Secondary Buy-Outs

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Abstract

In this paper we show that SBOs do not generate a significant improvement in the operating performance of target companies. We argue that the recent, spectacular increase in SBO activity is essentially motivated by the transient availability of cheap financing with steadily increasing market multiples that generates an incentive to "flip" investments between PE funds. We collect deal-level information on 3,811 buy-outs between 1998 and 2008 and we gather detailed firm-level financial and accounting information on 111 companies target of multiple leveraged acquisitions in the period 1998-2008. We show that first-round buyers generate a large and significant abnormal improvement in operating performance and efficiency. In contrast, SBO investors do not show statistically significant evidence of incremental performance but do generate large and significant jumps in leverage and cash squeeze-out. We investigate additional motivation for secondary acquisitions and we find that SBO activity responds surprisingly quickly to increases in industry multiples and to more favorable financing conditions such as narrowing debt spreads and equity contributions. Our results suggest the existence of residual risk-shifting to debt providers which is not priced in the cost of leveraged financing and cast doubts on the lenders' ability to assess risk exposure.

Introduction

Following the substantial growth of the Private Equity (PE) industry in the 80s and 90s, several theoretical and empirical contributions have explained the economic sources of returns of buy-out transactions and the impact of PE investors on acquired companies. However, established theories have been challenged by the spectacular recent surge of a family of deals known as Secondary Buy-Outs (SBOs). Secondary Buy-Outs are leveraged buy-outs where both the buyer and the seller are private equity firms. Second-round acquirers provide "a new ownership structure including, typically, a new set of private equity financiers while the original financiers and possibly some of the management exit" (Cumming et al. 2007). SBOs have been historically almost exclusively confined to distressed transactions, as successful deals would be exited through IPOs or trade sales, but in the five years up to the collapse of the buy-out market, PE investors have increasingly sought exit by selling initial buy-outs to other PE firms in secondary leveraged buyouts. As reported in figure 1, the total volume of SBOs has increased over 10 times with diminishing equity contributions and debt costs.

INSERT FIGURE 1 HERE

However, the economic rationale of this spectacular growth and the effects of SBOs on the operating performance of target companies are still unclear.

In this paper we try to fill this gap by addressing the following research questions:

1. Do SBOs improve the operating performance of target companies?

2. Is the operating performance change different from that of the primary buy-outs?

3. What determines SBOs activity?

Our findings show that follow-up deals create little, if any, differential value. In particular, we robustly show that most of the latent value is extracted by the first-round investor. Secondary buyers do not meaningfully increase profitability and operating performance but increase the target company debt burden. This is only partially supported by additional growth in cash flows and it appears that follow-up investors are exploiting a market window of increased high-yield financing availability at decreasing costs and increasing transaction multiples. These result suggests a "flipping" interpretation of

SBOs: due to favorable market conditions PE investors choose SBOs as opposed to more traditional investment strategies as they allow a quick investment turnover which increases the return on invested capital for the fund. We support this conjecture by looking at firm-specific and deal-specific micro-level characteristics of SBOs, and macro level determinants, focusing on the aggregate LBO market development. We first test the firm-specific multiples on a sample of 111 companies target to two consecutive buy-outs and we show that SBOs are much more likely in industries that experienced a recent, sharp increase in transaction multiples. We then run a set of logistic regressions on a large sample of 3,811 deals divested through a secondary acquisition or a trade sale and we confirm that SBOs are strongly positively correlated with EBITDA multiples, and negatively related with revenue and EBIT multiples. We also find a large negative coefficient for the holding period variable further supporting the flipping hypothesis. Finally, we run a set of Tobit regressions on market-level data and we show that when the cost of a LBO deal, measured by debt spread and equity contribution, decreases, SBOs become much more likely. Similarly, the proportion of debt funding in a deal increases the likelihood of a SBO.

The paper is organized as follows. The first section reviews the literature contributions on leveraged buy-outs and discusses the implications for SBOs. Section 2 presents the data and the methodology; Section 3 documents the operating performance of SBO companies; Section 4 examines the determinants of SBO activity; Section 5 concludes.

1   Literature Review and theory analysis

Only a few studies have addressed the theoretical and empirical characteristics of SBOs. Cumming et al. (2007) and Wright et al. (2009) using data collected by the Centre for Management Buy-Out Research at Nottingham University reckon that secondary buy-outs have become an important driver of buy-out activity both in terms of number of deals and transactions value. Levis (2008) using data from the British Venture Capital Association and Price Waterhouse Coopers, shows that between 1998 and 2006 secondary buy-outs accounted for 4% of the number of exits and 10.8% of the total value divested by the private equity industry in the UK. Stromberg (2007), using data from Capital IQ show that secondary buy-outs represented 20% of global Leveraged Buy-Out (LBO) activity in terms of enterprise value transacted between 1970-2007 and 24% of number of exits over the same period. A stream of research has looked

at secondary buy-outs as an exit route. Nikoskelainen and Wright (2007) document that UK secondary buy-out exits have offered a median index-adjusted IRR of 2.0%, significantly lower than IPOs and trade sales exit routes.

Despite the increasing diffusion of such transactions, no studies have been conducted on the effect of secondary buy-outs on the operating performance of target companies. Wright et al. (2009) and Cumming et al. (2007) identify secondary buy-outs as a research area that presents several unresolved issues. Both contributions underline that no empirical evidence is available on the effects of such transactions on target companies and that the economic rationale of secondary buy-out is puzzling. In fact, SBOs have been (limitedly) explained borrowing from broader existing theories on LBOs. However, it is doubtful that these theories can satisfactorily explain SBO acitvity. Following Palepu (1990) and Kaplan and Stromberg (2009) we identify three main theories motivating leveraged acquisitions: value creation, mispricing exploitation and value transfers from other players.

1.1   Value Creation

There is a large stream of literature investigating the effect of private equity investors on the performance of target companies (Cumming et al. (2007) and Kaplan and Stromberg (2009) provide comprehensive surveys). Several theoretical and empirical contributions have explored the ability of leveraged buy-out investors to increase the performance of portfolio companies. A commonly shared view is that PE investor generate returns by one or more of the following strategies: improving incentives alignment between managers and shareholders, reducing agency costs due to increased leverage as predicted by Jensen (1986) Free Cash Flow (FCF) hypothesis, actively monitoring of operations by investors, lenders and board members. As suggested by Jensen (1989a) and Jensen (1993), these three factors interact to provide companies that undergo a LBO strong tools to improve operating cash flows and investment returns. High financial leverage prevent managers from investing in unprofitable or wasteful projects or seek private benefits while management equity-based compensation makes suboptimal for managers to seek short-term increases in cash flows to pay down debt at the expense of long term value. Further, active ownership by investors guarantees effective monitoring of management decisions and strategies.

Several studies have attempted to provide empirical evidence of value creation in LBOs. Kaplan (1989a) seminal contribution shows that PE-backed companies outper-

form industry peers in terms of return on asset and return on sales by approximately 20% in the three years after the buy-out. It also relates this improvement in performance to reduction of agency costs. Lehn and Poulsen (1989) provide evidence to support the FCF hypothesis and show that the likelihood of a company to go private is inversely related to its growth in sales and directly related to the level of undistributed cash flows. Muscarella and Vetsuypens (1990) found that targets of reverse LBOs experience a significant increase in operating productivity and margins, resulting from restructuring activities. Further, they also provide evidence of increased management ownership. Smith (1990) also observes an increase in operating performance of LBO targets. The improvement is particularly significant because it is not related to substantial employees layoffs or reductions in research and development, maintenance or advertising expenses. Similarly, Bull (1989) finds an increase of operating productivity and higher rates of new-product development for PE-backed companies. Phan and Hill (1995) provide evidence that LBOs result in increased management holdings, which in turn is strongly associated with increased operating performance and efficiency. Lichtenberg and Siegel (1990) observe that plant productivity measured as total factor productivity of LBO targets increases from 2.0% above industry average in the pre-buy-out period to 8.3% following the buy-out. Similarly, Harris et al. (2005) compare plant productivity of targets of UK MBOs with the productivity of comparable firms. PE-backed companies show a substantial increase in productivity after the buy-out and a significant over-performance relative to comparable firms. Several studies have focused on the most recent wave of buy-out transactions. Desbieres and Schatt (2002), using a French sample of MBOs observe a significant decrease in return on equity, return on investment and margin ratios in the years following the buy-out. Leslie and Oyer (2008) provide evidence that PE-backed firms use stronger incentives for executives compared to similar public companies. However, they fail to identify significant differences in operating performance. Acharya et al. (2009) provide evidence for UK transactions, showing significant abnormal increase in EBITDA margins compared to industry peers, as a result of active monitoring by buy-out professionals and improved corporate governance. However, Guo et al. (2009) in a follow-up to Kaplan's (1989) study show that median operating performance by US PE-backed companies is not statistically different from the performance of benchmark firms matched on industry and pre-buy-out characteristics.

Some studies have suggested different routes to value creation. Sorenson and Stuart (2001) explore the role professional networks and interpersonal business relationships

play in enabling active monitoring and consequently improve performance in the US Venture Capital industry. This study points at access to professional network as a potential source for value creation. Further, Kaplan and Stromberg (2009) emphasize the role of so-called "operational engineering". The term refers to the increasingly common practice by PE investors of hiring professionals with operational or sector-specific expertise in order to seek value creation opportunities through cost-cutting initiatives, change in management, strategic repositioning and acquisition opportunities.

1.1.1 Value creation and Secondary Buy-Outs

It is doubtful whether value-creation theories may explain the recent surge in secondary buy-outs activity. Under the null hypothesis that the first private equity investor has been effective in mitigating agency problems by implementing enhanced governance practices, active management monitoring and by reducing free cash flows, it is unclear how a second, back-to-back financial sponsor can further create value exploiting these same mechanisms. As argued in Wright et al. (2009), resolution of agency problems is likely to generate a steep one-off change in performance. As a consequence, secondary buy-outs can only be expected to generate little, if any, incremental improvements in operating performance. In such cases, real operating growth can be achieved just through the implementation of new investments and strategies, as conjectured by Jensen (1993). This opportunity can come in various forms such as: international expansion, industry consolidation, change in strategy or the introduction of a new management team to achieve "operational engineered" growth. Anecdotal evidence of secondary buy-outs in which private equity investor buys a company to lead expansion supports this argument.

Absent a radical project, there should be no or very limited motivation for a financial investor to step in as a secondary buyer as the residual growth should be priced in the transaction, heavily reducing the secondary buyer profitability.[1] In this paper we test these conjectures providing previously unavailable cross-sectional evidence on value creation in SBOs.

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[1]This can be the case of "forced exits " due to fund constraints such as the end of the life of the fund.

1.2   Mispricing

A "farming view" of private equity suggests that PE funds generate returns by buying targets low and selling them high, exploiting sector valuation multiples expansion accompanied with high leverage to multiply returns to equity after paying down debt commitments with cash flows generated by the target's operations. Guo et al. (2009) show that industry or market related changes in multiples account on average for 12.0% of the returns on the capital invested in the buy-out. Phalippou and Zollo (2005) show that private equity funds performance covaries positively with market and business cycle, suggesting that a substantial share of returns is due to market wide conditions. Following an efficient markets argument, it is difficult to expect this strategy to be effective for second-round buy-outs, if not accompanied with some degree of operational improvements. However, as suggested in Kaplan and Stromberg (2009), private equity might benefit from market frictions that cause a segmentation of equity and debt markets, which leads to a mispricing of debt markets relative to equity markets. Enhanced access to cheap debt relative to costly equity allows PE investors to exploit arbitrage opportunities and generate abnormal returns by increasing leverage ratios.

Mispricing can also occur if PE investors can buy the target at a discount from fair value, by exploiting information asymmetry between pre-buy-out investors and managers involved in the buy-out. In essence, transferring some of the value from existing shareholders to acquirers. For example, Bargeron et al. (2007) find that controlling for other factors public target shareholders receive a 63% higher premium from public bidders compared to private equity acquirers. However, such evidence might also be explained by superior negotiating abilities by PE investors or market timing, as discussed by Kaplan and Stromberg (2009).

1.2.1   Mispricing and Secondary Buy-Outs

Secondary buy-outs may reasonably be determined by segmentation in the market for acquisition finance. Theoretically, the SBO acquirer should be unlikely to buy the target company at a significant discount from fair value as the first-round PE investor rationally strives to sell the target as close to market value as possible. The seller's likelihood of achieving the target objective is positively correlated with the PE sophistication, the absence of information asymmetry between managers and shareholders once the first buy-out has taken place and with the increased level of competitiveness of the PE industry. Additionally, the first PE investor will pursue optimal timing in

exits by off-loading its portfolio when industry multiples are close to expected peak levels. However, the timing of exits by PE investors is arguably influenced also by the necessity to pay out limited partners when funds are close to the end of their life. This leaves an opportunity for secondary buy-out investors to exploit market timing opportunities. As we argued, such a route to returns can be particularly viable in a growing market and low cost of debt environment that allows to exploit debt and equity relative mispricing. In such a market environment, secondary investors can buy a target in industries with high multiples growth financing the deal with high levels of leverage. Because of industry-driven multiple expansion, the target can then be sold at a higher multiple, after having paid down part of the debt at a cost of borrowing too low relative to the cost of equity.

The attractiveness of this strategy is enhanced by the positive track-record of the potential target that have already proven to be able to cope with high levels of leverage. Additionally, the management has already gained significant expertise in dealing with private equity investors and enhanced governance and monitoring systems are already in place. Secondary buy-outs therefore presents follow-up PE buyers with a less risky, quicker and possibly more profitable alternative to first-round acquisitions. This argument is consistent with the evidence that volume of secondary buy-outs calculated as a percentage of total value transacted in buy-outs has reached its peak at 26% in 2006-07, in correspondence with the recent credit boom. With respect to the risk profile of SBOs, Stromberg (2007) provides evidence that secondary buy-outs are significantly more likely to lead to successful exit than public to private and private to private deals. Following these arguments, in this paper we investigate the relationship between deal multiples, cost of debt and SBOs volumes.

1.3 Value Transfers

A stream of research has focused on value transfers to PE investors from other players involved in the buy-out to private equity investors. In particular, the extant literature has focused on transfers from employees of target companies, government and tax payers.

On the one hand, the value transfer from employees hypothesis has found very weak supporting evidence, as shown by Kaplan and Stromberg (2009). On the other hand, LBOs usually generate significant tax shields, due to increased leverage and higher tax-deductible interest payments which may intuitively motivate repeated buy-

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outs. However, as shown in Kaplan (1989b) and Renneboog et al. (2007), expected tax savings are highly correlated with premiums paid to shareholders at the moment of the buy-out. This evidence suggests that tax benefits of increased debt are largely embedded in the price paid to existing equity holders, thus leaving very limited room for tax-driven returns for second-round PE investors. In the light of these contributions we reject the hypothesis that tax savings are a significant differential factor in explaining the impressive growth in SBOs activity.

2 Data and Methodology

2.1 Sample Selection and Description

Most of the SBO activity targets private-to-private transactions thus preventing to focus on the US market since US companies are not required to disclose financial information. Differently, European companies have relatively stringent disclosure requirements. Accordingly, we collect information from the Mergermarket database, on 3,811 LBOs in the European market from 1998 to 2008, that disclose information on at least one of the following items: revenue, EBIT, or EBITDA transaction multiple, total absolute deal consideration, total debt funding, months held in the portfolio of the initial PE buyer. To analyze the SBO target companies operating performance, we keep only companies target to two consecutive buy-outs, narrowing down the sample to 565 companies. From this sample, we exclude observations where:

- the full set of financial statements from one year before the first LBO to one year after the second LBO was not available

- the company was incorporated in countries other than Western Europe (UK, Ireland, Denmark, Norway, Sweden, Finland, Germany, Belgium, Luxemburg, Netherlands, France, Spain, Portugal, Italy, Greece)

- the company was operating in the financial sector

These criteria were introduced to focus on companies active in relatively comparable economic and accounting environments. The final sample is given by 111 European companies, which have been acquired by a PE investor in an initial buy-out and exited through an immediately adjacent SBO transaction over the period 1999 to 2007. We

denote the first buy-out as LBO1 and the secondary buy-out as LBO2. The time window selection is motivated by two issues: first, since the market for secondary buy-outs has largely developed in the last ten years, a longer period would not result in a larger sample size; second, we need complete financial statements of the target companies from one year before the first buy-out (LBO1-1) to one year after the second buy-out (LBO2+1). Further extension of the window results in a severe lack of data.

We control results by matching target companies with industry peers selected from publicly traded firms in the same country. We match companies with 4-digit SIC code comparable firms extracted from Compustat Global. If the extraction returns less than 10 firms, we step down to 3-digit or 2-digit matching. We collect financial information from the Amadeus database, excluding very small companies with a turnover of less than 5 million Euros. Since comparables' figures are affected by extreme observations, following Barber and Lyon (1996), we winsorize data by eliminating the 1st and 99th percentile of the observations for every accounting ratio for each year. Finally, we collect industry info on SBO volume, loan spreads, industry multiples, debt and equity volumes, from Standard and Poor's Leverage Commentary Data (S&P LCD).

Table 1 reports summary statistics for the full sample. The EBITDA multiple for the whole sample is a staggering 40.11 but its median is 10.26, which indicates the existence of mis-reported figures, extreme observations or both. Average deal value is 314 mil/USD and total debt funding is 512 mil/USD. The latter figure seems at odds with a lower average deal value but is driven essentially by a much lower number of deals disclosing information on debt contribution: while we have deal-value data for 2,653 deals we just have info on debt funding for 256 deals. Finally the average holding period for portfolio companies is slightly less than 3.5 years and its median is 3 years, consistently with empirical and anecdotal evidence on PE investors trying to quickly turn around their investment portfolio.

<center>INSERT TABLE 1 AND 2 HERE</center>

Breaking down the sample for the exit type, provides some additional intuitions. First, we notice that SBO deals show significantly lower median EBITDA multiples and revenue multiples; EBIT multiple are similarly lower in medians but the difference is not significant. Interestingly, Deal value is significantly higher both in terms of means and median figures and SBOs appear to be almost twice as large than all other exit routes.

Almost all disclosed information on debt funding comes from SBO deals and doesn't show any significant difference between the two sub-samples. Looking at the investment holding period, SBO deals seem to be held slightly longer than deals divested through a trade sale. The interpretation of these results is not straightforward. On the one hand, it seems that first-round PE buyers are better off in selecting a traditional trade sale both in terms of proceeds and portfolio turnaround velocity; on the other hand though, the higher deal size and the extreme (and significant) EBITDA multiple values may indicate that SBOs may be strategically used by PE funds and debt providers to strategically manage their investments.

Table 2 restricts the analysis to the 111 companies for which we have detailed financial and accounting data. Panel A reports deal-level figures. Deal value, debt funding and investment duration figures are aligned with the overall sample while revenue and EBITDA multiples medians are higher than those of the full sample.

Panel B reports summary statistics for 8 firm-level financial items for the year before the first LBO. Figures suggest that PEs target relatively small companies (although the sample shows a non-negligible skewness towards larger deals) with an average turnover of 129 mil/USD and a median of 56. Companies shows average and median EBITDA/Sales ratios well above 10% and a relatively low level of debt, thus making for ideal targets for a PE investor.

2.2   Methodology

We assess the operating performance of the target companies over the investments period, according to a set of different measures:

1) Return on Equity Ratios

- NI / E = Income before Extraordinary Items / Total Shareholders Funds

- CFO / E = Cash Flows from Operations[2] / Total Shareholders Funds

2) Return on Investment Ratios

- EBIT / EA = Earnings before Interest and Taxes / Economic Assets

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[2]Measured by: Net Income + Extraordinary Items + Depreciation and Amortisation – Change in Working Capital

- EBITDA / EA = Earnings before Interest Taxes Depreciation and Amortization / Economic Assets[3]

3) Margin Ratios

- EBIT / S = Earning before Interest and Taxes / Sales

- EBITDA / S = Earnings before Interest Taxes Depreciation and Amortization / Sales

4) Turnover Ratios

- S/EA = Sales / Economic Assets

5) Capital Structure Ratio

- FD / EA = Financial Debt / Economic Assets

- FD / EBITDA = Financial Debt / Earnings Before Interests Taxes Depreciation and Amortization

6) Liquidity Ratios

- CA / CL = Current Assets / Current Liabilities

- CASH / CL = Cash and Cash Equivalents / Current Liabilities

These indicators return a comprehensive view of the effects of buy-outs on several areas of the targets' operating performance. For each of these measures we develop two alternative specifications to check the results robustness. In the first specification, we follow Barber and Lyon (1996) approach and we compute a set of abnormal performance indicators to detect the level of abnormal operating performance of sample firms compared to their industry peers. Formally, we estimate:

Absolute abnormal performance indicator

$$Y_{i,s} = (x_i - m_s) \tag{1}$$

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[3]Following the approach of Penman (2007), Economic Assets (EA) is defined as: Total Assets - Cash and Equivalents – Trade and other Operating Creditors = Total Shareholders Funds + Long Term Liabilities + Total Debt included in Current Liabilities

where x_i is the ratio x for firm i, operating in sector s, and m_s is the ratio x median for industry s. This indicator is calculated for the following points in time: one year before the first buy-out (LBO1-1), one year after the first buy-out (LBO1+1), one year before the second buy-out (LBO2-1) and one year after the second buy-out (LBO2-1)

Absolute abnormal performance change indicator

We estimate the absolute difference in the change in operating performance of sample firms compared to the industry peers, by:

$$\Delta Y_{is} = (\Delta x_i - \Delta m_s) \tag{2}$$

where Δx_i is the absolute change of ratio x for firm i operating in industry s and Δm_s is the median absolute change of ratio x for industry s. This indicator is calculated for change in performance from LBO1-1 to LBO1+1 and from LBO2-1 to LBO2+1.

Abnormal performance percentage change indicator

Similarly to the abnormal performance absolute change, we construct a measure using percentage changes measure instead of absolute changes:

$$\Delta \% Y_{is} = (\Delta \% x_i - \Delta \% m_s) \tag{3}$$

As for the abnormal performance absolute change, this indicator is calculated in two periods: from LBO1-1 to LBO1+1 and from LBO2-1 to LBO2+1.

The choice of these variables follows Barber and Lyon (1996) recommendations for calculating abnormal operating performance and is consistent with the methodology used in other studies on value creation in LBOs (see Kaplan (1989a) and Guo et al. (2009)).

The statistical significance of the abnormal performance indicators is tested against the null hypothesis of no superior performance of the target companies as opposed to the sample peers.

In the second specification we control for within-industry variations as suggested by Desbieres and Schatt (2002). However, given the negative skewness of the distribution of performance for the comparable firms sample, we calculate median industry performances instead of averages as suggested by Barber and Lyon (1996). Desbieres and Schatt (2002) methodology differs from that used by earlier studies, since it takes into account within-industry variations of performance ratios, weighting deviations of

performance from the sector mean (median) conditional on the volatility of the measure for the whole industry. As a consequence, abnormal performance in a highly volatile industry is weighted less than abnormal performance in a low volatility sector. Formally, we calculate the following measures:

Industry-volatility adjusted absolute abnormal ratio

$$W_{is} = \frac{(x_i - m_s)}{\sigma_s} \tag{4}$$

where x_i is the ratio x for firm i, operating in sector s, and and s are the median and standard deviation of ratio x for industry s. This indicator is calculated for the following points in time: one year before first buy-out (LBO1-1), one year after the first buy-out (LBO1+1), one year before the second buy-out (LBO2-1) and one year after the second buy-out (LBO2-1).

Industry-volatility adjusted abnormal percentage change ratio

We evaluate the change in operating performance of targets of secondary buy-outs compared to companies operating in the same industry, correcting for intra-sector variations by estimating:

$$\Delta\%W_{is} = \frac{(\Delta\%x_i - \Delta\%m_s)}{\sigma_{\Delta\%s}} \tag{5}$$

where $\Delta\%x$ is the percentage change of ratio x for firm i operating in industry s and $\Delta\%m_s$ and $\sigma_{\Delta\%s}$ are the median and standard deviation of indicator x for industry s, respectively. This indicator is calculated for changes in performance from LBO1-1 to LBO1+1 and from LBO2-1 to LBO2+1.

Statistical significance, for industry-volatility adjusted measures is tested by a parametric t-test based on normalized and centred values. To control for extreme observations in our sample we also perform a non parametric Wilcoxon signed-rank test on the performance estimates medians.

3   The operating performance of target companies

3.1   Equity Returns

Table 3 presents results for the measures of equity performance. Target companies show positive and stable average abnormal return on equity in all years from pre-LBO1

to post-LBO2. Superior profitability compared to industry peers, measured as NI/E, is statistically significant at the 1% level with both tests. The indicator CF/E yields similarly significant results for periods LBO1+1 LBO2-1 and LBO2+1. This evidence is consistent with improved return on equity due to the effect of increased leverage. This result is not necessarily related with an improvement in operating performance as shown by Penman (2007)[4]. For both measures, we observe that first-round BOs generate an increase in performance while second-round acquisitions result in a decrease, although still above the industry median. Looking at sector adjusted measures we obtain a similar pattern for the NI/E metric. Differently, the CF/E metric shows limitedly significant results, indicating a lower sector-adjusted level of cash flows before the first buy out that increases but remains below the industry-volatility adjusted median one year after the first buy-out. The difference for SBOs is positive and significant according to both t and Wilcoxon tests one year before the second buy-out suggesting that the improvement observed for the first buy-out continues up to the divestment. This increase in equity performance doesn't seem consistent under the second-round acquirer as both tests yield insignificant or very weakly significant results.

INSERT TABLE 3 HERE

The change in ratios measures, show consistent abnormal increase in profitability for LBO1. With the exception of absolute change in NI/E, all statistics show a highly significant increase in return on equity, with an abnormal percentage change of 117.54% for NI/E and 168.08% for CF/E and a sector-volatility adjusted percentage change of 49.08 and 159.04% respectively. In sharp contrast with the first round acquisition, there is no sign of increase in performance for SBOs.

These results are consistent with the view that buy-outs increase profitability but that most of the unexploited improvements are extracted by the initial buyer.

3.2   Return on Investment

Target companies show positive abnormal returns in all periods from one year before the first buy-out to one year after the second buy-out. Superior returns on operating activities compared with industry peers are statistically significant for both the

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[4]Consider the relation ROE=RNOA+(FD/EA)*(ROA-NBC), where ROE=NI/E as defined in section 2.2, RNOA=EBIT/EA as defined in section 2.2 and NBC is defined as Net Borrowing Costs. A positive increase in ROE can be driven, ceteris paribus, by an increase of RNOA or an increase in FD/EA, provided that RNOA>NBC.

EBITDA/EA and EBIT/EA measures. All measures exhibit a similar pattern: average abnormal return on investment has a leap in performance following the first LBO. In particular average abnormal return on operating assets, increases from 20.25% to 55.55% when using EBITDA/EA and from 18.49% to 49.46% when using EBIT/EA during the period pre-LBO1 to post-LBO1. Sector adjusted measures show that target companies were already highly profitable confirming a superior selectivity skill by PE investors. However, raw and sector adjusted abnormal operating performance measures strongly decrease during the second round buyout.

INSERT TABLE 4 HERE

The analysis of change in performance ratios is aligned with that of equity returns, showing a significant superior change in return on economic assets for the first round LBO only. This result is consistent with theoretical arguments and empirical evidence in Kaplan (1989a), Bull(1989), Guo (2009). Target companies experience statistically significant 76.40% and 79.37% abnormal increase performance as measured by EBITDA over EA and EBIT over EA respectively. Sector-volatility adjusted figures are similarly robust and large. Differently, and consistent with our conjectures, Secondary Buy-Outs do not show statistically significant abnormal changes in return on assets with the exception of negative changes in the absolute EBITDA/EA and EBIT/EA measures. However these difference are not significant under a Wilcoxon test, therefore we cannot reject the null hypothesis that PE investors in a SBO do not provide a meaningful incremental return on investments. This evidence is consistent with the view that buy-out transactions result in an one-off jump in operating performance due to the resolution of agency problems, improved governance, and increased operational efficiency, as predicted by Jensen (1986).

3.3   Operating Margins

Table 5 shows results for two alternative measures of operating margins performance. The absolute performance of both EBIT/S and EBITDA/S measures show that operating margins of target firms are higher than those of public comparable companies for the entire period of analysis.

INSERT TABLE 5 HERE

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After the first buy-out, PE-backed companies operating margins increase from 2.4% to 5.10% for the EBIT/S ratio and from 2.8% to 4.16% for the EBITDA/S ratio. Industry-volatility adjusted measures show that target companies were already outperforming industry peers and the PE-backing strengthen this characteristic. However, while under the first buyer the EBIT/S measure more than double and the EBITDA/S measure increases by more than 60% from 26.31 to 42.56%, under the secondary acquiror the incremental contribution is almost unnoticeable. In particular the EBIT/S measure increases from 38.32 to 39.74 and the EBITDA measure from 34.09 to 41.09%.

The very low differential effect of SBO investors on target companies is very well captured by the change measure. Looking at EBIT/S we document that all measures are not statistically different from those of the industry peers which is in sharp contrast with positive and significant estimates first-round investors. Similarly, the EBITDA/S measure provides insignificant results with the exception of the sector-volatility adjusted measure that is positive and significant.

These results have an important implication since they show that SBO investors do select well-performing companies, but cannot provide any incremental growth, as almost all the latent value has already been extracted by the first investor.

3.4   Turnover Ratio

The turnover analysis reported in Table 6 provide interesting insights on the effects of PE activity.   First round investors target companies that are largely effective in exploiting their assets base as measured by the large and statistically significant average and median differences with the industry. Adjusting for industry volatility, as commonly recommended to account for systematic industry characteristics, confirms the superior use of the assets by target companies. This evidence is consistent also during the second round acquisition. However, we can clearly observe a strongly significant decreasing pattern in this ratio and that the excess performance of target companies becomes small and weakly significant one year after the SBO.

<p style="text-align:center">INSERT TABLE 6 HERE</p>

Change in ratios measures need careful interpretation. On the one hand the absolute change is negative as expected from inspection of the absolute figures. On the other hand the percentage change, raw and industry-volatility adjusted, is positive and

significant for the first buy-out and positive but largely insignificant for the second buy-out. We argue that the this apparent contradiction captures two opposite effects of the PE intervention in the target company management. First, consistent with the need for cash determined by the acquisition debt, managers will abnormally squeeze out liquidity by reducing receivables and inventories, which determines an increase in the percentage change and industry-volatility adjusted change ratio. Second, as shown by Muscarella and Vetsuypens (1990), LBOs often determine a discrete adjustment of assets book value that would clearly reduce the assets turnover ratio. The aggregate picture is consistent with the conjecture that most of the incremental value from a leveraged transaction is extracted by the first buyer: First round investors, enter transaction that are fairly priced and accordingly they limitedly have to adjust book values. However they have room for optimizing the asset structure reducing working capital. Differently, second round investors, pay a much higher price which triggers larger adjustments in book values but have no or limited room for working capital improvements.

3.5   Capital Structure Ratio

In the previous section we showed that target companies performance doesn't improve significantly under a SBO acquirer. Absent any noticeable value creation, the surge in SBOs might be interpreted as the rationale response to increased availability of leverage financing. We begin testing this conjecture by running the set of capital structure tests reported in Table 7.

INSERT TABLE 7 HERE

Companies target of SBOs show a level of leverage slightly above that of their industry peers at LBO1-1 for every indicator used, confirming the anecdotal evidence that buy-outs targets have unexploited leverage slack. Average abnormal leverage significantly increases one year after the first buy-out: from 6.02% to 13.51% for FD/EA and from 71% to 275% for FD/EBITDA. As expected, debt strongly decreases from LBO1+1 to LBO2-1 consistent with a view of superior selectivity by PE-investors who select companies with above-average cash generation. Results for SBOs are less significant for the FD/EA ratios but provide a striking and significant evidence of very large increases in the level of leverage as a multiple of EBITDA. Since we have already shown that operating performance (as measured by EBITDA growth) is negligible, this

evidence suggests that SBOs are excessively stretching the acquisition capital structure with increasing levels of debt and decreasing levels of equity.

The analysis of abnormal changes in capital structure returns similar results. Looking at the FD/EA measure, we observe that leverage growth is positive and significant for first round LBOs but smaller than expected - although well above that of the industry peers - for SBOs. However, using the FD/EBITDA measure we obtain statistically significant evidence of a large change in sector-volatility adjusted leverage for secondary deals. For both LBOs and SBOs, results are less significant when tested by a signed-rank test because, despite data winsorizing, our sample distribution over time is skewed towards the end and an increasing number of SBO deals show increasing levels of leverage. Unreported yearly analysis is affected by a suboptimal number of observations but confirms this interpretation.

3.6 Liquidity

Targets of buy-outs do not show a liquidity level significantly above the average for comparable firms one year before the first buy-out. Surprisingly, liquidity then increases after the company's first buy-out, possibly due to increased operating performance. Given the very large change in the current ratio, an alternative interpretation is that one-off accounting changes may have taken place. This hypothesis finds some support in the different pattern exhibited by the CASH/CL ratio that decreases towards the end of the first LBO holding period, consistently with Jensen (1986) free cash flow theory. Looking at SBOs we notice a contraction of liquidity and a negative change in Cash holdings. Sector-volatility adjusted measures are not significant for the first buy-out but negative and Wilcoxon-significant for the second buy-out, suggesting a significant cash squeeze-out by SBO investors, arguably to service debt interests and principal repayments.

INSERT TABLE 8 HERE

The analysis of change in ratios provides mixed results. Target companies liquidity growth is aligned with previous analyses: In particular, we observe insignificant changes for the current ratio and negative and significant changes for the CASH/CL ratio for both families of buy-outs. However, when looking at absolute and industry-volatility adjusted percentage change measures, we obtain positive, and in some cases significant,

average changes. Results though are significant essentially only for t-tests and not for median tests. Additionally, z-values for the CASH/CL tests are all negative, which is aligned with previous results, suggesting the existence of few, largely positive outliers.

4   The Determinants of Secondary Buy-Outs

In the previous section we have shown that SBO target companies operating performance improves very limitedly under a second-round PE ownership. Differently, their debt level increases significantly and there is evidence of cash squeeze-out. These results cast doubts on the economic rationale underlying a secondary acquisition. In this section we investigate alternative explanations of the determinants of the recent surge in this class of deals. In particular we focus on micro level determinants, distinguishing between firm-specific and deal-specific, and macro level determinants, focusing on the aggregate LBO market development.

4.1   Firm-specific multiples

In this section we test whether an increasing pattern in industry multiples for the 111 target companies in our sample may determine a greater likelihood of exit through a SBO as opposed to alternative routes. We construct a matching-sample of peers identified by LBO target companies in the same 4-digit SIC code with comparable size, where the PE investor has not exited through a SBO or liquidation. For both groups, following Lehn and Poulsen (1983), we calculate three indicators that we use as explanatory variables in a logit model. To overcome the methodological problems identified in Kieschnick (1998) we use industry averages and medians as comparables. In particular, we estimate:

- INDGROWTH1 : the industry median EV /EBITDA multiple percentage change in the year preceding the secondary buy-out (LBO2-1).

- INDGROWTH2 : the industry median EV/EBITDA multiple percentage change two years before the secondary buy-out (LBO2-2).

- AVGINDGROWTH: the industry average EV/EBITDA multiple percentage change in the two years preceding the secondary buy-out.

The results for the mean differences analysis are reported in Table 9. Buy-outs that are exited through a SBO occurred in industries that experienced higher growth in EV/EBITDA in the year before the secondary buy-out. Average multiple growth is 24.82% for SBO firms compared to -1.84% for control transactions that were exited through other routes. The mean difference is statistically significant at the 5% level. Average growth in the two years preceding the SBO transaction provides a similar indication. In contrast, industries of control buy-outs show a higher multiple growth two years before the SBO: an average 9.00% multiple growth compared with a 7.05% for sample transactions. However, the difference is not statistically significant.

INSERT TABLE 9 HERE

Table 10 shows the result for the logit models. In each model the dependent variable is 1 for sample firms, which have been divested through a secondary buy-out, and 0 for control transactions sold through other routes. Column 1 reports results for the complete sample. Logit coefficient estimates are significant at the 1% level and consistent with the mean differences analysis, showing that SBO targets operate in industries with high multiple growth in the years preceding the secondary buy-out. Results reveal a surprisingly strong sensitivity of exit decisions to market conditions: when market multiples increase by one unit, PE investors are approximately twice[5] more likely to select a SBO as the exit route. Results are significant at the 1% level when measuring both industry multiple expansion one year before the SBO and average industry multiple growth.

INSERT TABLE 10

Data reported in Figure 1 show that SBO activity has exploded after 2005. In Column 2 and 3 of Table 10 we report estimates obtained by partitioning the sample into two sub-periods: before and after 2006. Interestingly, we notice that most of our results are driven by the last two years of activity in the buy-out market. Results for the 2003-2005 period do not allow to reject the null hypothesis of no impact.

These results suggest that SBO transactions may be a rational response to relative mispricing in debt and equity markets that allow to increase the portfolio returns. Signals of mispricing can be an increasing debt supply, decreasing equity contribution

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[5]In particular, the odds increase 1.87 times for one unit increase in the median industry multiple the year before the exit, and 2.23 times following a one unit increase in the two-years average multiple.

allowed by debt providers, and decreasing cost of financing. In such a case, PE investors could find optimal to invest in companies with limited or no growth but significant cash flow-generation since borrowing at abnormally low risk-adjusted rates in sectors experiencing temporary overheating, as measured by sustained multiple growth, allow for a quick and less risky capital allocation. In this environment, investors will increasingly steer away from first-round LBOs as "flipping" of companies through SBOs provide a much quicker and profitable, short term source of returns.

4.2 Deal-specific characteristics

To further validate our previous intuitions, in this section we look at deal-level characteristics of all LBOs in our original sample of 3,811 transactions divested through a SBO or a Trade Sale (TS), for which we have information on at least one of the following items: revenue, EBIT, or EBITDA transaction multiple, total absolute deal consideration, total debt funding, months held in the portfolio of the initial PE buyer. We then run a battery of logit regression where our dependent variable takes value of 1 for SBO divestitures and 0 otherwise.

INSERT TABLE 11 HERE

Results reported in Table 11 support our previous findings and provide interesting additional evidence Univariate regressions show a positive but not significant EBITDA multiple and negative parameters for the revenue and EBIT multiples; Deal value is positively related with the likelihood of exiting through a SBO, providing additional support to a flipping interpretation of SBOs, since deal value increases more quickly in Sponsor-to-Sponsor transactions than in other type of deals; Total debt funding doesn't seem to be a crucial factor while the duration of the holding period is positive and significant suggesting that the longer the company is held and the more likely it is that exit will be through a SBO. Finally equity contribution estimated parameter is negative as expected but not significant More interesting results come from the multivariate analysis: Model 8 simultaneously tests the price-related explanatory variables. The EBIT and revenue multiples are negative as in univariate tests, but only the EBIT multiple is significant. Differently the EBITDA and Deal Multiple are positive and strongly significant. In the PE industry EBITDA multiples are commonly looked at as measures of the cash-flow sustainability of a deal, while revenue (and to a lesser extent

EBIT) multiples are considered more as measures of long-term prospects of the company. These results seem to provide support to the previous conjecture that investors in SBO are strongly focused on deals that offer immediate cash-flow exploitation opportunities rather than longer-term growth goals. This interpretation is supported by the confirmation of the positive and significant sign for the deal value parameter. In Models 9 and 10 the joint testing of all variables provide strong support to our conclusions, despite a sharp reduction in the number of deals for which we could gather information on all items. Multiples' sign and significance is again positive for EBITDA, positive although not significant[6] for the Deal Value, and negative and significant for all other multiples. Very interestingly, the investment duration parameter turns negative and significant indicating a decrease in duration of holding periods by PE investors. Total debt funding is negative but not significant. These results further hint at a flipping motivation for SBO deals: investors started looking at cash generating companies that, even though they had very limited growth potential, could afford sustained levels of debt. By quickly rotating their investment portfolios, PE companies could achieve (and largely beat) their return targets, thus allowing them increased chances for successful exits and incremental fundraising.

4.3   Market conditions

Our deal-level data unfortunately lack details on debt characteristics such as spreads and securities breakdown and have limited (and admittedly limitedly reliable) information on relative debt and equity contribution. In this section we try to further test the previous intuition on flipping as a driver of SBO activity, by looking at market level data on the LBO industry. We gather industry-wide yearly information on the following items: the fraction of SBO to LBO, the average equity contribution, the average EV/EBITDA multiple, the total amount of debt funding, and the average pro-rata and institutional spread[7]. We then run a set of Tobit regressions where the dependant variable is the value-weighted fraction of SBO deals over all LBOs.

INSERT TABLE 12 HERE

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[6]But the p-value was just out of the 10% significance region at 0.101.

[7]Pro-Rata Debt Spread is the average spread over LIBOR for revolving credits and Term A loans sold to commercial banks; Institutional Debt Spread is the average spread over LIBOR for Term B, C, and D loans sold to institutional loan investors.

Results reported in Table 12 are strongly aligned with our previous figures: uni-variate regressions show that when the cost of a LBO deal measured by debt spread and equity contribution, decreases, SBOs become much more likely. In line with our previous data, the EBITDA-multiple is positive and strongly significant. Total debt tendered to the LBO industry is positively correlated with the increase in SBOs in univariate analysis but the coefficient turns negative in multivariate analysis. This counter-intuitive result is possibly driven by the fact that total debt is also positively (and very strongly) correlated with LBO growth in general as shown by Shivdasani and Wang (2009).

These results provide generous support to a flipping interpretation of SBOs: fuelled by increased debt availability at decreased costs, PE investors have increasingly resorted to the secondary market to generate returns for their investment portfolios and increase fundraising. Strikingly, the increasing hype in the market has fostered additional growth of such deals targeting companies that had very strong cash flow generation character-istics but very limited growth potential. A related question is whether this situation was accounted for by PE investors and, more importantly, by debt providers. In fact it should be reasonable to expect that increased deal multiples and debt levels determine an increase in the riskiness of deals, in particular from the lenders' perspective. Apparently though, this increased risk has been largely unaccounted for by debt providers who relentlessly supplied debt at increasingly cheap prices.

5   Conclusions

The recent spectacular growth in secondary buy-out transactions has attracted attention from both academics (Wright et al., 2009) and practitioners[8] because of the limited understanding of the economic determinants of these deals. Existing theories on Leverage Buy-outs identify three main factors that motivate the acquisition of a company by a PE investor: i) increasing the operating performance through agency costs reduction and operational engineering (Jensen, 1986; Kaplan, 1989a; Kaplan and Stromberg, 2009); ii) Mispricing in the debt and equity markets (Phalippou and Zollo, 2005; Kaplan and Stromberg, 2009, Guo et al., 2009); iii) Value transfers from employees and the government (Kaplan, 1989b; Davis et al. 2008; Kaplan and Stromberg, 2009). However, it is unclear which of these theories (if any) can explain secondary transactions.

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[8]See: "A Troubling Sign for Secondary Private-Equity Buyouts?", The Wall Street Journal 3/6/2009; "Circular Logic", The Economist, 2/27/2010.

In this paper we address this question, shedding light on the effects on operating performance by SBO investors and on the determinants of SBO activity.

We collect a sample of 3,811 European LBO transactions between 1998-2008 from Mergermarket and S&P LCD that have been divested either through a SBO or a trade sale, and for which we have information on at least one of the following deal-level items:revenue, EBIT, or EBITDA transaction multiple, total absolute deal consideration, total debt funding, months held in the portfolio of the initial PE buyer. From this initial sample we extract 111 SBO transactions for which we have full financial and accounting data from one year before the first buy-out to one year after the second buy-out. Our results show that companies target of multiple buy-outs experience abnormal improvements in operating performance as a result of the first acquisition, but do not exhibit signs of incremental changes in performance during the secondary transaction. In particular, first-round acquisitions result in a steep, one-off increase in Returns on Equity, Return on Investments and Operating Margins that is largely absent for secondary transactions out. Differently, SBO transactions figures for Asset turnover and Liquidity ratios indicate a significant squeeze-out of target companies to serve the abnormally high debt levels recorded by their capital structure ratios. Since we cannot find evidence of unexploited value that could motivate secondary transactions, we analyze the full sample of 3,811 transactions to investigate whether mispricing in the debt and equity markets can explain the steep growth in this class of deals. Our results show that the likelihood of exiting transactions through a SBO increases quickly in response to upward movements in transaction multiples. However, we also find that SBO deals are characterized by shorter holding periods and are highly sensitive to improvements in the debt market as measured by the narrowing of debt spreads and required equity contributions. The implications of these results are twofold: on the one hand we provide support to a standard mispricing hypothesis; on the other, we provide evidence that market conditions have created a strong incentive to "flip" investments between PE funds to generate returns and increase fund-raising volumes.

One puzzle is implied in our results: Since transactions completed at higher multiples, increased levels of debt and lower spreads are clearly more risky, as shown by increased levels of defaults of companies and CLOs[9], it is unclear what motivated debt providers in entering and fuelling this family of deals. We aim at answering this question in future research.

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[9]As measured by the current level of the S&P/LSTA Leveraged Loan Index and the number of projected corporate defaults in the next three years by S&P LCD.

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Figure 1

SBO Market Data

This figure summarizes global Secondary Buy-Out data from 2002 to end of 2007. Secondary Buy-Outs are leveraged buy-outs where both the buyer and the seller are private equity firms. The left Axis reports figures for Total SBO activity by Volume, Total amount of Loans, and Total amount of Loans by Insitutional Investors. The right Axis reports figures for The Average Equity contribution, The Average Acquisition Debt Spread and the Average Acquisition Multiple. All figures are indexed on 2002 data. 2002 base value is 10.
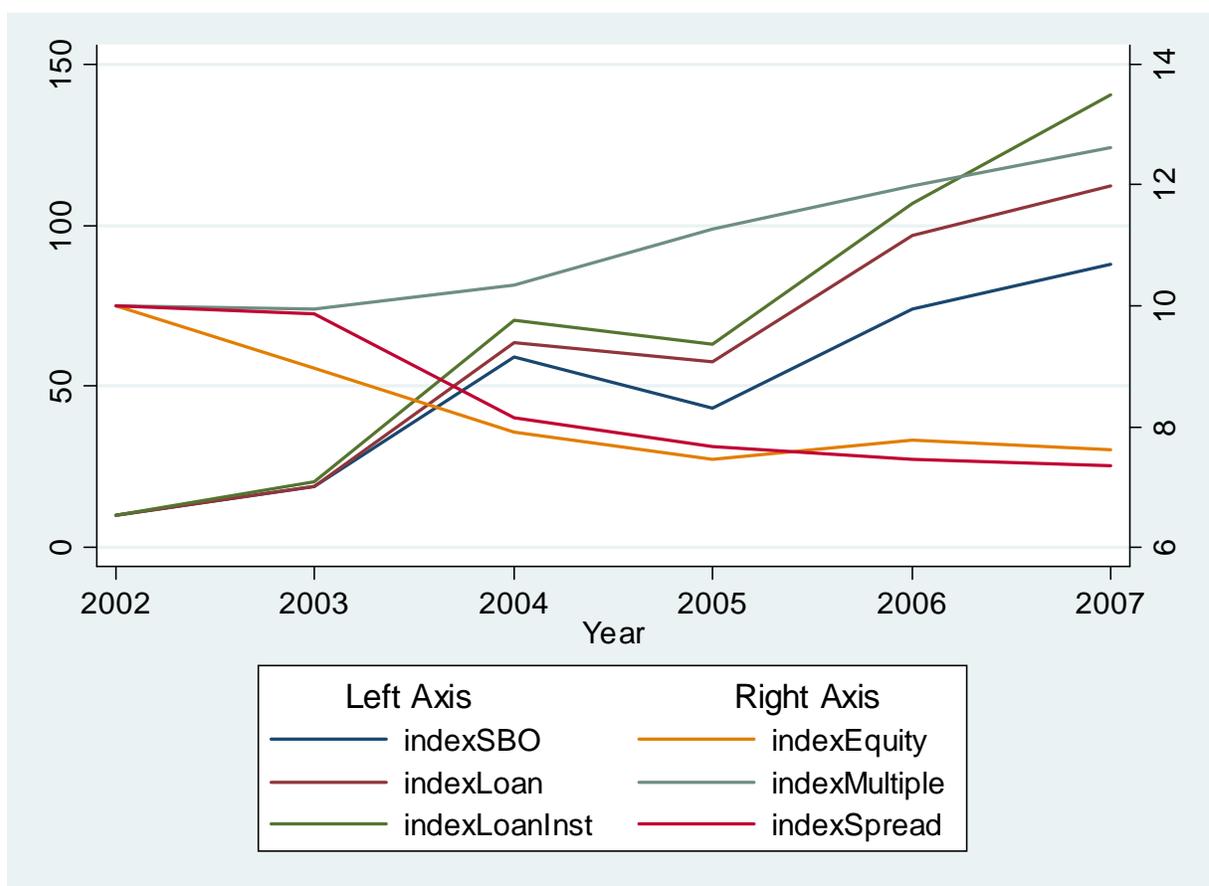
Table 1

Full sample summary statistics

This table provides summary statistics for the full sample of 3,811 LBO from 1998 to 2008 tracked by Mergermarket. Revenue, EBIT, and EBITDA multiples report the transaction value as a multiple of the last available figure for sales, EBIT and EBITDA, respectively; Deal value is the disclosed value of the transaction in million of dollars; Total debt funding is the disclosed value of the transaction in million of dollars; Months held is the calculated holding period from initial purchase to divestment. Difference in means and medians significance between the "SBO" and "Other exits" groups is estimated by a standard t-test for equality of means and a non parametric K-sample test for equality of medians. Significance at the 1%, 5% and 10% level is denoted by ***,** and * respectively.

	SBO				Other exits				Total			
	Mean	St. Dev	Median	Obs.	Mean	St. Dev	Median	Obs.	Mean	St. Dev	Median	Obs.
Number of deals				1,450				2,361				3,811
Revenue Multiple	3.79*	(19.38)	1.17***	745	40.50	(657.85)	1.51	1081	25.52	(506.54)	1.37	1826
EBIT Multiple	189.47	(2,583.24)	14.28	400	205.44	(1,937.32)	14.06	536	198.62	(2,235.02)	14.12	936
EBITDA Multiple	62.94**	(514.17)	9.71***	426	23.26	(64.21)	10.68	577	40.11	(338.95)	10.26	1003
Deal Value	429.21***	(730.18)	164***	989	245.60	(527.61)	80.50	1664	314.04	(617.32)	103.00	2653
Total Debt Funding	518.06	(889.20)	263.81	244	397.01	(405.43)	202.08	12	512.38	(872.48)	258.99	256
Months Held	43.21***	(20.99)	38.5***	644	38.73	(21.66)	35.00	741	40.81	(21.46)	37.00	1385

Table 2

SBO sample summary statistics

This table provides summary statistics for the sub-sample of 111 companies incorporated in Western Europe, target to a first and a second, back-to-back buy-out, for which we could collect a full set of financial statements from one year before the first LBO to one year after the second LBO. Panel A reports Revenue, EBIT, and EBITDA multiples report the transaction value as a multiple of the last available figure for sales, EBIT and EBITDA, respectively; Deal value is the disclosed value of the transaction in million of dollars; Total debt funding is the disclosed value of the transaction in million of dollars; Months held is the calculated holding period from initial purchase to divestment. Panel B reports financial information from Amadeus for the year before the first buy-out.

PANEL A

	Mean	St. Dev	Median	Obs.
Revenue Multiple	1.78	(1.13)	1.54	84
EBIT Multiple	17.80	(13.59)	13.85	56
EBITDA Multiple	11.88	(5.93)	11.13	54
Deal Value	557.76	(689.31)	227.00	92
Total Debt Funding	408.64	(305.35)	393.74	31
Months Held	41.54	(18.42)	38.00	76

PANEL B

	Mean	Sta. Dev	Median	Obs.
Total assets	133.12	(267.44)	41.41	111
Operating Revenue	129.93	(227.20)	56.01	111
P/L after tax	10.38	(29.95)	3.1	111
Cash flow	3.01	(104.48)	3.67	111
EBIT	9.14	(18.20)	4.05	111
EBITDA	14.58	(24.12)	6.6	111
Loans	18.41	(66.74)	2.74	111
Financial Debt	61.69	(153.97)	12.36	111

Table 3
Return on Equity

This table reports results of the target companies level measures of operating performance measured by Net Income over Equity and Cash Flow over Equity in four different periods: LBO1-1 indicates one year before the first buyout; LBO+1 indicates one year after the first buyout; LBO2-1 indicates one year before the second buyout; LBO2+1 indicates one year after the second buyout. Panel A reports results for absolute changes where: Abnormal Performance is the difference between the performance indicator of each company minus the industry median, as in Barber and Lyon (1996), and Sector Adjusted is the difference between the performance indicator of each company minus the industry median, divided by the industry median standard, calculated as in Desbieres and Schatt (2002) substituting industry means with medians. Panel B reports results for Performance changes metrics where: Abnormal Absolute Change is the difference between the change in absolute Abnormal Performance minus the change in the industry median; Abnormal %Change is the difference between the percentage change in absolute Abnormal Performance minus the percentage change in the industry median; Sector-volatility Adjusted % Change is the difference between the performance indicator percentage change minus the industry median performance indicator percentage change, divided by the industry performance indicator's standard deviation, calculated as in Desbieres and Schatt (2002) substituting industry means with medians. Statistical significance is calculated through a standard t-test (t) and a non-parametric Wilcoxon signed-rank test (Z). Significance at the 1%, 5%, and 10% level is denoted by ***,**, and * respectively.

PANEL A - ABSOLUTE CHANGES

	NI/E				CF/E			
Abnormal Performance	LBO1-1	LBO1+1	LBO2-1	LBO2+1	LBO1-1	LBO1+1	LBO2-1	LBO2+1
Sample Size	107	107	107	110	90	105	104	104
Y (mean)	17.38%	21.84%	25.94%	23.87%	52.57%	36.91%	54.36%	43.13%
t	4.77***	5.59***	2.36***	5.27***	1.42*	2.36**	2.98***	3.94***
Z	5.35***	6.32***	5.84***	5.78***	0.94	2.46**	3.89***	3.31***
Sector-volatility adjusted	LBO1-1	LBO1+1	LBO2-1	LBO2+1	LBO1-1	LBO1+1	LBO2-1	LBO2+1
Sample Size	107	107	107	110	88	101	100	102
W (mean)	61.50%	75.51%	113.56%	96.62%	-54.50%	-28.49%	92.80%	160.04%
t	4.25***	4.55***	2.51***	4.11***	-0.52	-0.93	2.07**	2.10**
Z	5.29***	5.84***	5.31***	5.41***	-2.60***	-0.91	1.75*	1.22

PANEL B - CHANGES IN RATIOS

	NI/E		CF/E	
Abnormal Absolute Change	LBO1 (-1;+1)	LBO2 (-1;+1)	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	103	105	90	102
DY (mean)	1.11%	-2.72%	-8.50%	2.79%
t	0.23	-0.25	-0.21	0.11
Z	1.65*	0.05	2.18**	0.22
Abnormal % Change	LBO1 (-1;+1)	LBO2 (-1;+1)	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	90	93	55	88
D%Y (mean)	117.54%	11.42%	168.08%	70.65%
t	1.42*	0.80	2.74***	1.64*
Z	3.65***	0.70	1.78*	0.71
Sector-volatility adjusted % Change	LBO1 (-1;+1)	LBO2 (-1;+1)	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	92	93	56	88
D%W (mean)	49.08%	-1.29%	159.04%	36.52%
t	2.14**	-0.17	2.18**	0.77
Z	3.51***	0.14	2.01**	0.70

Table 4

Return on Investment

This table reports results of the target companies return on investments measured by EBITDA over Assets and EBIT over Assets in four different periods: LBO1-1 indicates one year before the first buyout; LBO+1 indicates one year after the first buyout; LBO2-1 indicates one year before the second buyout; LBO2+1 indicates one year after the second buyout. Panel A reports results for absolute changes where: Abnormal Performance is the difference between the performance indicator of each company minus the industry median, as in Barber and Lyon (1996), and Sector Adjusted is the difference between the performance indicator of each company minus the industry median, divided by the industry median standard, calculated as in Desbieres and Schatt (2002) substituting industry means with medians. Panel B reports results for Performance changes metrics where: Abnormal Absolute Change is the difference between the change in absolute Abnormal Performance minus the change in the industry median; Abnormal %Change is the difference between the percentage change in absolute Abnormal Performance minus the percentage change in the industry median; Sector-volatility Adjusted % Change is the difference between the performance indicator percentage change minus the industry median performance indicator percentage change, divided by the industry performance indicator's standard deviation, calculated as in Desbieres and Schatt (2002) substituting industry means with medians. Statistical significance is calculated through a standard t-test (t) and a non-parametric Wilcoxon signed-rank test (Z). Significance at the 1%, 5%, and 10% level is denoted by ***,**, and * respectively.

PANEL A - ABSOLUTE CHANGES

	EBITDA/EA				EBIT/EA			
Abnormal Performance	LBO1-1	LBO1+1	LBO2-1	LBO2+1	LBO1-1	LBO1+1	LBO2-1	LBO2+1
Sample Size	101	104	104	102	103	105	105	105
Y (mean)	20.25%	55.55%	58.66%	17.17%	18.49%	49.46%	52.27%	16.11%
t	4.40***	1.63*	1.72**	5.02***	4.01***	1.69**	1.78*	5.19***
Z	4.35***	5.59***	5.69***	4.55***	4.40***	6.09***	5.65***	4.94***
Sector-volatility adjusted	LBO1-1	LBO1+1	LBO2-1	LBO2+1	LBO1-1	LBO1+1	LBO2-1	LBO2+1
Sample Size	101	104	104	102	103	105	105	105
W (mean)	53.53%	70.91%	68.41%	50.25%	148.42%	223.94%	231.00%	175.16%
t	2.75***	4.39***	4.12***	3.03***	4.35***	5.48***	4.68***	5.07***
Z	3.00***	4.36***	3.96***	3.37***	5.13***	6.72***	6.21***	5.89***

PANEL B - CHANGES IN RATIOS

	EBITDA/EA		EBIT/EA	
Abnormal Absolute Change	LBO1 (-1;+1)	LBO2 (-1;+1)	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	101	102	103	104
DY (mean)	5.26%	-4.09%	5.71%	-3.38%
t	1.99**	-1.87**	2.20**	-1.67**
Z	1.66*	-1.45	2.05**	-1.36
Abnormal % Change	LBO1 (-1;+1)	LBO2 (-1;+1)	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	98	102	98	101
D%Y (mean)	76.40%	18.07%	79.37%	10.84%
t	3.47***	1.71**	3.57***	0.29
Z	3.22***	0.22	3.02***	-0.98
Sector-volatility adjusted % Change	LBO1 (-1;+1)	LBO2 (-1;+1)	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	98	101	97	101
D%W (mean)	64.29%	-4.31%	46.63%	13.18%
t	3.00***	-0.35	2.48***	0.92
Z	2.95***	-0.44	2.44**	-0.53

Table 5
Operating margins

This table reports results of the target companies operating margins measured by EBITDA over Sales and EBIT over Sales in four different periods: LBO1-1 indicates one year before the first buyout; LBO+1 indicates one year after the first buyout; LBO2-1 indicates one year before the second buyout; LBO2+1 indicates one year after the second buyout. Panel A reports results for absolute changes where: Abnormal Performance is the difference between the performance indicator of each company minus the industry median, as in Barber and Lyon (1996), and Sector Adjusted is the difference between the performance indicator of each company minus the industry median, divided by the industry median standard, calculated as in Desbieres and Schatt (2002) substituting industry means with medians. Panel B reports results for Performance changes metrics where: Abnormal Absolute Change is the difference between the change in absolute Abnormal Performance minus the change in the industry median; Abnormal %Change is the difference between the percentage change in absolute Abnormal Performance minus the percentage change in the industry median; Sector-volatility Adjusted % Change is the difference between the performance indicator percentage change minus the industry median performance indicator percentage change, divided by the industry performance indicator's standard deviation, calculated as in Desbieres and Schatt (2002) substituting industry means with medians. Statistical significance is calculated through a standard t-test (t) and a non-parametric Wilcoxon signed-rank test (Z). Significance at the 1%, 5%, and 10% level is denoted by ***,**, and * respectively.

PANEL A - ABSOLUTE CHANGES

	EBIT/S				EBITDA/S			
Abnormal Performance	LBO1-1	LBO1+1	LBO2-1	LBO2+1	LBO1-1	LBO1+1	LBO2-1	LBO2+1
Sample Size	111	111	111	111	110	110	110	108
Y (mean)	2.40%	5.10%	4.11%	3.77%	2.80%	4.16%	2.62%	3.76%
t	1.73**	5.29***	3.85***	3.20***	1.71**	4.07***	1.86**	3.01***
Z	2.93***	4.89***	4.55***	3.83***	2.67***	3.96***	1.54	3.94***
Sector-volatility adjusted	LBO1-1	LBO1+1	LBO2-1	LBO2+1	LBO1-1	LBO1+1	LBO2-1	LBO2+1
Sample Size	111	111	111	111	110	110	110	108
W (mean)	22.93%	45.18%	38.32%	39.74%	26.31%	42.56%	34.09%	41.09%
t	1.46*	3.81***	2.81***	3.00***	1.47*	4.27***	2.79***	3.09***
Z	2.75***	4.65***	4.08***	3.88***	2.57***	4.07***	3.99***	3.88***

PANEL B - CHANGES IN RATIOS

	EBIT/S		EBITDA/S	
Abnormal Absolute Change	LBO1 (-1;+1)	LBO2 (-1;+1)	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	110	110	110	109
DY (mean)	2.70%	-0.34%	1.36%	0.23%
t	2.29**	-0.34	1.03	0.24
Z	2.86***	-1.00	1.64*	0.52
Abnormal % Change	LBO1 (-1;+1)	LBO2 (-1;+1)	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	99	101	104	104
D%Y (mean)	41.39%	127.72%	27.89%	17.54%
t	3.72***	1.05	2.75***	1.30
Z	3.46***	0.39	2.63***	2.62***
Sector-volatility adjusted % Change	LBO1 (-1;+1)	LBO2 (-1;+1)	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	99	102	105	102
D%W (mean)	29.16%	11.71%	22.20%	20.03%
t	2.65***	1.38*	2.73***	2.38***
Z	3.14***	1.10	2.53**	3.12***

Table 6

Turnover

This table reports results of the target companies Turnover measured by Sales over Assets in four different periods: LBO1-1 indicates one year before the first buyout; LBO+1 indicates one year after the first buyout; LBO2-1 indicates one year before the second buyout; LBO2+1 indicates one year after the second buyout. Panel A reports results for absolute changes where: Abnormal Performance is the difference between the performance indicator of each company minus the industry median, as in Barber and Lyon (1996), and Sector Adjusted is the difference between the performance indicator of each company minus the industry median, divided by the industry median standard, calculated as in Desbieres and Schatt (2002) substituting industry means with medians. Panel B reports results for Performance changes metrics where: Abnormal Absolute Change is the difference between the change in absolute Abnormal Performance minus the change in the industry median; Abnormal %Change is the difference between the percentage change in absolute Abnormal Performance minus the percentage change in the industry median; Sector-volatility Adjusted % Change is the difference between the performance indicator percentage change minus the industry median performance indicator percentage change, divided by the industry performance indicator's standard deviation, calculated as in Desbieres and Schatt (2002) substituting industry means with medians. Statistical significance is calculated through a standard t-test (t) and a non-parametric Wilcoxon signed-rank test (Z). Significance at the 1%, 5%, and 10% level is denoted by ***,**, and * respectively.

PANEL A - ABSOLUTE CHANGES

	SALES/EA			
Abnormal Performance	LBO1-1	LBO1+1	LBO2-1	LBO2+1
Sample Size	102	104	103	104
Y (mean)	150.40%	136.68%	129.58%	95.74%
t	3.66***	3.92***	3.31***	3.40***
Z	2.54**	3.18***	2.48**	2.45**
Sector-volatility adjusted	LBO1-1	LBO1+1	LBO2-1	LBO2+1
Sample Size	104	106	106	105
W (mean)	64.66%	60.39%	45.84%	24.96%
t	2.21**	2.87***	2.44***	1.63*
Z	1.01	2.25**	1.48	1.75*

PANEL B - CHANGES IN RATIOS

	SALES/EA	
Abnormal Absolute Change	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	106	108
DY (mean)	-29.07%	-39.29%
t	-1.04	-2.15***
Z	0.61	-1.05
Abnormal % Change	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	107	108
D%Y (mean)	29.50%	18.40%
t	2.35***	1.52*
Z	1.77*	-0.68
Sector-volatility adjusted % Change	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	106	106
D%W (mean)	49.00%	18.61%
t	2.26**	0.83
Z	1.47	-0.85

Table 7

Capital Structure

This table reports results of the target companies capital structure measured by Financial Debt over Total Assets and the financial multiple measured by Financial Debt over EBITDA, in four different periods: LBO1-1 indicates one year before the first buyout; LBO+1 indicates one year after the first buyout; LBO2-1 indicates one year before the second buyout; LBO2+1 indicates one year after the second buyout. Panel A reports results for absolute changes where: Abnormal Performance is the difference between the indicator of each company minus the industry median, as in Barber and Lyon (1996), and Sector Adjusted is the difference between the indicator of each company minus the industry median, divided by the industry median standard, calculated as in Desbieres and Schatt (2002) substituting industry means with medians. Panel B reports results for Performance changes metrics where: Abnormal Absolute Change is the difference between the change in absolute Abnormal Performance minus the change in the industry median; Abnormal %Change is the difference between the percentage change in absolute Abnormal Performance minus the percentage change in the industry median; SSector-volatility Adjusted % Change is the difference between the performance indicator percentage change minus the industry median performance indicator percentage change, divided by the industry performance indicator's standard deviation, calculated as in Desbieres and Schatt (2002) substituting industry means with medians. Statistical significance is calculated through a standard t-test (t) and a non-parametric Wilcoxon signed-rank test (Z). Significance at the 1%, 5%, and 10% level is denoted by ***,**, and * respectively.

PANEL A - ABSOLUTE CHANGES

Abnormal Performance	FD/EA				FD/EBITDA			
	LBO1-1	LBO1+1	LBO2-1	LBO2+1	LBO1-1	LBO1+1	LBO2-1	LBO2+1
Sample Size	103	105	104	105	107	106	105	105
Y (mean)	6.02%	13.51%	8.14%	7.46%	71.20%	275.39%	37.56%	266.61%
t	1.61*	1.59*	1.81**	2.25**	1.72**	2.41***	0.4	2.20**
Z	0.85	1.34	1.21	2.18**	0.63	1.08	0.37	1.67*
Sector-volatility adjusted	LBO1-1	LBO1+1	LBO2-1	LBO2+1	LBO1-1	LBO1+1	LBO2-1	LBO2+1
Sample Size	104	106	105	105	107	106	105	105
W (mean)	11.17%	34.06%	14.74%	17.33%	32.30%	89.13%	48.51%	343.72%
t	0.72	1.36*	0.89	1.07	1.89**	2.92***	1.29*	1.36*
Z	0.17	0.45	0.42	1.46	0.90	1.07	0.39	1.73*

PANEL B - CHANGES IN RATIOS

Abnormal Absolute Change	FD/EA		FD/EBITDA	
	LBO1 (-1;+1)	LBO2 (-1;+1)	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	104	104	106	103
DY (mean)	-8.20%	-10.16%	193.51%	230.22%
t	-1.75**	-2.03**	1.84**	1.18
Z	-0.49	-1.37	0.59	-0.03
Abnormal % Change	LBO1 (-1;+1)	LBO2 (-1;+1)	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	80	77	76	74
D%Y (mean)	42.30%	32.53%	113.27%	166.77%
t	1.85**	1.67**	2.11**	2.16**
Z	-0.05	-0.33	0.98	0.67
Sector-volatility adjusted % Change	LBO1 (-1;+1)	LBO2 (-1;+1)	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	79	74	75	70
D%W (mean)	21.32%	33.46%	63.52%	83.77%
t	0.64	1.43*	1.63*	2.02**
Z	-0.44	0.17	0.12	0.54

Table 8

Liquidity

This table reports results of the target companies liquidity measured by Current Assets over Current Liabilities and Cash and Cash Equivalents over Current Liabilities, in four different periods: LBO1-1 indicates one year before the first buyout; LBO+1 indicates one year after the first buyout; LBO2-1 indicates one year before the second buyout; LBO2+1 indicates one year after the second buyout. Panel A reports results for absolute changes where: Abnormal Performance is the difference between the indicator of each company minus the industry median, as in Barber and Lyon (1996), and Sector Adjusted is the difference between the indicator of each company minus the industry median, divided by the industry median standard, calculated as in Desbieres and Schatt (2002) substituting industry means with medians. Panel B reports results for Performance changes metrics where: Abnormal Absolute Change is the difference between the change in absolute Abnormal Performance minus the change in the industry median; Abnormal %Change is the difference between the percentage change in absolute Abnormal Performance minus the percentage change in the industry median; Sector-volatility Adjusted % Change is the difference between the performance indicator percentage change minus the industry median performance indicator percentage change, divided by the industry performance indicator's standard deviation, calculated as in Desbieres and Schatt (2002) substituting industry means with medians. Statistical significance is calculated through a standard t-test (t) and a non-parametric Wilcoxon signed-rank test (Z). Significance at the 1%, 5%, and 10% level is denoted by ***,**, and * respectively.

PANEL A - ABSOLUTE CHANGES

	CA/CL				CASH/CL			
Abnormal Performance	LBO1-1	LBO1+1	LBO2-1	LBO2+1	LBO1-1	LBO1+1	LBO2-1	LBO2+1
Sample Size	110	108	108	109	109	105	105	108
Y (mean)	3.84%	32.26%	23.31%	16.95%	5.30%	-3.17%	-3.86%	-6.74%
t	0.29	1.75**	1.67**	1.34*	1.22	-0.79	-0.76	-1.61*
Z	-1.16	-0.07	0.39	0.15	-0.29	-1.91*	-2.76***	-2.80***
Sector-volatility adjusted	LBO1-1	LBO1+1	LBO2-1	LBO2+1	LBO1-1	LBO1+1	LBO2-1	LBO2+1
Sample Size	110	108	108	109	109	105	105	108
W (mean)	2.16%	22.62%	9.21%	13.38%	10.86%	-0.68	-2.94%	-7.39%
t	0.18	1.21	0.79	1.01	1.45*	-0.10	-0.35	-1.23
Z	-1.09	-0.01	0.02	0.11	-0.31	-1.49	-2.55**	-2.60***

PANEL B - CHANGES IN RATIOS

	CA/CL		CASH/CL	
Abnormal Absolute Change	LBO1 (-1;+1)	LBO2 (-1;+1)	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	108	108	106	105
DY (mean)	10.14%	-6.81%	-13.28%	-9.87%
t	0.58	-0.81	-2.42***	-2.00**
Z	-0.37	-0.60	-1.91**	-0.63
Abnormal % Change	LBO1 (-1;+1)	LBO2 (-1;+1)	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	105	106	96	102
D%Y (mean)	109.60%	24.65%	85.11%	12.62%
t	1.48*	2.24**	2.32**	1.11
Z	1.78*	1.53	-0.23	-0.78
Sector-volatility adjusted % Change	LBO1 (-1;+1)	LBO2 (-1;+1)	LBO1 (-1;+1)	LBO2 (-1;+1)
Sample Size	103	105	98	103
D%W (mean)	65.75%	41.29%	58.46%	16.65%
t	2.93***	2.20**	2.44***	1.90**
Z	1.91*	1.58	-0.15	-0.46

Table 9

Multiples growth: difference analysis by exit strategy

This table reports multiples changes for companies exited through a Secondary Buy-Out peers identified by LBO target companies where the PE investor has not exited through through a SBO or liquidation, matched by by size and industry. For both the sample and control group we calculate four indicators that we use as explanatory variables in a logit model. In particular, INDGROWTH1 captures the industry median EV /EBITDA multiple percentage change in the year preceding the secondary buy-out (LBO2-1); INDGROWTH2 captures the industry median EV/EBITDA multiple percentage change two years before the secondary buy-out (LBO2-2); AVGINDGROWTH the industry average EV/EBITDA multiple percentage change in the two years preceding the secondary buy-out; COD measures the cost of leverage loans measured by spread in basis points over the reference rate (LIBOR). Difference significance at the 1%, 5% and 10% level is denoted by ***,** and * respectively.

	SBO	Other exit	Difference
INDGROWTH1	24.82%	-1.84%	26.66%**
INDGROWTH2	7.05%	9.00%	-1.95%
AVGINDGROWTH	15.94%	7.72%	8.22%**
N	103	103	

Table 10

Firm Level Logit Regressions

This table presents results for a set of logistic regressions capturing the propensity of a portfolio company to be divested through a Secondary Buy-Out. SBO companies are the 111 firms for which we had full financial and accounting data. Peers are identified by LBO target companies in the same 4-digit SIC code, not divested through a SBO or liquidation. In each model the dependent variable is 1 for sample firms, indicating exit through secondary buy-out and 0 for control transactions, indicating exit through other routes. Independent variables are defined as follows: INDGROWTH1 captures the industry median EV /EBITDA multiple percentage change in the year preceding the secondary buy-out (LBO2-1); INDGROWTH2 captures the industry median EV/EBITDA multiple percentage change two years before the secondary buy-out (LBO2-2); AVGINDGROWTH the industry average EV/EBITDA multiple percentage change in the two years preceding the secondary buy-out; COD measures the cost of leverage loans measured by spread in basis points over the reference rate (LIBOR). Robust standard errors are reported in parentheses. Significance at the 1%, 5% and 10% level is denoted by ***,** and * respectively.

Probability of exit through a SBO

	Full Sample			2006-2007 Sub-Sample			2003-2005 Sub-Sample		
Intercept	-0.0376	0.0279	-0.0874	-0.0574	0.0363	-0.102	-0.00156	-0.253	0.0475
	(0.142)	(0.145)	(0.148)	(0.167)	(0.163)	(0.173)	(0.281)	(0.384)	(0.342)
INDGROWTH1	0.631***			0.655***			-0.0639		
	(0.222)			(0.235)			(2.345)		
INDGROWTH2		-0.348			-0.687			1.628	
		(0.582)			(0.620)			(1.542)	
AVGINDGROWTH			0.804***			0.875***			-0.581
			(0.308)			(0.313)			(2.643)
N	206	206	206	152	152	152	54	54	54
χ^2	8.076	0.356	6.813	7.777	1.229	7.806	0.000	1.115	0.0482

Table 11

Deal Level Logit Regressions

This table presents results for a set of logistic regressions capturing the propensity of a target company to be divested through a Secondary Buy-Out. Peers are identified by LBO target companies in the same 4-digit SIC code, not divested through a SBO or liquidation. In each model the dependent variable is 1 for sample firms, indicating exit through secondary buy-out and 0 for control transactions, indicating exit through other routes. Independent variables are defined as follows: Revenue Multiple is the reported deal value multiple of the last available year revenues; Ebit Multiple is the reported deal value multiple of the last available year EBIT; EBITDA Multiple is the reported deal value multiple of the last available year EBITDA; Deal Value is the absolute disclosed dollar value of the deal expressed in million of dollars; Total debt funding is the reported total debt provided for the transaction; months held is the number of months the company has been held by the seller before a Trade Sale or a SBO; Equity Contribution is the fraction of Equity contributed by the buyer computed as (Deal Value-Total debt)/(Deal Value). Robust standard errors are reported in parentheses. Significance at the 1%, 5% and 10% level is denoted by ***, ** and * respectively.

	Probability of exit through a SBO									
	1	2	3	4	5	6	7	8	9	10
Intercept	-0.261***	-0.228***	-0.298***	-0.650***	2.826***	-0.407***	4.109***	-0.278***	6.065***	5.587***
	(0.052)	(0.071)	(0.069)	(0.051)	(0.328)	(0.122)	(1.051)	(0.087)	(1.781)	(1.914)
Revenue Multiple	-0.006**							-0.001	-0.925**	-0.906**
	(0.003)							(0.005)	(0.454)	(0.459)
EBIT Multiple		-0.000						-0.001**	-0.083***	-0.074***
		(-0.000)						(0.000)	(0.026)	(0.018)
EBITDA Multiple			0.001					0.002***	0.511***	0.454***
			(0.001)					(0.001)	(0.158)	(0.112)
Deal Value				0.001***				0.001**	0.002*	0.001
				(0.001)				(0.000)	(0.001)	(0.001)
Total Debt Funding					0.000				-0.002	-0.001
					(0.000)				(0.002)	(0.001)
Months Held						0.008***			-0.105**	-0.098**
						(0.003)			(0.044)	(0.044)
Equity Contribution							-2.757			1.580
							(2.145)			(2.537)
N	1596	815	901	2270	242	1308	238	712	54	54
χ^2	6.235	0.0242	2.698	32.28	0.643	9.797	1.652	14.22	79.74	79.62

Table 12

Tobit Regressions

This table presents results for a set of Tobit regressions of the overall fraction of LBOs divested by PE investors through a secondary Buy-Out from 2002 to 2008, on a number of explanatory variables. Explanatory variables are defined as follows: Pro-Rata Debt Spread is the average spread over LIBOR for revolving credits and Term A loans sold to commercial banks; Institutional Debt Spread is the average spread over LIBOR for Term B, C, and D loans sold to institutional loan investors; Equity contribution is the average Equity contribution by PE investors in Leverage Buy-Outs; Deal Multiple is the average EBITDA Multiple for all LBOs; Total Debt Funding is the total amount of Debt Funding in the LBO market. Robust standard errors are reported in parentheses. Significance at the 1%, 5% and 10% level is denoted by ***,** and * respectively.

	Fraction of divestitures through a SBO						
	1	2	3	4	5	6	7
Intercept	0.998***	0.905***	1.158***	-0.687*	0.205***	0.262	0.367
	(0.00909)	(0.149)	(0.204)	(0.340)	(0.0504)	(0.224)	(0.285)
Pro-Rata Debt Spread	-0.002**						-0.001
	(0.001)						(0.001)
Insititutional Debt Spread		-0.002***					
		(0.000)					
Equity Contribution			-2.404***			-3.172***	-2.661*
			(0.579)			(0.404)	(0.870)
Deal Multiple				0.127**		0.168***	0.169***
				(0.043)		(0.016)	(0.019)
Total Debt Funding					0.010**	-0.016**	-0.018**
					(0.003)	(0.004)	(0.004)
N	7	7	7	7	7	7	7
F	11.90	14.07	17.24	8.529	9.544	297.8	92.11