to-book ratios of equity and sales growth. RLBO firms spend more on external investment: their acquisition per unit of sale is significantly higher than three benchmarks, and internally buyout sponsors spend more on CAPEX per unit of sale than mature industry firms or LBOs. Overall, the results suggest that RLBO firms on average are more effective in terms of operating efficiency than other benchmarks. This efficiency can be explained by RLBO and LBO firms' similar organizational structure in terms of monitoring of buyout sponsors, use of debt and improved incentives of insiders.

4.5 Ownership Structure Around IPOs

Table 4 reports the percentage of ownership buyout sponsors have before and after IPO. Buyout sponsors on average hold approximately 60% of equity before IPO, though their ownership level decreases to 40% after IPO. This decrease is partly due to share dilution and partly due to selling of stocks. Insider's ownership decreases from 54% before IPO to 34% after the offering. The mean years RLBO firms stay private are 3.54 years; the median is 2.83 years. 15.87% of RLBOs are quick flips. There are large cross-sectional variations in buyout groups' capital under-management or vintage age. The largest buyout sponsor has about \$39 billion of capital raised, while the smallest one has less than \$5 million. The vintage age of buyout sponsors measures the difference between buyout sponsors' founding year and the portfolio firms' IPO year. I use capital raised historically by buyout sponsors as a proxy for their reputation, similar to Cao and Lerner

(2007). In addition, vintage age does not distinguish between nonexistent and existent private equity firms. The overall evidence suggests that RLBO firms maintain organizational structure of LBOs: they have a concentrated ownership structure and buyout sponsors remain as controlling shareholders.

4.6 Ownership and Governance post IPO

Table 5 summarizes the post-IPO buyout sponsors' ownership structure and governance in RLBOs. The sample includes 190 RLBO companies from 1995 to 2003, due to the data availability. Buyout groups gradually decrease their ownership stakes. At $t = \text{IPO}+3$, they have an average ownership of about 24% in RLBO firms. Buyout groups play an active role in governance. On average they control 38% of boards at the year of IPO, and their board share gradually decreases to 25% at $t = \text{IPO}+3$. Buyout groups also have great influence over management by controlling compensation and nominating committees. They control approximately 55% of compensation committee at $t = \text{IPO}$, and 37% at $t = \text{IPO}+3$. Similar results hold regarding nominating committee. Buyout sponsors' ownership and share in board or board committees⁸ has a high correlation coefficient. RLBO firms have small boards, with an average membership of eight directors. Overall, the evidence suggests that buyout sponsors continue to play an effective role in corporate governance and control post-IPO.

5. Empirical Results of Buyout Sponsors' Role in RLBOs

5.1 Decisions of Quick Flip

Cao and Lerner (2007) find quick flipped firms are more likely to have poorer stock performance, though they only find marginal evidence. Quick flip is a deliberate choice made by buyout sponsors. Their paper, however, does not provide any explanation for why buyout sponsors quick flip certain LBOs. Quick flip must be an endogenous choice made by buyout sponsors according to their information set regarding economic significance, firm quality, or market conditions. This gives rise to a selection bias in quick-flipped firms relative to other RLBOs. I therefore use Heckman selection regressions to control this problem. The first-step selection uses Probit regressions. In the

⁸ The cross-sectional correlation coefficient is more than 0.50 and significant at 1% level. The results are available upon request.

second stage I run performance regressions on quick flip dummy and the inverse Mills ratio. The dependent variables use net ROA (net income/assets) and a dummy of going bankrupt within 5 years of an IPO. The results are presented in Table 6.

Firms with smaller relative size to buyout sponsors are more likely to be quick-flipped. This is consistent with incentive structure, that is, buyout sponsors are more likely to flip firms that are of less economic importance. There is weak evidence that aggregate IPO activity also explains quick flipping behaviors: buyout sponsors in a “hot” issue period⁹ are more likely to quick flip. In the second stage, the dummy of quick flip has a negative and significant coefficient, revealing that quick flipped firms are more likely to have poor operating performance and subsequently go bankrupt.

Figure 1 illustrates accounting performance of RLBO firms that are quick-flipped around IPOs. Chou et al. (2006) find positive and significant discretionary current accruals coincident with offerings of reverse LBOs between 1981 and 1999. They interpret their findings as the evidence of earning management by insiders. Figure 1 presents the results. In the quick flipped firms, net ROA peaks at about 1% at IPO year, while it remains negative in all other years. Similarly, in firms that are subsequently delisted, net ROA skyrockets at IPO year while it plummets dramatically afterwards. In comparison, there is no deterioration of net ROA in other RLBO firms. This result is indicative of earning management in the subset of RLBO firms in which buyout sponsors have a potential conflict of interest. The propping up possibility also helps to explain the findings that quick flips lead to inferior operating performance even after I control the selection bias.

5.2 Cross-sectional Regression of Performance on Buyout Sponsor's Ownership

Table 7 presents the results of the cross-sectional regressions of firms' long-term performance on buyout sponsors' ownership right after IPO. The performance measures include net ROA, EBIT/sales, sales growth and Tobin's Q. The measures are the averages of the following three years: IPO+1, IPO+2 and IPO+3, and are adjusted by industry median.

Buyout sponsors' posterior ownership is significantly positively related to EBIT/sales, is significantly negatively related to sales growth but insignificantly

⁹ Measured by the number of total IPO offerings in previous month

negatively related to Tobin's Q. The evidence suggests buyout sponsors have an optimal post-IPO ownership level in RLBO firms. Overall, the results are consistent with Jensen's Free Cash Flow argument. LBO structures and ownership concentration are more effective in firms with free cash flow (hence a positive relationship between ownership and EBIT/sales) but less effective in firms with growth opportunities (hence a negative relationship between ownership and sales growth). One possible explanation suggested by Burkart, Gromb and Panunzi (1997) is that concentrated ownership and tight control of buyout sponsors reduce managerial initiatives and non-contractible investments.

5.3 Instrumental Variable Regression of Performance on Buyout Sponsor's Ownership

One concern with the previous estimates in Table 7 is the endogeneity problem. The reverse causality simply says that buyout sponsors hold less equity ownership in growth firms. Since buyout sponsors' ownership after IPO is a discretionary choice, there may be omitted variables correlated with a firm's future performance and buyout sponsors' ownership. For instance, firms hold less equity by buyout sponsors because they know these are relatively "less promising" ones than others. I therefore proceed in two ways. First I use buyout sponsors' ownership before IPO in the cross-sectional regressions. Second, I use the instrumental variables approach to control the endogeneity problem. The 2 SLS regressions with instrumental variables approach are specified in equations (2).

In the first stage, I use Tobit regressions in which buyout sponsors' ownership before IPO is a function of a set of the predetermined instruments. The identifying instrument is the relative size of RLBO firms (defined as their assets before IPO deflated by buyouts sponsors' total capital). Other instruments include buyout sponsors' vintage age and manufacturing dummy. If a firm has a smaller relative size, it will be less important to buyout sponsors in terms of economic interests and reputational considerations. I therefore expect a positive relation between this relative size measure and buyout sponsors' equity holding. In the second stage, I use the predicted ownership as the variable of interest. The dependent variables are sales growth and Tobin's Q, measured as the averages over three years from IPO+1 to IPO+3. Tobit regressions are used in the first stage because ownership data is censored (always no greater than 1). The regression results are presented in Table 8.

Buyout sponsors' ownership prior to IPO is significantly related to Tobin's Q in a negative way. The negative effects are larger in magnitude after I control the endogeneity problem using instrumental regressions. The coefficient is -1.09 in OLS and -4.58 in 2SLS, both significant at a 1% level. The result suggests that larger prior ownership of buyout sponsors is associated with value reduction of RLBO firms. One possible explanation is buyout sponsors' ownership concentration in original LBO structure becomes inefficient. As a consequence, it becomes an optimal strategy for buyout sponsors to break explicit contracts¹⁰ with LBOs by taking them public.

5.4 Panel Regression of Performance on Buyout Sponsor's Ownership controlling RLBO firm's fixed effects

The previous results are subject to the potential bias of unobserved heterogeneity for each RLBO firm. To control such bias, I adopt panel regression approaches by using performance of RLBOs in post-IPO years. Table 9 presents the Panel regressions of firms' subsequent year performance on ownership structure and governance in a window of three years post-IPO. I control firm fixed effects so our results will be robust to unobserved heterogeneity in each firm. There are a total of 392 firm-year observations. The dependent variables are ROA, EBIT/sales, sales growth and Tobin's Q. These are measured at subsequent years and adjusted by the industry median. The variable of interest is buyout sponsors' equity ownership and their board share.

I find that buyout sponsors' ownership is negatively associated with sales growth and, though not statistically significant, Tobin's Q. Buyout sponsors' board share is not related to performance. Larger firms are likely to have slower growth or lower Q. Additionally, debt has disciplining effects in that it increases EBIT/sales. The evidence that large ownership of buyout sponsors post IPO leads to low sales growth are consistent with the previous regression results.

6. Buyout Sponsor's Posterior Cashing Out

Buyout sponsors sell a very small fraction of equity ownership in IPOs using secondary shares. As the previous results suggest, they continue to keep a significant equity ownership in post-IPO RLBO firms. For example, Table 1 reports that more than

¹⁰ It also gives buyout sponsors an option to break the implicit contract subsequently following RLBOs.

one third of RLBO firms are acquired after they are brought public by buyout sponsors. The evidence indicates active posterior takeovers associated with RLBOs. In this section I will empirically study what role buyout sponsors play in posterior takeovers of RLBO firms. Posterior takeovers serve as a mechanism for buyout sponsors to cash out in now-publicly traded RLBO firms. Hence more generally, I will examine the buyout sponsors' posterior cashing out behaviors, including liquidation of shares through open market sale and block sale through takeovers.

The staged exit hypothesis suggests that buyout sponsors aim to maximize their personal gains and sell the controlling rights in a discreet manner. The partial equilibrium implies that buyout sponsors cash out according to a RLBO firm's fundamentals. For example, the more cash flow RLBO firms have, the more public and private benefits buyout sponsors are able to extract. I therefore expect a negative relationship between a firm's prior EBIT/sales and subsequent exit. Additionally, there will be more benefits of control when buyout sponsors have larger prior ownership. I therefore expect a positive relation between ownership of buyout sponsors and posterior takeovers. On the other hand, I expect a negative relationship between ownership and liquidation of shares by buyout sponsors through the open market.

Table 10 reports the multivariate analysis of posterior takeovers and liquidations of shareholding using Probit regression approaches. In the first set of regressions, the dependent variable is a dummy set to 1 if RLBO firms are subsequently acquired by a third party within five years after going public, 0 otherwise. In the second set of regressions, the dependent variable is equal to 1 if buyout sponsors dispose their equity position completely through open market sale, 0 otherwise. In both cases, cash flow measures such as EBIT/sales are negatively related to subsequent exit by buyout sponsors, while Tobin's Q is positively associated with liquidations of shares only. Such evidence suggests that buyout sponsors are more likely to continue to keep their equity ownership in RLBO firms with rich cash flow. They are also more likely to sell stake in the open market for RLBO firms with greater needs for growth capital. Buyout sponsors' ownership is positively and significantly associated with subsequent takeovers of RLBO firms.

The overall evidence in Table 10 is consistent with the stage exit hypothesis. Buyout sponsors are less likely to liquidate their shares in cash-rich firms and they are

more likely to sell through subsequent takeovers with larger prior ownership. Two explanations are offered. First, buyout sponsors have more controlling rights in RLBO firms with more concentrated ownership, and their significant presence mitigates the free-rider problem and facilitates takeovers. Second, it makes sense to dispose more concentrated ownership through block sale in a merger and acquisition. Such block sale avoids adverse price impacts that are typical in open market selling of shareholdings by insiders such as buyout sponsors.

Conclusion

This study offers a systematic examination of buyout sponsors' organizational role in RLBOs. The paper is also the first one to explicitly examine incentives and controls of buyout sponsors in RLBOs regarding IPO decisions and corporate control. The empirical evidence suggests buyout sponsors continue to be active investors in publicly-owned RLBO firms because they maintain large equity stakes in the long run after IPOs and they actively monitor the management of RLBOs.

I propose an empirical measure, the relative size of LBOs to buyout sponsor's capital as a proxy for buyout sponsors' incentive in a given RLBO firm. Consistent with incentive structure, I find buyout sponsors hold more ownership in RLBO firms that are relatively larger in size. More specifically, buyout sponsors are more likely to quick flip when their incentive is weaker. Consequently, quick flip leads to poorer operating performance and greater probability of bankruptcy.

The decisions of IPOs are consistent with the rational theory of IPOs. I find LBO companies that initiate IPO reach their peak of sales growth at the year of IPO. I also find RLBO firms reach their peak of leverage one year prior to IPO. In particular, a large portion of debt approaches maturity following IPOs, which indicates RLBOs work as a mechanism to improve financial flexibility ex ante. Overall, the evidence suggests buyout sponsors decide to take their LBO portfolio firms public when LBO restructure has achieved the most improvement. Furthermore, LBOs go public when cost of concentrated ownership of buyout sponsors outweighs its benefit. I find that buyout sponsors' ownership pre-IPO is negatively and significantly related to firm value (proxy by Tobin's Q) in the long run. The results are robust when I control endogenous bias of buyout

investment levels. Consistent with the literature, cost of ownership concentration is much higher for firms with more growth opportunities.

Buyout sponsors' ex post cashing out is consistent with a motive for maximum benefits. Buyout sponsors are more likely to continue to hold equity in RLBO firms with more cash. At the same time, buyout sponsors are more likely to facilitate subsequent takeovers in firms with highly concentrated ownership. Buyout sponsors help to overcome the free-rider problem, though they do so only in a discreet manner.

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Table 1: Sample Description of RLBOs

The sample consists of 594 RLBOs between 1981 and 2006. The sample is taken from the one used by Cao and Lerner (2007) and with more recent RLBOs added from Dealogic. I report the year-number distribution of RLBOs, quick flips, post-IPO delisting and mergers. I also report the sum of market capitalization (first day or earliest available after IPO) of RLBOs in every year and the percentage of RLBOs in LBOs (publicly listed targets to be acquired by financial sponsors) in market values. The information on LBOs sponsored by financial acquirers is from the SDC merger data set.

Year	RLBO Distribution	Quick Flips	Post-IPO Delisting	Post-IPO Mergers	Special Dividend Prior to IPO	Total Market Capitalization at IPO	Percentage of LBO by Financial Acquirer in Market Values
1981	1	0	0	0	0	280.717	1331.68%
1982	0	0	0	0	0	0	0.00%
1983	2	0	1	3	0	1097.44	60.00%
1984	3	0	1	2	0	150.78	4.57%
1985	7	2	1	4	0	324.65	0.69%
1986	14	2	1	8	0	1588.53	2.02%
1987	22	7	2	14	0	4873.18	9.28%
1988	4	0	0	2	1	402.50	0.57%
1989	3	0	1	1	0	672.57	1.37%
1990	9	0	8	5	0	1595.88	15.01%
1991	33	1	6	13	0	9440.54	74.66%
1992	63	2	8	32	0	19086.25	104.94%
1993	45	5	5	24	1	13792.68	150.70%
1994	25	1	2	11	0	7440.84	65.05%
1995	25	3	6	12	0	6787.93	24.31%
1996	37	3	7	12	0	9920.52	50.57%
1997	38	10	4	14	0	17212.91	63.17%
1998	25	8	2	9	0	20652.57	97.50%
1999	36	3	3	8	0	27562.33	102.94%
2000	31	6	1	7	0	35356.69	132.94%
2001	28	2	0	4	1	22406.83	73.50%
2002	25	0	0	6	1	16122.71	62.46%
2003	15	2	0	4	3	12238.37	28.05%
2004	38	4	1	1	7	16884.25	10.45%
2005	38	6	0	3	9	24846.82	10.21%
2006	27	3	0	0	5	26423.05	7.13%
Total	594	70	61	199	28	270738.5	27.13%

Table 2: Dynamics of Performance and Debt of RLBOs

The table reports summary statistics for performance and debt dynamics of RLBOs around IPO years. The sample includes 594 RLBOs between 1981 and 2006. I report cross-sectional mean for the flowing years: IPO-2, IPO-1, IPO, IPO+1 and IPO+2. The performance includes net ROA, operating ROA, sales growth and EBIT/sales. Leverage measures include: total debt/asset, debt equity ratio, current ratio (defined as current asset/current liabilities), interest coverage (defined as EBIDTA/interest expense), subordinated debt/long-term debt, convertible debt & preferred stock/long-term debt, notes payable/current liability, debt maturing in 2nd and 4th year/long-term debt, and the percentage of credit rating as investment.

	IPO-2	IPO-1	IPO	IPO+1	IPO+2
	Mean	Mean	Mean	Mean	Mean
Asset (\$ million)	798.81	799.69	835.82	904.66	968.32
Employee (million)	3.87	4.21	4.75	5.29	6.00
Market to Book ratio Q			2.27	2.05	1.82
Sales Growth Rate (%)	11.87	28.21	54.89	27.57	18.12
ROA (Net Income/Asset) (%)	-0.11	0.33	2.63	3.58	1.51
Operating Income/Asset (%)	13.87	13.20	16.25	15.72	12.79
CAPEX/Sales (%)	19.84	19.87	17.91	13.95	11.34
EBIT/Sales	11.67	11.25	9.36	9.69	11.25
Dividend Per Share (\$)	90.73	34.59	0.42	0.11	0.12
Total Debt/Asset (%)	51.84	56.55	35.82	33.48	33.14
Debt Equity Ratio	5.60	4.72	2.66	2.42	1.58
Current Ratio (%)	1.66	1.69	2.28	2.16	2.11
Interest Coverage	5.05	5.31	6.27	11.96	12.13
Subordinated Debt/Long-term Debt (%)	25.03	27.38	19.15	16.87	14.98
Convertible Debt & Preferred Stock/Long-term Debt (%)	39.44	91.91	46.85	2.21	3.93
Notes Payable/Current Liability/Current Liability (%)	23.73	25.46	20.57	24.08	23.05
Debt Maturing in 2 Years/Long-term Debt (%)	7.90	14.06	16.25	15.73	15.03
Debt Maturing in 4 Years/Long-term Debt (%)	11.01	11.96	10.51	15.69	13.96
Credit Rating (percentage of investment grade) (%)	6.47	7.06	8.77	11.28	14.73
Observations	276	481	496	436	374

Table 3: Performance and Leverage of RLBO Firms Adjusted by Industry Averages or LBOs

The table reports summary statistics for performance and leverage of 594 RLBOs between 1981 and 2006, adjusted by the three benchmarks. The first two benchmarks use industry average (matching by first 3 SIC-digits) of new public firms (less than 3 years of IPO) and mature firms (more than 3 years of IPO). The third benchmark uses year average of LBOs (public firms that are to be acquired by financial sponsors within 3 years). I report mean and median of each variable for the averages across three years: IPO, IPO+1, and IPO+2. The list of LBO firms are taken from SDC and merged with COMPUSTAT. ***, ** and * denotes 1%, 5% and 10% significance level respectively. Test for mean significance uses two-sided t-test and for median significance uses Wilcoxon test.

	Year-Industry Adjusted by other New Public Firms		Year-Industry Adjusted by other Mature Public Firms		Year Matched by Firms to have LBOs	
	Mean	Median	Mean	Median	Mean	Median
Asset (Mil. \$)	66.18***	108.42***	69.36	87.45	139.34***	142.76***
Market Capitalization (Mil. \$)	130.83***	134.62***	81.10**	117.72***	190.38***	102.03**
Employee (Million)	1.68***	0.68***	0.98**	0.21**	0.84**	0.15
Market to Book of Equity	-0.11	-0.06	1.85***	0.72***	1.66***	0.82***
Tobin's Q	0.04	-0.07	29.93***	13.25***	0.67***	0.49***
Sales Growth (%)	-1.20	-6.64***	29.93***	13.25***	13.35***	10.66***
Net ROA (%)	5.06***	1.63***	-0.11	0.57***	1.67***	1.42***
Operating Income /Asset (%)	8.45***	4.95***	4.33***	3.45***	3.39***	3.93***
Total Debt/Asset (%)	14.44***	10.87***	14.24***	10.69***	3.41**	0.43*
Subordinated Debt/Total Debt (%)	11.07***	0***	13.29***	0	6.48***	0
Acquisition/Sales (%)	3.44***	0.05***	5.09***	1.07***	2.08***	2.13***
EBIT/Sales	4.35***	0.84***	6.12***	4.53***	0.78	0.65
CAPEX/Sales (%)	-1.14	-1.10	7.49***	0.63***	8.03***	6.42***
RD/Sale (%)	-7.83***	0	7.54***	0	1.84*	0.58

Table 4: Summary Statistics of Ownership in IPO of Buyout Sponsors in IPO

The sample consists of 594 RLBOs between 1981 and 2006. Panel A reports the summary statistics for the whole sample on the following characteristics: percentage of shares sold by buyout firm at IPO, buyout firm's ownership before IPO and after IPO, insider's (management and directors) ownership before and after IPO, LBO holding years (years after LBO and before RLBO), quick flip dummy, buyout firm's capital (total capital raised since the inception of buyout firm and before the RLBO year), and buyout firm's vintage age (the difference in years between the founding of buyout firm and RLBO).

	Mean	Median	SD	Min	Max
Percentage of Shares Sold at IPO by Buyout Firm	6.35	0	18.23	-31.04	100
Buyout Ownership before IPO	60.19	60.05	24.79	9.14	100
Buyout Ownership after IPO	40.49	39.90	19.74	0	85.10
Insider Ownership before IPO	54.18	59.60	35.41	0	100
Insider Ownership after IPO	34.68	37.85	26.55	0	96.6
LBO Years (after LBO and before IPO)	3.54	2.83	2.82	0.25	17.5
Quick Flips Percentage	15.87	0	36.57	0	100
Buyout Firm's Capital (Mil \$)	4408.12	1794	6937.66	2.8	38990
Buyout Firm's Vintage Years	16.22	15	9.28	0	58

Table 5: Summary Statistics for Ownership and Governance of Buyout Sponsor post-IPO

The table reports summary statistics for Ownership and Governance in the 190 RLBO companies at the end of each year from Pre-IPO, IPO, IPO+1, IPO+2, and IPO+3. The sample includes 190 RLBO between 1995 and 2003. The variables include: ownership of buyout groups, buyout group's board share, dummy of chairman coming from buyout group, buyout group's share in compensation committee, and number of board directors.

	Mean	Median	SD	Min	Max
Equity Ownership of Leading Buyout Group (%)					
Pre-IPO	56.59	54.25	26.82	10.4	100
IPO Year	39.77	39.65	20.10	1.70	84.08
IPO +1 Year	32.36	30.82	20.94	0	79.80
IPO +2 Year	26.91	23.40	21.57	0	77.10
IPO +3 Year	23.95	21.05	21.81	0	76.20
Board Share of Leading Buyout Group (%)					
IPO Year	38.35	37.50	19.07	0	88.90
IPO +1 Year	32.05	30.00	17.31	0	87.50
IPO +2 Year	28.14	25.00	16.67	0	77.78
IPO +3 Year	25.26	25.00	15.74	0	70.00
Chairman from Leading Buyout Group (%) (Dummy =1 if Chairman from Buyout Group)					
IPO Year	22.16	0	41.65	0	100
IPO +1 Year	18.60	0	39.03	0	100
IPO +2 Year	15.17	0	35.99	0	100
IPO +3 Year	12.19	0	32.86	0	100
Share of Leading Buyout Group in Compensation Committee (%)					
IPO Year	55.31	50.00	28.92	0	100
IPO +1 Year	45.55	50.00	27.73	0	100
IPO +2 Year	41.24	33.33	26.93	0	100
IPO +3 Year	36.99	33.33	25.65	0	100
Board Size (number of board directors)					
IPO Year	7.30	7	2.20	3	17
IPO +1 Year	8.02	8	2.21	4	21
IPO +2 Year	8.16	8	2.34	4	23
IPO +3 Year	8.17	8	2.35	4	21

Table 6: Effect of Quick Flip on Performance Controlling Selection Bias

The table presents the results of the regressions of long-run operating performance on quick flip dummy with Heckman Selection approach. Estimates are based on the following Heckman Selection estimation procedures:

First Step: $\text{Probit}(\text{Quick Flip}) = \alpha_0 + \alpha_1 \cdot \text{Control Variables} + \varepsilon$

Second Step: $\text{Performance} = \alpha_0 + \alpha_1 \text{Quick Flip} + \alpha_2 \text{Control Variables} + \alpha_3 \text{Lambda} + \varepsilon$.

Column (2) presents the OLS regression results in the second step with firm subsequent ROA as dependent variable; Column (3) presents the Probit regression results in the second step with subsequent Bankruptcy dummy as dependent variable. ROA (net income/asset) is the average of the following three years: IPO, IPO+1 and IPO+2, measured at the end of year and adjusted by industry median. Bankruptcy dummy is set to 1 if firm file Chapter 7 or Chapter 11 within 5 years of IPO. *Lambda* is the inverse Mills Ratio. The heteroscedastic robust t-test is reported in the parenthesis. The *, ** and *** indicates the 10%, 5% and 1% significant level.

	First-Step Selection	Second-Step Regression	
	Quick Flips	ROA	Bankruptcy Dummy
	1	2	3
Quick Flip Dummy		-0.028* (1.85)	0.467* (1.71)
Dummy for IPO Debt Reduction		-0.006 (0.60)	0.192 (0.81)
Log(Underwriter Rank)		0.047 (1.07)	0.266 (0.20)
Underpricing		-0.050*** (3.24)	0.185 (0.64)
Buyout Sponsor's prior Ownership		-0.011 (0.38)	-0.081 (0.17)
Log(Sales) at IPO year		-0.006 (0.14)	-0.032* (1.69)
Firm Asset before IPO/Buyout Sponsor Size	-0.223* (1.63)		
EBIT/Sales prior to IPO	0.071* (1.72)		
Log(Asset prior to IPO)	-0.005 (0.95)		
Manufacturing Dummy	0.003 (0.09)		
Previous month IPO offering activity	0.161* (1.53)		
Lambda		-0.436*** (4.44)	-0.612 (0.36)
Constant		0.03 (1.46)	0.137 (0.98)
Adjusted R ²	0.06	0.17	0.23
Observations	272	272	272

Table 7: Buyout Sponsor's Role in RLBO firm Performance

The table presents results from the regressions of long-run firm performance on buyout sponsor's ownership right after IPO. The regression is specified as:

$$Performance = \alpha_0 + \alpha_1 \cdot Ownership + \alpha_2 \cdot Control\ Variables + \varepsilon.$$

Columns (1) and (2) use net income/asset as dependent variable; Columns (3) and (4) use EBIT/Sales as dependent variable; Columns (5) & (6) use annual sale growth as dependent variable; Columns (7) & (8) use Tobin's Q as dependent variable. ROA, EBIT/Sales, sales growth and Q are the averages of the following year: IPO+1, IPO+2 and IPO+3, measured at the end of year and adjusted by industry median. The heteroscedastic robust t-test is reported in the parenthesis. The *, ** and *** indicates the 10%, 5% and 1% significant level.

	Net Income/Asset		EBIT/Sales		Sales Growth		Tobin's Q	
	1	2	3	4	5	6	7	8
Buyout Sponsor's Ownership after IPO	0.012 (0.47)	0.024 (0.96)	0.139*** (2.81)	0.137** (2.47)	-0.254*** (2.68)	-0.401** (2.26)	-0.361 (0.63)	-0.546 (0.91)
Buyout Sponsor's Ownership Change Dummy for IPO		-0.023 (0.66)		-0.037 (0.47)		0.916** (2.49)		2.040*** (3.64)
Debt Reduction		-0.006 (0.44)		0.018 (0.70)		0.024 (0.24)		-0.689** (2.57)
Log(1+LBO Years)	0.023** (2.27)	0.018*** (2.66)	-0.002 (0.10)	-0.004 (0.28)	-0.194** (2.29)	-0.172** (2.20)	-0.014 (1.10)	-0.077 (0.44)
Log(Buyout Firm's Capital)	-0.003 (0.59)	-0.002 (0.45)	0.001 (1.40)	0.003 (1.05)	-0.132*** (3.00)	-0.016 (1.56)	0.034 (0.46)	0.032 (0.44)
Log(Asset) at IPO year	-0.013** (2.09)	-0.019*** (3.38)	0.033** (2.66)	0.036** (2.34)	-0.076* (1.82)	-0.078* (1.97)	-0.465 (6.13)	-0.555*** (5.91)
Debt/Asset at IPO year	0.001 (0.06)	-0.019 (0.71)	0.109** (2.59)	0.079* (1.82)	-0.219 (1.13)	-0.119 (0.75)	0.731* (1.98)	0.619* (1.60)
Prior Dividend/Sales	-0.090* (1.61)	-0.13 (1.23)	-0.301*** (2.71)	-0.064* (1.89)	2.357 (1.30)	2.425 (1.58)	1.209* (1.76)	0.918* (1.85)
Operating Income/Asset at IPO year		0.011 (1.14)		0.509*** (5.39)		-0.374*** (5.94)		-0.123 (0.81)
Log(Underwriter Rank)		0.124 (0.53)		-0.089 (0.72)		0.445 (1.14)		3.191** (2.38)
Underpricing		-0.066*** (4.72)		-0.164*** (3.83)		0.029 (0.18)		0.245 (0.43)
RD/Sales at IPO year							6.331 (1.12)	5.790 (0.89)
RD missing Dummy							-0.015 (0.05)	-0.084 (0.29)
Constant	0.135 (2.19)	0.316 (1.98)	-0.112 (1.47)	0.271 (1.63)	0.075 (2.25)	-0.039 (0.05)	-2.267 (2.42)	-1.061 (0.68)
Adjusted R ²	0.11	0.14	0.13	0.21	0.17	0.34	0.20	0.29
Number of Observations	272	272	272	272	272	272	272	272

Table 8: Effects of Sponsor's Prior Ownership on Performance Controlling Endogeneity

The table presents the results of both OLS and 2 SLS regressions of long-run performance on buyout sponsor's ownership before IPO. The 2 SLS regressions with an instrumental variable are based on the following specifications:

First Stag: $Tobit (Prior Ownership) = \alpha_0 + \alpha_1 \cdot Instrument\ Variables + \varepsilon$

Second Stag: $Performance = \alpha_0 + \alpha_1 \hat{Y} (Prior Ownership) + \alpha_2 Control\ Variables + \varepsilon$,

where \hat{Y} represents the predicted value of *Prior Ownership* from first stage. Column (1) reports simple OLS estimates. Column (2) reports the first stage instrumental regression estimates. Columns (3), (4) and (5) present the regression results in the second step: firm subsequent performance of EBIT/Sales, sales growth and Tobin's Q on buyout sponsor's prior ownership. ROA, sale growth and Q are the averages of the following three years: IPO+1, IPO+2 and IPO+3, measured at the end of year and adjusted by industry median. The heteroscedastic robust t-test is reported in the parenthesis. The *, ** and *** indicates the 10%, 5% and 1% significant level.

	OLS	First Stage	Second-Step OLS		
	Tobin's Q	Prior Ownership	EBIT/Sales	Sales Growth	Tobin's Q
	1	2	3	4	5
\hat{Y} (Prior Ownership)			0.026 (0.20)	-0.531** (2.56)	-4.759*** (3.52)
Prior Ownership	-1.090** (2.33)				
Quick Flip Dummy	-0.654** (2.45)		0.003 (0.08)	-0.058 (0.11)	-0.239 (0.67)
Log(LBO Holding Years)	-0.342 (0.70)		0.015 (0.62)	-0.067*** (2.71)	-0.307 (1.15)
Dummy for IPO Debt Reduction	-0.714* (1.87)		0.023 (1.30)	0.043* (1.60)	-0.292* (1.82)
Log(Underwriter Rank)	0.731 (1.10)		0.014 (0.18)	0.077 (0.89)	0.621 (1.37)
IPO Underpricing	0.582 (1.59)		-0.063 (1.34)	-0.081 (1.07)	0.680 (1.03)
Log(Sales) at IPO year	-0.804*** (3.42)		0.007 (0.55)	-0.060*** (5.18)	-0.203*** (3.16)
Debt/Asset at IPO year	0.638 (1.39)		0.087** (2.31)	-0.088** (2.20)	0.547* (1.69)
RD/Sales at IPO year	6.34 (1.00)				5.979 (0.96)
Buyout Sponsor Age		0.032 (1.26)			
Firm Asset Prior to IPO/Buyout Sponsor Size		0.038** (2.59)			
Manufacturing Dummy		0.044 (1.37)			
Constant	2.110 (3.29)	0.641 (17.69)	-0.085 (0.07)	0.850 (3.75)	2.318 (4.04)
Adjusted R ²	0.23	0.31	0.06	0.16	0.19
Observations	272	272	272	272	272

Table 9: Buyout Sponsor's Role in RLBO firms post-IPO

The table presents the panel regressions of subsequent-year firm performance on buyout sponsor's ownership in previous year. The panel regressions with fixed effects are specified:

$$Performance_{i,t} = \alpha_0 + \alpha_1 \cdot Ownership_{i,t-1} + \alpha_2 \cdot Control\ Variables_{i,t} + \varepsilon_{i,t}. \quad t = IPO+1, IPO+2, \text{ and } IPO+3, \text{ and } i=1, 2, \dots, N.$$

Columns (1) and (2) use net ROA as dependent variable; Columns (3) & (4) use sale growth as dependent variable; Columns (5) & (6) use Tobin's Q as dependent variable. ROA, sales growth and Q are measured at the end of year and adjusted by industry median. The heteroscedastic robust t-test is reported in the parenthesis. The *, ** and *** indicates the 10%, 5% and 1% significant level.

	ROA		EBIT/Sales		Sales Growth		Tobin's Q	
	1	2	3	4	5	6	7	8
Buyout Sponsor's Ownership	-0.098 (1.43)		0.032 (0.62)		-0.330** (2.09)		-0.414 (1.07)	
Buyout Sponsor's Board Share		-0.012 (0.27)		0.201 (1.52)		0.243 (1.32)		-0.449 (0.69)
Insider's Ownership	0.013 (0.20)	-0.037 (0.56)	-0.061* (1.66)	-0.026 (0.60)	0.342* (1.70)	0.115 (0.55)	-0.519 (0.57)	-0.738 (1.17)
Log(Sales)	-0.038 (1.02)	-0.034 (1.38)	0.045 (1.45)	0.045 (1.55)	-0.644*** (5.46)	-0.621*** (5.31)	-0.263** (2.33)	-0.251* (1.62)
Debt/Asset	0.048 (0.61)	0.049 (0.56)	0.117*** (3.51)	0.172*** (4.00)	-0.099 (0.71)	-0.139 (0.99)	-0.346 (0.57)	-0.345 (0.55)
RD/Sales at IPO year					0.298*** (3.26)	0.340 (0.75)	0.232 (0.54)	0.277 (1.26)
RD missing Dummy					0.296 (1.42)	0.271 (1.42)	0.207 (1.44)	2.080 (1.45)
Constant	0.259 (1.00)	0.223 (0.83)			0.940*** (5.40)	0.738*** (4.82)	2.563 (1.64)	2.462 (1.52)
Adjusted R ²	0.02	0.03	0.07	0.07	0.12	0.09	0.05	0.03
Number of Observations	392	392	392	392	392	392	392	392

Table 10: Determination of post-IPO Exit of Buyout Sponsors

The table presents the results of the regressions of buyout sponsors' exit on cash flow and other firm characteristics in IPO year. The sample includes 594 RLBOs between 1981 and 2006. Columns (1) and (2) present Probit estimates for

$$\text{Merger (Yes=1, No=0)} = \alpha_0 + \alpha_1 \cdot \text{Market to Book} + \alpha_2 \cdot \text{Control Variables} + \varepsilon,$$

where the dependent variable is indicator variable taking a value of one if firms is acquired within 5 years post-IPO. The independent variables include quick flip dummy/LBO holding years, buyout reputation (capital raised), dummy for buyout sponsor as investment bank affiliated, and ownership structure. Control variables include logarithm of asset and total-term debt/asset. Columns (3) and (4) present the Tobit regressions with dependent variable the dummy for complete exit if buyout sponsors' ownership falls to zero (three years following IPO). The heteroscedastic robust t-test is reported in the parenthesis. The *, ** and *** indicates the 10%, 5% and 1% significant level.

	Merger Within Five Years		Complete Exit Within Three Years	
	1	2	3	4
Tobin's Q at IPO year	-0.126 (1.20)	-0.175 (1.06)	0.104* (1.69)	0.120** (2.05)
EBIT/Sales at IPO year	-0.004** (2.07)	-0.003* (1.94)	-0.002* (1.91)	-0.001* (1.87)
Log(LBO Holding Years)	-0.449* (1.64)	-0.308 (1.00)	-0.460** (2.00)	-0.396* (1.64)
Quick Flip Dummy	-0.293 (0.75)	-0.036* (1.61)	-0.452 (1.47)	-0.578 (1.54)
Dummy for IPO Debt Reduction	0.643** (2.58)	0.152 (1.42)	-0.108 (0.52)	-0.198 (0.84)
Log(Buyout Firm's Capital)	-0.233*** (2.84)	-0.118* (1.64)	-0.068 (0.99)	-0.066 (0.80)
Buyout Sponsor's Ownership After IPO		1.872** (2.13)		-1.209** (2.53)
Insider's Ownership After IPO		-1.003* (1.65)		-0.672** (2.13)
Debt/Asset at IPO year	0.303 (0.72)	0.734 (1.22)	-0.537 (1.54)	-0.861** (2.16)
Log(Sales) at IPO year	0.230* (2.03)	0.199 (1.16)	-0.026 (0.35)	-0.095 (0.82)
Constant	-3.65 (0.89)	-4.23 (1.52)	3.17 (0.91)	3.07 (2.65)
Adjusted R ²	0.05	0.07	0.05	0.06
Number of Observations	272	193	272	193

Figure 1: Dynamics of Net ROA for Firms of Quick Flips or of Subsequent Delisting

This figure presents the operating performance (net ROA) of quick flipped firms other RLBO firms. The sample uses 594 RLBOs between 1981 and 2006. The IPO data set is from the SDC new issues. IPOs with an offer price below \$5.00 per share, IPO with offering size smaller than \$5.00 million, unit offers, closed-end funds, ADRs, and IPOs not listed on CRSP within six months of issuing are excluded. The actual observations include 75 quick flips and 420 other RLBO firms. The accounting data is from COMPUSTAT.

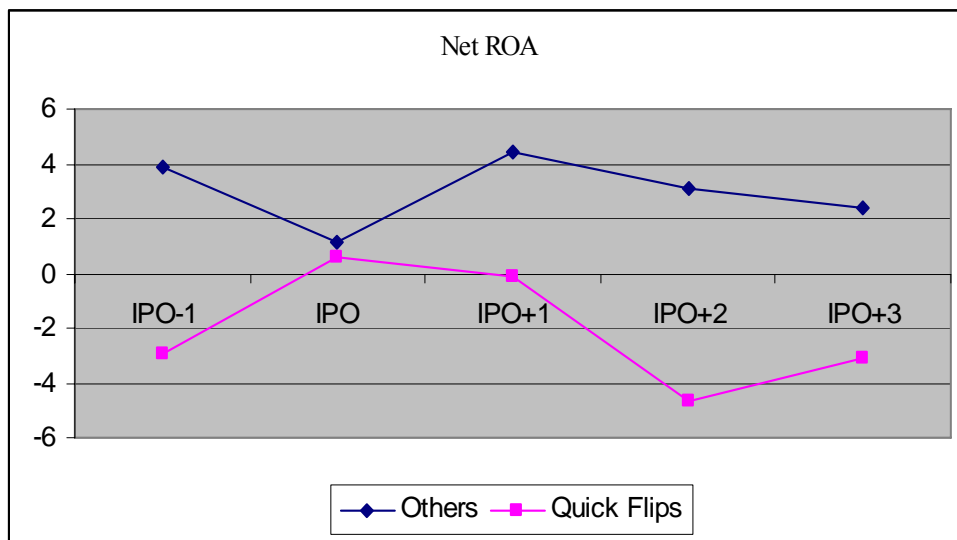


Figure 2: Dynamics of Net ROA for Firms of Subsequent Delisting

This figure presents the operating performance (net ROA) of delisted firms posterior and other RLBO firms. The sample uses 594 RLBOs between 1981 and 2006. The IPO data set is from the SDC new issues. IPOs with an offer price below \$5.00 per share, IPO with offering size smaller than \$5.00 million, unit offers, closed-end funds, ADRs, and IPOs not listed on CRSP within six months of issuing are excluded. The actual observations include 52 delisted firms and 443 other firms. The accounting data is from COMPUSTAT.

