THE PENNSYLVANIA STATE UNIVERSITY
SCHREYER HONORS COLLEGE

DEPARTMENT OF FINANCE

# PHASE 4 PRIVATE EQUITY DEVELOPMENT: RESHAPING BUYOUT INDUSTRY DYNAMICS AND REVIEW OF ETHICS

ERIC J. OH
SPRING 2018

A thesis
submitted in partial fulfillment
of the requirements
for a baccalaureate degree
in Finance
with honors in Finance

Reviewed and approved* by the following:

Mark Gruskin
Assistant Professor of Finance and Accounting
Thesis Supervisor

Brian Davis
Clinical Associate Professor of Finance
Honors Adviser

* Signatures are on file in the Schreyer Honors College.

## ABSTRACT

This paper studies changing dynamics in the private equity industry following the 2008 financial crisis using empirical evidence collected from 261 leveraged buyouts completed between 2008 and 2017. This period is identified as phase 4 of private equity development with phase 1 being 1970~1990, phase 2 being 1990~2000, and phase 3 being 2000~2008. By comparing the phase 1~3 literature and data on private equity LBOs to that of phase 4, trends in the environment of private equity fundraising, net-IRR, and leverage capacity is measured. This study also investigates the following deal characteristics of phase 4 LBOs: exit strategy, holding period, valuation, as well as the role of investment bankers. This paper provides extensive literature reviews on informational asymmetries, corporate governance, employment, operations, and investor-manager wealth transfer effect of leveraged buyouts with a focus on ethics. Using phase 4 samples, industry-adjusted abnormal improvement in operating efficiency and expense management on a pre-interest earnings basis is measured. On the other hand, substantial financial leverage from LBO financing is retained throughout the private equity ownership period. Because of high leverage, phase 4 LBO firms underperform (industry adjusted) after taking interest expense into account. Changes in employee headcount for phase 4 LBOs are also investigated.

# TABLE OF CONTENTS

## LIST OF GRAPHS

## LIST OF TABLES

## ACKNOWLEDGEMENTS

I am grateful to my thesis supervisor, Mark Gruskin, for taking so much time to help me with making several edits of this research paper. I also thank Brian Davis and Roger Debra.

# Chapter 1

## INTRODUCTION

A leveraged buyout ("LBO") is a complex structured methodology of acquiring a business largely funded through debt. It differs from a merger & acquisition (M&A), where a firm seeks strategic growth through a combination. In a typical M&A deal structure, a buyer ("ParentCo") uses cash and/or stock to acquire a seller ("TargetCo"). If the acquiring firm uses stock in the acquisition, TargetCo shareholders receive ParentCo's equity at an agreed exchange ratio. Although debt is also used in M&A transactions, the amount is not as large a fraction of the purchase price as in an LBO since it will tend to dilute pro-forma earnings per share (EPS). This can result if additional interest expense (after adjusting for tax shields) exceeds additional TargetCo net income. In a merger & acquisition transaction, ParentCo may elect to include stock instead of cash if ParentCo's price-to-earnings (P/E) multiple is trading higher than TargetCo's.

One motivation for M&A is growth through synergies. If integrated strategically and sophisticatedly, both ParentCo and TargetCo can achieve revenue synergies by up-selling and cross-selling products. A combined entity can also achieve cost synergies by consolidating manufacturing facilities, headquarters expenses, middle/back office functions, and supply chain costs. With an increased market share, more diversified products, exposure in different markets/industries (vertical M&A), and potential elimination of current/future competitors (horizontal M&A), the M&A can create meaningful shareholder value.

On the other hand, the motivation in an LBO tends to be different. An LBO is a way of acquiring a business using a significant amount of debt with little equity contribution from a financial sponsor or multiple sponsors (consortium). A sponsor is typically a private equity firm

that manages a pool of investment funds raised from its limited partners such as pension funds, university endowments, insurance companies, high net-worth individuals, etc. (Rigamonti *et al*, 2016). With limited partners' investments, private equity managers (general partners) invest in companies through the LBO (taking them private in the case of buying out a publicly traded firm) with the intention of improving the business and later re-selling it at a higher valuation for financial returns.

Empirical studies have shown that TargetCo's managers will decide to engage in a Going-To-Private (GTP) transaction if the dilution of managers' control/ownership within a public firm is greater than the benefit of liquidity provided from public equity markets (Bharath and Dittmar, 2010). GTP transactions driven by liquidity problems are evidenced by Bharath's and Dittmar's (2010) observation of less share turnover than comparison sample over the 1980-2004 time period.

Additional expenses for publicly traded firms result from reporting requirements under the securities laws (as required by the Securities Exchange Commission). The reporting requirements occur even when there is limited coverage by equity analysts. Less equity research coverage is normal for younger public companies, making it harder for them to attract more accredited investors resulting in illiquidity (Billet *et al.*, 2010; Mehran and Peristiani, 2010). Publicly traded companies with more concentrated insider ownership limit the benefits of being public since managers are likely to make corporate decisions to increase their own utility as opposed to maximizing shareholder value (Jensen and Meckling, 1976). This results in lower firm value and a greater probability of going private (Bharath and Dittmar, 2010). Most importantly, the LBO provides financial incentives for managers through increased equity stakes and more effective corporate governance (Jensen, 1986) – this will be discussed more in Section 2-B.

From the perspective of the private equity firm, the LBO provides appealing financial returns if potential targets possess restructuring opportunities. To obtain the expected return on

investment, the PE firm appoints a Board of Directors to monitor what was regarded as a previously inefficiently-managed firm (Wright *et al.*, 1992; Amess and Wright 2012) and to oversee a restructuring of the business. After a successful turnaround and at a higher valuation compared to that at the time of acquisition, private equity exits through (1) a reverse leveraged buyout with an Initial Public Offering (re-IPO), (2) a sale to a strategic buyer (buyer looking for a strategic M&A), or (3) a leveraged buyout to another sponsor (re-LBO or Secondary Buyout, SBO).

To maximize returns, more leverage is critical in executing an LBO (Kaplan and Strömberg, 2009).[1] During the early 2000's before the 2008 financial crisis and the resulting credit crunch from troubled subprime mortgage-backed securities, LBO deal volume and size were at all-time high. Credit was cheap, and there was little concern on how much debt private equity firms were taking on. According to Thomson Reuters, average PE equity contribution in an LBO was approximately 30 percent in 2007, just before the financial crisis.[2] This suggests that in a $1 billion LBO transaction, only $300 million in equity is sponsored by the PE firm with the remaining $700 million being borrowed. Assuming that the transaction was valued at 10.0x EV/EBITDA,[3] TargetCo's EBITDA is assumed to be $100 million. If so, newly raised debt of $700 million to EBITDA of $100 million represents a Debt/EBITDA ratio of 7.0x, which is clearly over-leveraged. In fact, Thompson Reuters reports that the 2nd quarter of 2006 average Debt/EBITDA ratio on an LBO was 5.8x, which increased to 6.8x in fiscal 2007 when LBOs were peaking in volume. With this degree of leverage, a sponsor's ability to secure bank loan (term loan) financing is limited. A significant portion of LBO debt has to come from more junior debt (high yield junk bonds such as

[1] In a hypothetical $1 billion LBO exiting at $1.5 billion in 3 years and assuming no dividends, sponsor equity contribution of $200 million, $300 million, and $500 million ($800 million, $700 million, and $500 million leverage) result in an IRR of 59%, 39%, and 26% respectively.
[2] https://www.reuters.com/article/marketo-equity/lpc-private-equity-firms-put-more-capital-less-debt-into-lbos-idUSL1N1B70MD
[3] Hypothetical example to make calculations easier. This is for illustrative purpose only.

the mezzanine debt, subordinate debt, and the convertible debt), which increases TargetCo's cost of debt and default risk significantly.

Because of the high leverage and increased risk taken on by acquiring TargetCo, both academia and the business media have questioned the private equity industry's ethicality in LBOs and other various corporate activities during the private period. Warren Buffet in an interview with *Business Insider Magazine* criticized buyout companies that often see acquisition targets as a "piece of merchandise".[4] During the 2012 presidential election, former Texas governor Rick Perry criticized Mitt Romney, one of the founding partners of private equity firm Bain Capital, as a "vulture capitalist".[5] A Forbes article cites a notable columnist in Washington D.C., Byron York, in that poll data in key swing states finds that 47 percent of the public believe private equity firms only chase after profits by laying off employees, cutting benefits and pensions. According to the poll, only 38 percent of people believe private equity is contributing to the American economy and job growth.[6]

To validate public criticism and to test whether or not private equity LBOs create economic value, this paper will investigate the post-LBO impact on corporate governance, employment, operations, and stakeholder wealth transfers using previous studies on LBOs, and adding my own observations gathered from a sample of 261 LBOs post-2008. Furthermore, by comparing pre-2008 studies to the evidence found in my post-2008 sample, the changing dynamics of private equity is analyzed.

[4] http://www.businessinsider.com/warren-buffett-on-conglomerates-and-private-equity-2015-2
[5] https://www.washingtonpost.com/blogs/election-2012/post/rick-perry-doubles-down-on-vulture-capitalist-criticism-of-mitt-romney/2012/01/11/gIQAziWqqP_blog.html?utm_term=.365fcb79bba4
[6] https://www.forbes.com/sites/nathanvardi/2012/06/08/the-obama-romney-war-over-private-equity-is-just-beginning/#293ff829224c

# Chapter 2

# EXTANT LITERATURE REVIEW

## 2-A) Information Asymmetries

Jones and Hunt (1991) suggest that managers and shareholders amass significant wealth through Leveraged Management Buyouts (LMBO) at the cost of lost wealth by other stakeholders such as employees and creditors. The LMBO is slightly different than the private equity LBO in that the buying party is a company's own management team rather than outside sponsors. However, LMBOs resemble the dynamics of private-equity-led LBOs in that significant financial leverage is taken on to take the company private (GTP). In addition, the inside management believes that their company is undervalued and tries to bid the lowest price possible while maximizing leverage. This is primarily motivated by increased financial returns associated with "buy low" "borrow high", which is similar to private equity LBOs as suggested by Kaplan and Strömberg (2009). To achieve the lowest bid possible, Jones and Hunt (1991) contend that managers often attempt to understate earnings by manipulating costs such as falsely overstating capital expenditures on liquid assets that are ready to be divested soon after the buyout, or finding loopholes to overstate depreciation and amortization costs (Stein 1987). Through earnings management, managers can depress net income which leads to a lower bid valuation.[7] Furthermore, reporting lower earnings will likely lead to a stock price decline. This results in an increase in offer premiums to outside stockholders, inducing them to sell their position. Jones and Hunt (1991) also assert that information asymmetry exists in buyout transactions since managers (buying party) are in a better position to understand the true intrinsic value of their firm, whereas the Board of Directors and outside shareholders

[7] For example, applying a P/E ratio of 10.0x to a net income of $95 million and a net income of $100 million results in a $50 million difference in equity valuation.

(selling party) can only rely on information that managers provide. Bargeron *et al.* (2008) and Billet *et al.* (2010) also argue that it is this insider information by managers that leads private equity firms to offer lower acquisition premiums compared to that which outside buyers would offer (although their statement can be challenged as these higher premia offered by outside buyers can be driven by synergies). After all, information asymmetries in a buyout seems to benefit inside management at the cost of outside stockholders, not to mention potential violations of fiduciary duties including insider trading since managers bid using insider information that was not shared with outside shareholders and the Board of Directors. Supporting Jones' and Hunt's (1991) claim, Bruner and Paine (1988) also argue that there is a conflict of interest since managers are trying to minimize the firm value as a buyer instead of maximizing shareholder value as a fiduciary. But both studies are theoretical and do not provide empirical evidence based on representative LBO samples.

In contrast, Smith's (1990) empirical findings challenge Jones and Hunt (1991), Bargeron *et al.* (2008), Billet *et al.* (2010), and Bruner and Paine (1988) with two results. First, companies that experienced buyout proposal rejection by board/shareholders or due to a higher third party bid do not show significant increase in cash flows. This suggests that managers do not necessarily exploit insider information when they propose a buyout. Second, buyouts following a hostile takeover attempt or buyouts pursued by a third party such as private equity firms are not likely motivated by managers' private information, but rather, to protect their control of the company. Kosedag, Mehran, and Qian (2009) also point out that despite the disproportionate wealth distribution between shareholders and the management, shareholders still realize a return of 30 percent to 40 percent following a buyout, using previous studies performed by Marais *et al*. (1989), Lehn and Poulsen (1989), and Kaplan (1989). This shows that managers still fulfill their fiduciary responsibilities despite accusations of conflict of interest. In terms of shareholder value

maximization, it is economically irrational to offer unreasonably high premiums since higher valuations means more leverage needed to take over the company, and thus more potential to damage the company long-term. Therefore, managers need to find the optimal balance as both buyer and fiduciary even when facing conflicts of interest to ensure a 30 to 40 percent shareholder gain. While the informational disconnection between managers and shareholders as well as earnings management needs to be explored further in order to test ethics, there is no empirical evidence available supporting that managers exploit their shareholders.

Yousfi (2012) investigates information asymmetry in an LBO from a company to creditor relationship stand point. She identifies three major participants in the typical LBO credit process: (1) management, (2) sponsor, and (3) bank. She asserts that the lending bank is at an informational disadvantage due to management self-interest and sponsors prioritizing approval of the necessary bank credit to complete the deal. In other words, the bank is the gatekeeper for the buyout financing and for potential financial rewards to management and sponsor. Therefore, Yousfi (2012) concludes that it is managers' and sponsor's best interest to secure the LBO financing from the bank and that the debtors are at informational advantage over the lender in order to make the deal seem less risky. Her conclusion supports Kaplan's (1989) finding that LBO firms systematically underperformed the projections provided in the proxy materials for the buyout. Despite potential informational disadvantage, lending banks are often the financial advisor in the buyout. Financial advisors i.e. investment bankers are compensated should the transaction be completed. Therefore, it may also be in the lending banks' best interest to support the LBO if they are fulfilling an advisory capacity. I will further discuss the ethics of company to LBO creditors in Chapter 2-F Bankruptcy Law section.

**2-B) Corporate Governance**

Leveraged buyouts typically result in an increased equity stake of management (12.8 percent ownership by managers on average), an increased amount of debt secured against buyout companies' future cash flows and assets, and more intense scrutiny on corporate activities by private equity ownership (Guo *et al.,* 2011). The current generally accepted hypothesis on the corporate governance of LBO firms is that private equity involvement in corporate decisions reduce agency problems. Agency costs in a publicly-traded company arise when managers (principals) make corporate decisions that are contrary to public stockholders' (agents) interest (Jensen and Meckling, 1976). Pindur (2007) identifies four agency issues in publicly traded companies: (1) without incentives, managers' effort to maximize outside equity holders' wealth creation is limited, (2) managers' pursuit of "perks" such as private jets, luxurious company cars, office furniture, art work, etc. will reduce shareholder value, (3) managers tend to be more risk-averse especially for low leveraged firms as there are lower incentives for risk taking, and thus, (4) managers tend to shy away from investing in new projects, causing the "underinvestment problem" of Myers (1977). The collapse of Enron in 2001 and WorldCom in 2002 are extreme examples of agency costs.

Because managers are incentivized to make self-centered corporate decisions, the Board of Directors fulfills an internal corporate governance function to protect public shareholders' interests. If handled correctly, this corporate governance function provides a powerful checks and balance between managers and stockholders thereby ensuring the firm is more effective and value maximizing to all stakeholders. However, such theory is only true in an ideal world. If we were living in that ideal world, Enron, Arthur Andersen, and Lehman Brothers would still exist. This is the reason why Amess and Wright (2012) argue that LBO governance is more effective than the

governance structure of publicly traded companies. They reason that a Board of Directors appointed by private equity owners enable closer corporate monitoring on TargetCo's corporate activities. PE-led Board of Directors (holding 50 percent of seats on average according to Guo *et al.,* 2011) also heavily influence TargetCo managers to maximize profits, which is also the managers' best interest due to their increased equity stake. Kaplan (1989), Jensen and Murphy (1990), and Jensen (2010) provide empirical evidence in that following an LBO, the typical diversified companies' CEO Pay/Performance Sensitivity of $3.25 per $1,000 change in equity value sharply increases to a $64 per $1,000 change. Their studies conclude that for every $100 million increase in firm's equity value, a CEO's Pay/Performance bonus jumps to $6.4 million from $325,000. Likewise, for the obvious reasons, private equity firms also have substantial financial incentives when TargetCo's equity value increases since they can sell the business at a higher valuation and realize a greater internal rate of return (IRR) following an LBO exit.

In conclusion, when the financial incentives of managers and a PE-appointed Board of Directors are aligned, this provides more effective corporate governance and reduces agency problems (Jensen 1986; Thompson and Wright 1995; Amess and Wright 2012). Kaplan (1989) concludes that managers' effort to maximize operating efficiency (by eliminating unnecessary perks and wasteful capital expenditures) result in more robust cash flows available to service LBO debt and creates value (operating efficiency following an LBO will be discussed more in Chapter 2-E Operation section). Finally, LBO governance mechanisms resolve Pindur's (2007) four agency issues typically found in publicly traded companies, and dismiss public criticism of "LBOs are value destroying" in terms of corporate governance.

**2-C) Employment**

One of the most heavily criticized aspects of the private equity LBO is the resulting post-deal corporate restructuring, which involves personnel reductions and cuts in compensation (Shleifer and Summers, 1988). It is important to note that previous studies have shown it is more common for privately-held companies to enter into corporate restructuring as private owners do not have to worry about public disclosure and more extensive media coverage, which ultimately results in a more volatile stock price in the case of publicly-traded firms (Amess and Wright, 2012). It is also more likely for LBO companies to enter into corporate restructuring as private equity firms commonly screen targets based on restructuring opportunities. In other words, ideal LBO targets have divestable assets (Seth and Easterwood, 1993; Wiersema and Liebeskind, 1995; Amess and Wright, 2012).

While dislocation of assets (including disposure of human capital assets) during corporate restructuring is inevitable, it is necessary to investigate and determine if such layoffs help LBO companies create long-term value. Unlike "white-collar" sophisticated investors and C-level executives, the life impact on less well-off employees following a plant closure, etc. is greater. In addition, Jones and Hunt (1991) criticize that retained employees tend to experience increased pressure to perform at a higher level leading to psychological stress and demoralization post-LBO. They go on and say changes of ownership through Going to Private (GTP) transactions also extend risks to suppliers, customers, and retired employees as it is possible that new owners abandon pre-existing supply contracts, warranty claims, and pension obligations. In addition, mass layoffs and plant closures may transfer losses to communities and local governments as dropped local tax revenue directly affects infrastructure around the corporate plant, such as roads, schools, and local

businesses. Considering these claims, negative public/academia criticism of LBO layoffs is understandable.

However, Amess' and Wright's (2012) findings are counter to Jones' and Hunt's (1991) in that, private equity firms are more likely to target firms with restructuring opportunities and those with excess staffing (Williams, 1964). Thus, an LBO provides a strategic opportunity to decrease TargetCo's employment to an optimal level (Jensen, 1989), which creates incentives for managers by conserving cash to service the incremental debt. The argument is that downsizing employment levels is necessary to enhance operating efficiency (see the empirical studies on operating efficiency performed by Kaplan, 1989) and inside management cannot easily handle this for fear of increased stock price volatility when the restructuring becomes public (Amess and Wright, 2012). In essence, the LBO allows managers to "pull the trigger" and finally execute a downsizing needed to be done. After a successful turnaround, private equity owners are able to exit the LBO with optimal employment levels. In his LBO samples, Kaplan's (1989) studies show that the median changes in employment involving asset sales/divestitures was only -0.9 percent from 1980-1986. Kaplan (1989) also found an increase of 4.9 percent in employment for LBOs that do not involve divestitures.

Operating efficiency is also the reason why even large publicly traded corporations divest non-core divisions/assets that distract managers' focus. This is the reason why it is more likely for LBOs of large corporations to engage in larger scaled divestiture and more sizeable employee layoffs. On the other hand, smaller scale LBOs incentivize the firm to hire more employees, rather than dismissing them in order to exploit growth opportunities as smaller companies do not typically have non-core divisions that diminish managers' discipline level (Wright *et al*., 2000, 2001; Meuleman *et al*., 2009). The argument of decreased employee morale and increased pressure

lacks empirical evidence. In addition, no empirical studies exist on wage cuts following an LBO due to difficulties in data collection.

**2-D) Pre-LBO Bondholders**

According to DeAngelo *et al.* (1984) and Jensen (2010), pre-LBO shareholders have immediately realized 14~25 percent gains on their equity upon announcement of the LBO. Their return subsequently increased to approximately 40~56 percent when the deal eventually went through. Despite the information asymmetry hypothesis discussed in the earlier section, pre-LBO stockholders gain substantially upon the news of the LBO and even more should the deal be consummated. Marais *et al*. (1989) and Lehn and Poulsen (1989) also document wealth creation for selling stockholders (which average 30~40 percent according to their samples). I already have examined the post-LBO effects on corporate governance and employees in the above sections. Similarly, it is also important to investigate the wealth effects on pre-LBO bondholders to test LBO's ethicality.

Evidence from previous LBOs have shown that pre-buyout bondholders experience a loss in value to their holdings upon announcement of the LBO. Hostile bids, equity market's doubts on the post-LBO performance, change in ownership, and the massive post-LBO debt load contribute to the sharp drop in pre-LBO bond value due to credit rating agency downgrades of TargetCo's credit rating (Jones and Hunt, 1991). Femino (2014) also asserts that an LBO puts the pre-LBO creditors in a materially adverse position as tremendous post-LBO leverage increases insolvency risks and dilutes per creditor-value of assets upon liquidation due to bankruptcy, as there are more creditors to split the pie from.

For example, when the RJR Nabisco buyout was announced, some pre-buyout bond's market value immediately declined by 20 percent. Stein (1988) also documents that following the RJR Nabisco LBO, annual interest expense increased from $600 million to $2,850 million, which was 4.75x higher than the firm's EBIT (earnings before interest and tax). In the case of the Unocal and Phillips Petroleum buyouts, credit rating agencies downgraded the pre-buyout bonds from AA to BBB, which led to a decline in bond value (Femino, 2014). According to *the Wall Street Journal*, investors watched Dell Inc.'s long-term bond value freefall by 17 percent when the potential $23 billion buyout was announced.[8] Additional support comes from Femino (2014), Warga and Welch (1993) and Billet *et al.* (2010), who report that pre-LBO bondholders, on average, lost 6.76 percent upon LBO announcement compared to an average gain of 1.09 percent in the case of mergers and acquisitions involving two publicly traded companies (Billet *et al.*, 2004, 2010).

While prior studies show that pre-LBO bondholders do lose in a private equity LBO, Jensen (2010) indicates that poison puts and other protection clauses, such as a change in control covenant (CIC covenant), can minimize pre-LBO bondholders' loss should takeovers or restructuring take place. Billet *et al.* (2010) find that compared to a decline of 6.76 percent in the face value of unprotected bonds, bonds with a CIC covenant generated a gain of 2.30 percent on average upon the LBO announcement. They also find that it is twice as likely for firms without a CIC covenant to be targeted by private equity firms, since CIC covenants may deter wealth transfers to private equity firms. If bond investors fear a potential loss in their bond holdings due to an LBO or other hostile takeover, as a sophisticated investor, they should model out the probability of firms being an LBO target and employ a hedging strategy accordingly. Bond investors can also hedge the risk by purchasing credit default swaps as insurance.

[8] https://www.wsj.com/articles/SB10001424127887324761004578281660084115812

For these reasons, Jones' and Hunt's (1991) ethical question on pre-LBO bondholder wealth transfers to private equity firms should be challenged. It is necessary to note that there are always a gainer and a loser on Wall Street (zero-sum game). Hedge funders like Carl Icahn and Bill Ackman competed against each other over Herbalife, with Carl Icahn coming out on top as Bill Ackman's wealth was transferred to Carl Icahn. Recalling payout graphs of shorting/longing call-put options, someone always gains as a result of others' loss. The same is true for other derivative securities such as future/forward contracts and swaps. Jensen's (1986) study shows that pre-LBO bondholders can realize a gain if LBO firms are successful at improving operating efficiency (this increases free cash flow) as well as tax shields realized from greater interest expense. Price fluctuation in bond values are irrelevant to bondholder returns if the securities are held until maturity. By holding the bonds the firm continues to pay coupon interest, and thereby pre-LBO bondholders will receive their intended yield irrespective of the current market price. In fact, this spread should approach 0 percent if the company generates robust cash flows and signals no sign of distress. Therefore, pre-LBO bondholder shouldn't be identified as "LBO victims" as such claims are based on hindsight bias and as they don't account for a potential takeover. Likewise, LBO should not be deemed unethical when it comes to the adverse wealth effect on pre-LBO bondholders.

**2-E) Operation**

As discussed in the Chapter 2-B Corporate Governance section on reductions in agency problems, higher leverage creates more performance incentives for managers following an LBO and provides effective internal corporate governance. This more enhanced governance structure should lead to a more efficient operation. Indeed, Kaplan (1989) estimates that the market value

of firms increased 96 percent on average and 77 percent in median (adjusted for market returns) from two months before the LBO announcement to LBO exit, primarily due to increases in operating efficiency. His study shows that 48 out of 76 buyouts between 1980 and 1986 experienced an average 24 percent increase in operating income three years after the buyout. Furthermore, the median change in net cash flow (change in operating income minus capital expenditures) measured against the pre-LBO level was 22.0 percent in year 1, 43.1 percent in year 2, and 80.5 percent in year 3.

Supporting Kaplan's (1989) result, Smith (1990) also observes a noticeable growth in operating income and net cash flows in her 58 buyouts from 1977 to1986, after adjusting for industry growth. Her study also finds improvements in profit margin, sales per employee (median increase of 27 percent), and working capital such as inventory turnover and receivable collections. Smith (1990) also notes that these improvements in operating metrics were not present before the buyout, and thus are attained as a result of the buyout.

A study employing a more recent LBO sample (94 deals up to 2005) by Guo *et al.* (2011) also suggests improvement in operating performance and shareholder value. They find a positive correlation of these improvements in operating performance with cash flow improvements from robust tax shields, reduced agency costs, more effective corporate monitoring by private equity firms, better management incentives, and more disciplined corporate activities and cash flow control due to higher leverage. Guo *et al.* (2011) also find that "monitoring" fees paid to private equity ownership did not significantly impact the company's operating cash flow or other operating efficiency measures. This contradicts the public's view that private equity firms "suck the blood out of the company" by collecting excessive management fees. Smith (1990) finds no evidence of delays in payments to suppliers, contradicting Jones' and Hunt's (1991) assertion of risks transferred to suppliers which was mentioned earlier in this paper. Smith's (1990) study does

not find any evidence of a correlation between operating efficiency improvements and employee layoffs, reductions in investment, advertising, or property, plant and equipment.[9] But rather, she, as well as Guo *et al.* (2011), concludes that managers' readjustment of working capital and a better incentive structure are the primary evidence of improvements in operations. This, again, further supports the hypothesis of LBO value creation through more effective corporate governance (Jensen, 2010) and active managers (Kaplan, 1989).

**2-F) Bankruptcy Law**

I have reviewed the post-LBO impact on operating efficiency, employees, and pre-buyout creditors. Previous studies have shown that LBOs are not necessarily unethical or egregious but rather, are a way to invest in firms via restructuring. This finding is only true when the LBO restructuring is successful. It is also important to understand the downside effect when an LBO does fail, and if the LBO creditors were genuine victims, making the LBO unethical in that case.

First, it initially seemed that the current bankruptcy code provides distressed companies (debtors) more incentives to be distressed, which is ironic due to reduced incentives to creditors who should be protected. Notwithstanding the costly and lengthy process, Frank and Torous (1989) assert that when a firm's ability to continue as a going-concern is at risk, managers can file a Chapter 11 protection as they can (1) retain ownership/control, (2) hold the exclusive right of reorganization, and (3) extend the protection period. Most importantly, if approved by the court, a firm can postpone interest and par payments until the firm is successfully reorganized (although, creditors can seek immediate liquidation). Their empirical investigation on thirty firms filed for Chapter 11 bankruptcy from 1970 to 1984 suggests that firms took an average of four years to

[9] See Smith (1990) for detailed sample analysis

reorganize, meaning on average, creditors were not able to collect what was owed then at the time of entering into the credit contract. For these reasons, Frank and Torous (1989) conclude that such protection gives companies substantial rights in the case of distress at the expense of creditors, thereby providing managers free "option" contracts when things turn out for the worst. However, Frank's and Torous' (1989) sample only includes normal distressed firms rather than firms that are distressed strictly due to a massive debt load following a buyout.

Femino's (2014) study provides a more accurate investigation into the post-LBO impact on creditors after a buyout firm becomes insolvent. When a large amount of debt is raised during an LBO transaction, the lending bank gives the proceeds to the acquirer (sponsor) who uses it to pay TargetCo shareholders in exchange for an ownership interest. Thus, TargetCo never sees the cash. However, using the treasury stock method, shareholder equity is completely wiped out and replaced with little sponsor equity. Moreover, the LBO debt is transferred to TargetCo's balance sheet in exchange for granting liens to creditors on its assets even when TargetCo never actually received the debt proceeds as the sponsor used them to buy shares from the selling shareholders. Accordingly, when TargetCo goes bankrupt "fraudulent" transfer claims are pursued by creditors based on three grounds: a transfer by the debtor (sponsor), Femino (2014) writes, (1) "leaves the debtor with unreasonably small capital, (2) creates a reasonable expectation that the debtor will be unable to pay its debts as they come due, or (3) is completed at a time when the debtor is insolvent or which leaves the debtor insolvent as a result."[10] In summary, creditors claim that the debtor fraudulently represented the financial stability of the LBO, and it was "doomed to financial failure." According to Kaplan's (1989) findings, management's financial projections when proposing an LBO are generally too aggressive and not in line with actual results. However, Femino (2014) is

[10] Rather than an "intentional" transfer claim as it is hard to prove that sponsor, TargetCo mangers, and selling shareholders conspired together to defraud creditors.

using hindsight in this case since the plaintiffs' proof of the LBO being overly aggressive and risky is the fact that TargetCo itself went bankrupt.

Another view is that LBO creditors are rolling the dice and betting that the buyout will be successful, and accordingly they will collect high coupon payments. If the transaction fails, monetary damages (recovery of capital) may be guaranteed by the court through a fraudulent transfer claim (through a highly technical litigation process that is out of scope of this paper), taking advantage of "free insurance" from the bankruptcy court (see Shleifer and Summers, 1988).

Femino (2014) also argues that LBO creditors have unlimited negotiating leverage during the buyout negotiations as they can prevent the deal from going through. This is where LBO creditors can negotiate favorable terms. The creditors can then mitigate their risk by selling the bonds at any time. Because of that, Femino (2014) points out that LBO creditors do not necessarily care how successful the LBO is going to be as they can (1) collect high coupon payments, (2) sell the bonds if the LBO is successful, or (3) pursue a fraudulent transfer claim if the LBO fails. Similar to my conclusion on pre-LBO bondholders, LBO creditors should not be identified as victims as they were in the position to decide on the investment decision based on their estimate of the probability of the LBO being successful. They also had the means to engineer a hedging strategy against a default scenario. In the end, the LBO creditors financed the deal with TargetCo, a PE firm, and with final approval from regulators (government). All parties collectively contributed to the LBO in the first place and shouldn't be considered victims with hindsight bias.

# Chapter 3

# DATA CONSTRUCTION

## 3-A) Sample Collection and Criteria

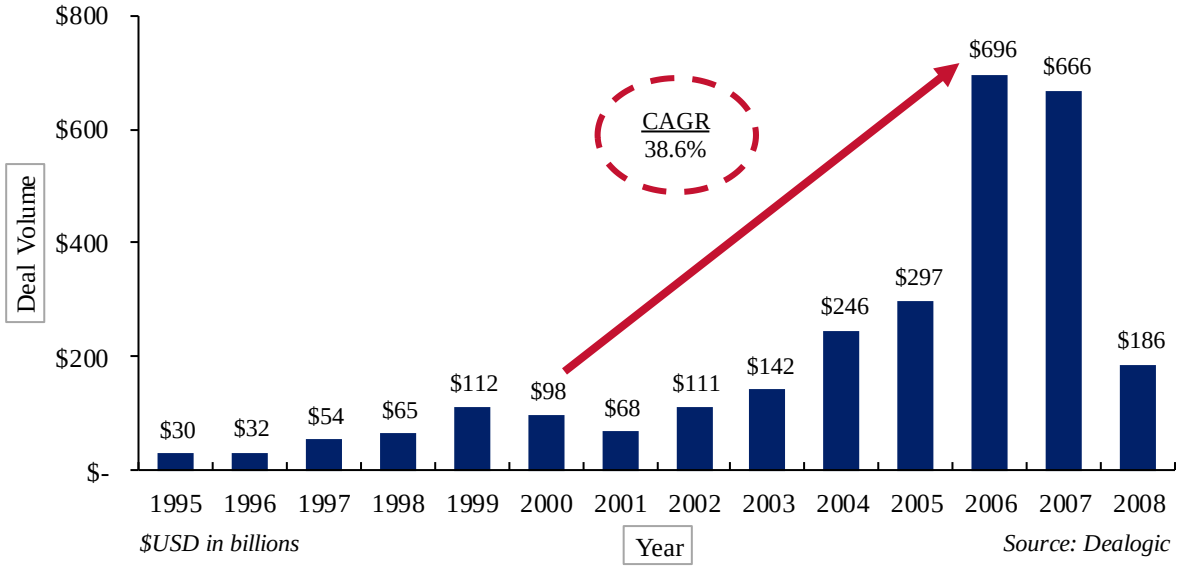
When investigating modern leveraged buyouts, there is a limitation to the previous post buyout studies cited in the earlier sections, such as Kaplan's (1989) study from 1980 to 1985, Smith's (1990) buyouts between 1977 to 1986, and Amess' and Wright's (2012) sample between 1993 to 2004. These studies were performed on buyouts during phases 1, 2 and 3 of the private equity industry development. The phase 1 of private equity development is from 1970 to 1990, when some of today's biggest private equity firms were established. For example, KKR, Blackstone, Carlyle, and Bain Capital were founded during this period. Along with the explosive growth in the high yield credit market led by "junk bond king" Michael Milken and his investment bank Drexel Burham Lambert ("Drexel"), the LBO market flourished in the late 1980s. Phase 1 of PE development decelerated with the savings and loan crisis, as well as Drexel's bankruptcy in 1990 which negatively impacted the high yield credit market. Phase 2 is from 1990 to 2000, and ended with another disruption of financial markets following the dot-com bubble bust. Firms like Apollo, TPG, Ares, Silver Lake, and Cerberus Capital Management were founded during this period. After the U.S. economic recovery from the dot-com crash and 9/11 attacks, the golden era for private equity (phase 3) commenced. During this era, deal volume, leverage ratios, and raised capital were at all-time highs along with the development of the collateralized debt obligation (CDO) and collateralized loan obligation (CLO) markets, which allowed private equity companies to secure cheap, abundant LBO financing. See Graph 1 and Graph 2 for private equity development over time.

My data was collected from deals that were completed after 2008 due to the dynamics of today's LBO market which is materially different from that of phase 1, phase 2, and phase 3, during which the previous studies were investigated. Unlike the pre-2008 era, banks are now heavily regulated under the Dodd-Frank Act of 2010, making lending activities on risky deals more difficult. This results in buyout firms putting more equity in (more skin in the game) to acquire businesses. Valuation multiples have gone up as there are many more bidders from newly started private equity firms with increasing dry powder.

At the same time, the stock market has recovered from the 2008-2009 low point. In fact, the stock market has reached a series of new highs with an increased investor risk-appetite resulting from today's low rate environment, making companies more expensive to acquire (although such a low rate environment has helped private equity fund raising as institutional investors have adjusted their capital allocation into higher returning alternatives: see Graph 2 and Graph 3). Finally, higher equity contribution and an increased competition in acquisition bidding have forced private equity companies to be very disciplined and strategic in order to achieve high IRRs that used to be more attainable during phase 1 and phase 2. Graph 4 exhibits the lower IRR statistics since 1992.

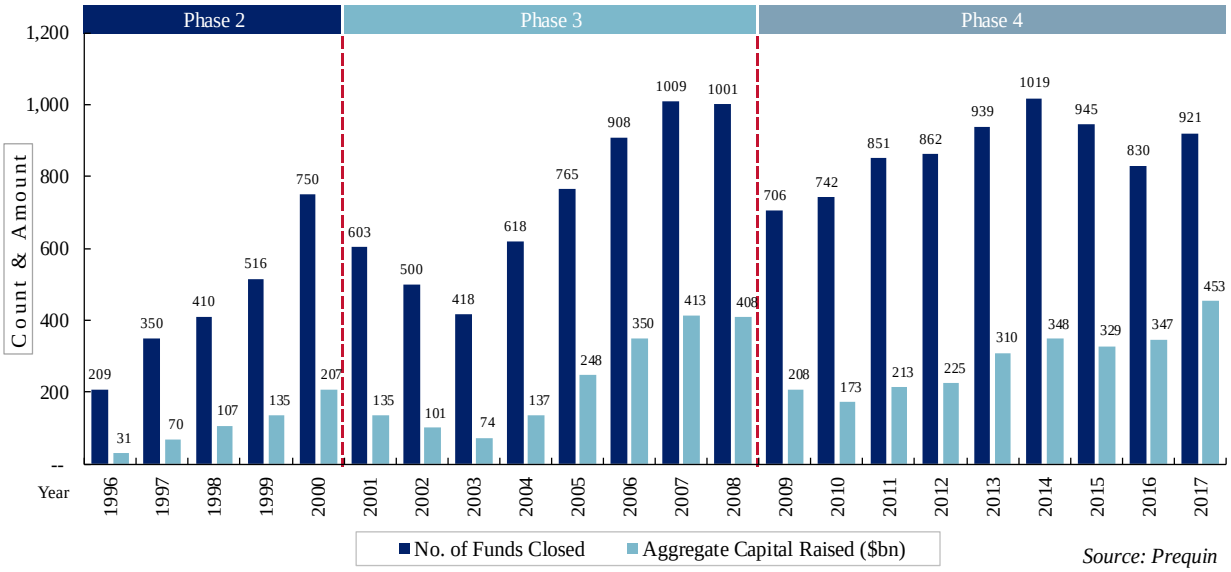
Using FactSet's MergerMetrics and the Bloomberg Terminal's M&A database, I initially collected 261 deals involving U.S. publicly-traded targets from 2008 to 2017. I excluded terminated and pending deals, and LBOs with a total transaction value of less than $100 million. Included in the sample are 10 deals that were announced earlier but completed in 2008 (Graph 5 reports buyout counts and deal volume by year for LBOs over 2008 to 2017). Apollo, AXA, and TPG's joint $27 billion buyout of hotel/casino giant Caesar Entertainment, as well as Bain Capital and Thomas H. Lee's joint $25 billion buyout of iHeartCommunications, are two examples.

**Graph 1. Global Buyout Deal Volume**



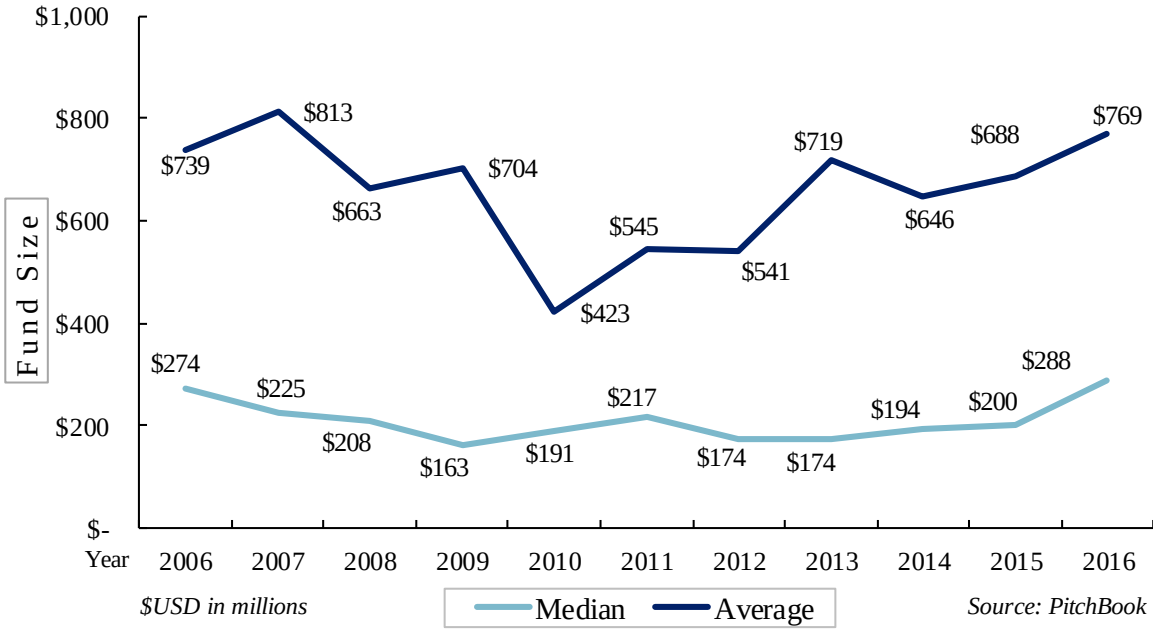

Note: From 1995 to 1999, a steady growth in global buyout deal volume is observed (phase 2). After two consecutive drops during the 2000-2001 recession from the tech bubble bust and 9/11 attacks, deal volume grew rapidly until 2007 (phase 3), followed by a steep decline in 2008.

**Graph 2. Global Private Equity Fundraising**



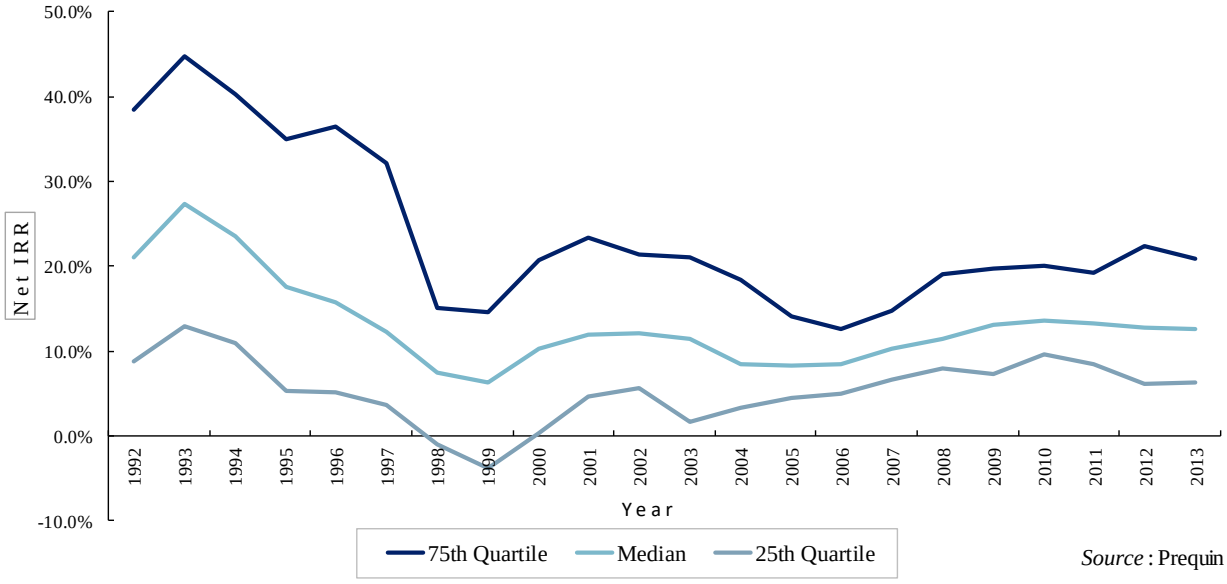

Note: Global private equity fundraising statistics show a similar trend to those reported in Graph 1. The pattern of a boom in private equity capital raising during economic recoveries following recessions confirms that the cycle of private equity is positively correlated to the economy.

**Graph 3. Private Equity Fund Size**




Note: Graph 3 shows an upward sloping PE fund size following the 2008-2009 crisis. Even though net-IRRs are flattening after 2008 (see Graph 4) and are substantially lower than the returns achieved during 1990s (phase 2), this upward slope in PE fund size explains a constant demand of private equity investment. This phenomenon may be explained by lower yielding investment-grade bonds and U.S. Treasuries, attracting insurance companies and pension funds seeking higher return.

**Graph 4. U.S. Private Equity Net-IRR Historicals**




Note: Graph 4 shows historical rates of return that U.S. private equity achieved from buyout investments.

**3-B) Pre-buyout data**

Since I limit sample LBOs to publicly traded companies listed on the United States stock exchanges, pre-buyout financials and acquisition terms were gathered from annual/quarterly reports (10-K/10-Q), proxies (8-K), and merger agreements (DEF14A) which also include fairness opinion documents and credit agreements.

**3-C) Post-buyout data**

While gathering non-performance statistics such as the acquisition offer price, financing, and exit information on my sample was straightforward as they could be pulled from the Bloomberg Terminal and FactSet, collecting firm fundamentals during the private period was challenging. Despite limited public data on private firms, there were two approaches I took to search for private period financials. My first approach was to identify buyout targets that used a public offering as the means for an LBO exit (re-IPO). There were 6 re-IPOs, of which 5 provided enough data to measure the abnormal performance following the buyout. The historical financial data was found on IPO prospectuses (S-1). One re-IPO firm (Performance Food Group, PFGC-US) was taken public after eight years of private holding. Its IPO prospectus only provides historical financials for the previous 5 years. Therefore, I was not able to find its financials for the first three years after the buyout. The second approach was to identify buyout targets that offer publicly traded bonds. There were 19 additional companies, of which 10 are still owned by the original sponsor, which disclosed financials as they have publicly traded debt and filed 10Ks with bond prospectuses. The remaining 236 companies did not disclose any financials because they remain private on both equity and debt side. The remaining firms' bonds were issued through

private placement where only the group (rather than public) buying these bonds was provided detailed financial information.

# Chapter 4

## STATISTICAL FINDINGS

Table 1 presents summary statistics on selected sample buyout firms. In comparison with the average 70 percent debt to transaction value ratio (30 percent equity contribution) peak in 2007[11], the median leverage as a fraction of total transaction value is 63.5 percent. This finding is important to modern LBO studies in that private equity sponsors are paying more cash up front and are no longer levering up as much as they used to during phase 1, phase 2, and phase 3. One possible explanation for this observation is that the Dodd-Frank Act of 2010 prohibits banks from financing high levered deals as they are riskier and more speculative. Therefore, private equity firms' ability to maximize leverage (such as a 97 percent debt to transaction value ratio in the case of KKR's buyout of Safeway in 1986) has become limited. Another possible explanation is that overall decrease in net-IRR across the industry (see Graph 4) does not induce private equity firms to structure 25~35 percent IRR LBOs that were once common during phase 1 and phase 2, which resulted from high leverage (think of return sensitivity on hedge funds' 2x leverage vs. 3x leverage). The median premium paid to average price of the previous 1 day, 1 month, 3 months, and 1 year are 21.2, 24.8, 27.4, and 31.0 percent respectively. This result supports a view that a significant pre-buyout shareholder gain is realized upon leveraged buyouts as documented by DeAngelo *et al.* (1984), Kosedag, Mehran, and Qian (2009), and Jensen (2010).

I also note that the median transaction value to EBITDA multiple is 10.8x. The median post-buyout Debt/EBITDA ratio is 6.9x, up from a median 3.2x pre-buyout ratio. This equals a 117 percent nominal increase in debt. This increasing leverage ratio was expected as LBOs are mostly financed through debt. In section 2-A Informational Asymmetries, I hypothesized that

[11] https://www.reuters.com/article/marketo-equity/lpc-private-equity-firms-put-more-capital-less-debt-into-lbos-idUSL1N1B70MD

M&A advisers (investment bankers) have financial incentives to support the LBO since they can also offer debt financing ("staple financing"), allowing them to collect both advisory fees and financing fees. I confirm that about 70 percent of investment banks advising on control sample deals were also involved in LBO financing.

**Table 1. Summary Statistics of Sample LBOs**

| Variable | Mean | Median | Std. dev. | *N* |
|---|---|---|---|---|
| Leverage [(a)] | 63.3% | 63.5% | 18.5% | 160 |
| | 25th Quartile | Median | 75th Quartile | *N* |
| Premium (%) to [(b)] | | | | |
| 1-Day Avg Price | 10.1% | 21.2% | 36.8% | 226 |
| 1-Month Avg Price | 13.0% | 24.8% | 37.9% | 226 |
| 3-Month Avg Price | 16.0% | 27.4% | 41.1% | 226 |
| 1-Year Avg Price | 15.0% | 31.0% | 46.0% | 226 |
| TV / EBITDA [(c)] | 7.8x | 10.8x | 16.2x | 214 |
| Debt / EBITDA | | | | |
| Pre-buyout | 1.2x | 3.2x | 5.2x | 150 |
| Post-buyout | 5.1x | 6.9x | 10.5x | 150 |
| *Change in Debt* | *338%* | *117%* | *101%* | |
| | | | Yes | *N* |
| Deal Adviser = Lender, Book Runner [(d)] | | | 72.5% | 149 |

(a) I excluded deals that do not provide financing information which reduces the sample size to 160. When collecting financing information, I added revolving credit facilities regardless of them being actually taken out due to difficulties of tracking down each credit activity. It is appropriate to add these revolving credit facilities since being approved for it means the sponsor was able to maximize leverage capacity for transaction financing as they could be drawn on at any time when liquidity is needed. Other than revolvers, I observed that multiple tranches of debt using term loans, bridge loans, senior unsecured notes, and subordinated notes were common debt securities used in LBO financing.

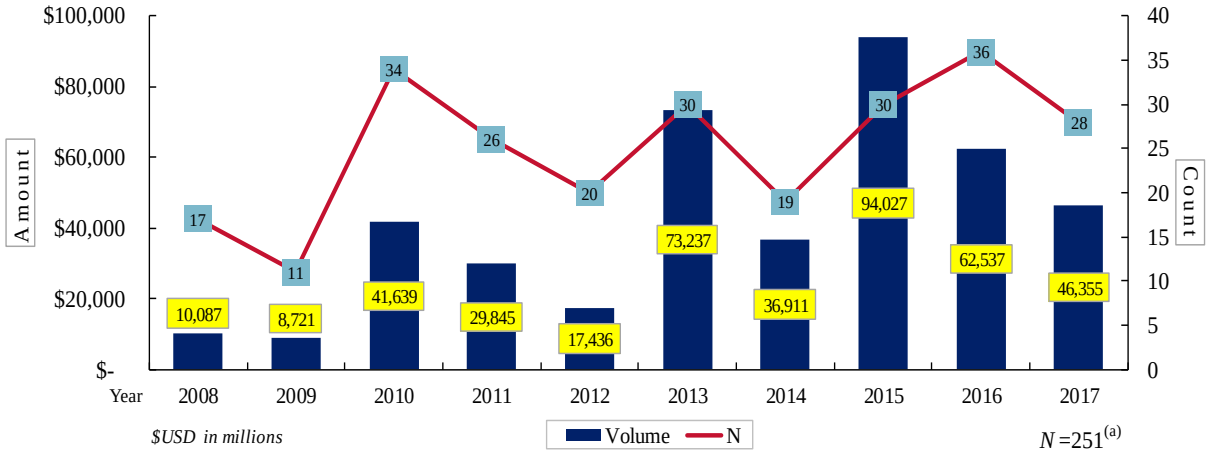
(b) I initially excluded 10 deals that were announced earlier than 2008 since offers were made prior to the Crisis. Among the remaining 251 deals, I eliminated buyouts that involved hedge funds or financial holding companies doing private equity like leveraged acquisitions (Bloomberg Terminal misleadingly assigns deal attribute as "buyout"). I also excluded two deals that were "remaining

stake buyouts" as minority (or majority) investments were already made prior to the control date range.

(c) 37 deals do not provide TV/EBITDA multiple data. Transaction value (TV) equals offered equity value plus net debt. EBITDA represents trailing twelve-month (TTM) value.

(d) Among 160 deals that provide financing information, 149 deals disclosed financing agents, lenders, and book runners. See Appendix B for league table information.

**Graph 5. Deal Volume & Count Statistics**




(a) Excludes 10 deals that were completed after 2008 but announced earlier than 2008

Note: Graph 5 shows deal volume and deal count statistics on 251 buyouts from fiscal year 2008 to 2017. A substantial increase in LBO activities following the 2008-2009 crisis is observed.

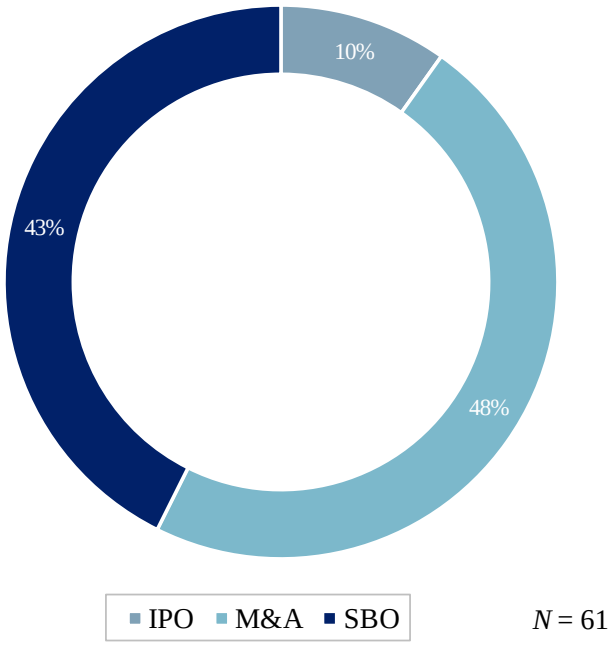
Table 2 reports exit statistics on 234 sample firms. From 2008 and 2009, there are 20 buyouts, of which 5 are still held by their original buyer. Among 105 buyouts completed during 2010 to 2013, 42 deals underwent an SBO, IPO, or M&A. In other words, 60 percent of deals are still held by their original buyer. For more recent deals that were completed between 2014 and 2017, only 4 target firms exited the LBO, and the remaining 105 firms are still held private. Graph 6 shows a statistical distribution of sponsor exit on 61 deals. It is observed that the IPO, at only 10 percent, was the least preferred option for private equities to exit. On the other hand, a sale of company was a dominant exit strategy with M&A and SBO being almost evenly split (48 and 43 percent each).

**Table 2. LBO Exit Statistics of Control Samples**

| Year | IPO | M&A | SBO | Still Held | *N* |
|---|---|---|---|---|---|
| 2008 | 3 | 3 | 6 | 1 | 13 |
| 2009 | 0 | 3 | 0 | 4 | 7 |
| 2010 | 1 | 9 | 8 | 14 | 32 |
| 2011 | 1 | 6 | 3 | 15 | 25 |
| 2012 | 0 | 3 | 4 | 13 | 20 |
| 2013 | 1 | 4 | 2 | 21 | 28 |
| 2014 | 0 | 0 | 3 | 16 | 19 |
| 2015 | 0 | 1 | 0 | 27 | 28 |
| 2016 | 0 | 0 | 0 | 34 | 34 |
| 2017 | 0 | 0 | 0 | 28 | 28 |
| Total | 6 | 29 | 26 | 173 | 234[(a)] |

(a) From initial 261 samples, I eliminated 27 deals involving hedge funds and financial holding companies mimicking private equity style buyout because their investment motivation and exit strategies are materially different from traditional buyout companies.

**Graph 6. LBO Exit Type Distribution**



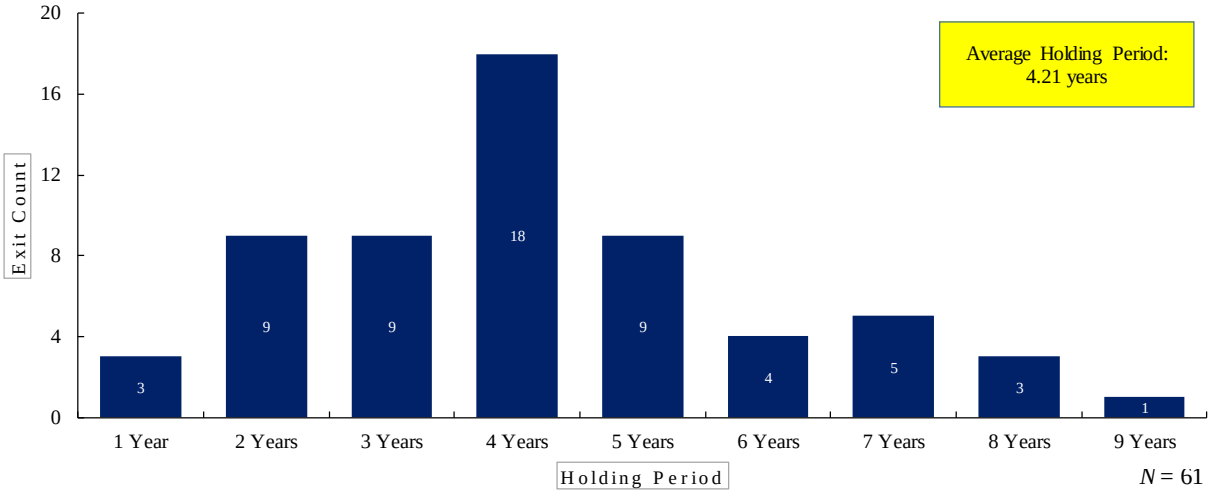

Note: Sponsor exit data on sample LBOs shows that the IPO is the least preferred exit strategy for private equity firms.

Graph 7 displays the weighted average holding period statistics on 61 sample RLBO deals. On average, private equity firms held target companies private for 4.21 years before they exited with a re-IPO or a sale. The weighted average holding period on 173 still privately held companies (as of January 2018) is 3.97 years. Table 3 shows entry transaction value, exit transaction value (TV), and simple dollar return statistics on 40 RLBOs where adequate information was available. Median entry TV and exit TV on these 40 control samples are $616 million and $1,310 million each. This represents an exit/entry TV multiple of 2.1x, nominally. Assuming a 5 year holding period, this implies a 21 percent IRR (this is not equal to a sponsor's equity IRR). I broke out these statistics for firms that were sold to public buyers (25 sample size) and firms that were sold to another financial sponsors (15 sample size). For 25 M&A exit deals, median entry TV and exit TV are $491 million and $1,250 million each, or 2.5x nominal return multiple. Assuming a 5 year holding period, this implies a 26 percent IRR (not equal to a sponsor equity IRR). For 15 SBO exit deals, median entry TV and exit TV are $744 million and $1,500 million each, or a 2.0x nominal return multiple. Assuming a 5 year holding period, this implies a 19 percent IRR (this is not a sponsor's equity IRR). Based on these results, selling target firms to public buyers (M&A) delivered a 0.5x higher nominal dollar return and a 7 percent greater IRR. One possible explanation is that public buyers (normal companies) tend to bid a higher offer price due to synergy opportunities. It is important to note that the nominal dollar return (exit/entry TV multiple) and implied IRR here (not shown on the table) are only intended to demonstrate how significantly more expensive sample firms were able to be re-sold.

There were 15 deals that provided both entry TV/EBITDA and exit TV/EBITDA multiple data. I observe that 80 percent of the sample deals were able to re-sell at a higher TV/EBITDA valuation (multiple expansion) than the multiple that was originally paid at the time of buyout.

This supports Datta, Gruskin, and Iskandar-Datta (2013) in that more effective private equity management leads to a higher valuation on RLBO firms.

**Graph 7. Sponsor Holding Period Statistics**




Note: On average, sample LBO targets were held 4.21 years before they went through exit.

**Table 3. LBO Exit Deal Terms and Sponsor Return Analysis**

| | 25th Quartile | Median | 75th Quartile | *N* |
|---|---|---|---|---|
| Transaction Value, aggregate | | | | |
| Entry | $363 | $616 | $1,014 | 40 |
| Exit | $734 | $1,310 | $2,325 | 40 |
| *Exit / Entry Multiple* [(a)] | *2.0x* | *2.1x* | *2.3x* | |
| Transaction Value, M&A exit | | | | |
| Entry | $235 | $491 | $1,046 | 25 |
| Exit | $500 | $1,250 | $2,450 | 25 |
| *Exit / Entry Multiple* [(a)] | *2.1x* | *2.5x* | *2.3x* | |
| Transaction Value, SBO exit | | | | |
| Entry | $527 | $744 | $939 | 15 |
| Exit | $1,170 | $1,500 | $2,050 | 15 |
| *Exit / Entry Multiple* [(a)] | *2.2x* | *2.0x* | *2.2x* | |
| *$USD in millions* | | | Yes | *N* |
| TV/EBITDA Multiple Expansion | | | 80.0% | 15 |

(a) The Exit/Entry Multiple is calculated by dividing each firms' nominal exit transaction value by nominal entry transaction value. This does not take into account the time value money or inflation. This is not intended to be used as a proxy for sponsor's multiple on invested capital (MOIC).

# Chapter 5

# EMPIRICAL ANALYSIS

## 5-A) Variables and Methodology

*Part I: Operating Efficiency*

A. EBITDA margin: The EBITDA margin is calculated by taking EBITDA as a percentage of total sales. EBITDA equals earnings before interest, taxes, depreciation, and amortization. Essentially it is an operating income (EBIT) plus depreciation and amortization, which are not cash flows. I use the EBITDA margin instead of the EBIT margin as EBITDA is a more reliable proxy of firms' true cash flow from operations and is not biased by inconsistent accounting treatments on property, plant, & equipment (PP&E) and intangible assets across sample firms.

B. Profit margin: Profit margin is calculated by taking net income as a percentage of total sales. Since dividends that are paid to the equity ownership are determined by target firm's net income, profit margin is an important measure for potential equity return efficiency via dividends during the private period. Note that regardless of dividends, private equity still can achieve a high IRR through growth in EBITDA and a corresponding multiple expansion.

C. Return on Assets (ROA): Return on Assets is calculated by taking net income as a percentage of total assets. This measure shows how efficiently assets are deployed to generate net income to equity holders. This measure is limited in its usefulness in that TargetCo's assets are usually written up at the time of acquisition, affecting the firm's deferred tax assets, depreciation, and amortization.

D. Sales per Employee: This statistic is calculated by dividing total sales by total employees. The primary purpose of this ratio is to measure the efficiency of personnel utilization. Since employment reduction is a commonly discussed topic in LBOs, it is important to capture how changes in employment level can affect the firm's top-line performance.

*Part II: Cost Control*

A. CapEx / Sales: By taking capital expenditures as a percentage of total sales, the firm's investment policy is measured.

B. R&D / Sales: Dividing research and development expenses by total sales measures the level of investment in product innovation.

C. SG&A / Sales: Selling, general, and administrative expenses (SG&A) is an important line item on the income statement. Generally, it measures a firm's spending on non-production related costs including salaries of salespeople, managers, administrative staffs, advertising/marketing, office supplies, rent, utilities, insurance, licenses, and so on. By taking these costs as a percentage of total sales, the effectiveness of cost-cutting (and therefore a higher operating margin) and the effectiveness of restructuring activities can be measured. SG&A analysis is also common in the case of mergers and acquisitions since significant cost synergies are often possible.

D. Employee Headcount (implied): By calculating year to year percentage changes in implied employee headcount, the post-LBO impact on employment can be measured. Because of difficulties in gathering the exact annual number of staff that are hired/terminated, implied employee headcount is derived by dividing sales by sales per employee (this data is available on FactSet).

I collected these ratios ("control variables") for the following periods: one year before buyout (-1), buyout year (0), one year after buyout (+1), two years after buyout (+2), and three years after buyout (+3). As described in section 3-C, the majority of the LBOs were either still held or went through an SBO, making it difficult to gather financial data to calculate control variables. Among my initial sample of 261 buyouts, only 24 targets provided detailed financial information because they filed an IPO prospectus (S-1) or have publicly traded debt. To analyze industry-adjusted performance on these 24 deals, I identified three to five publicly traded peers ("public comparables") via FactSet (108 companies in total) for each deal in order to collect industry data on my control variables. I intentionally left out the Revenue & EBITDA growth of LBO firms as one of my control variables as most LBO sample firms go through some sort of asset sales after the buyout. This will depress overall earnings growth nominally, and adjusting for implied WholeCo revenue by tracking down divested assets' financial performance is not practical.

First, I calculated the median value of my control variables using each target's corresponding public peers. For margins that are negative due to a sub-zero EBITDA and net income, I assigned a value of 0 percent. If data is not available for certain year(s), I assign a "--" (hard coded value) that ensures that Excel functions do not compute median statistics.

Second, I compute the difference between year 0 control variables and year -1. This provides final year performance of target companies before they were taken private. I also subtract control variables from year +1 to 0, +2 to 0, and +3 to 0. Therefore, year 1, year 2, and year 3 performance compared to year 0 is measured. These calculations were done on both the control sample companies and their respective public comparables.

Third, I compared each sample firm's percentage change in control variables during -1 to 0, 0 to +1, 0 to +2, and 0 to +3 to the five public comparables. Accordingly, industry-adjusted abnormal performance during the above periods on each of the 24 control sample firms is measured.

I follow the methodology of DeAngelo (1988), Healy and Palepu (1988), and Kaplan (1989) used in their empirical studies of the phase 1 (~1990) buyout development.

Finally, I calculated the median of 24 industry-adjusted abnormal performance measured in step three. I note that in order to appropriately adjust by industry, I compute the median difference between sample and control on each deal as opposed to subtracting median changes in control firms to the corresponding aggregate median changes sample firms. The latter method will provide an inaccurate measure as it is likely that a sample target firm in the industrial sector is partially compared to the performance of all other companies in different industries that were originally meant to be compared to their respective sample targets.

**5-B) Analysis Results**

Table 4 reports the results of *Part I: Operating Efficiency*. Panel A shows that after a 5.4 percent decline in industry-adjusted EBITDA margin during the year before buyout, LBO target companies experienced abnormal outperformance compared to their industry peers of about 3.5, 0.6, and 2.4 percent in post-buyout year 1, year 2, and year 3, each. This finding is similar to Kaplan's (1989) findings on his 1979 to 1985 sample. Kaplan (1989) found that after a sub-industry level EBITDA margin during the -1 to 0 period, LBO target companies' operating income margin improve and surpass their public peers' margin post-buyout. This finding is also consistent with Smith (1990) and Guo *et. al* (2011).

On the other hand, Panel B (profit margin) reports a different result. Although not significant, LBO target companies' profit margin fell in comparison with their corresponding public peers during year 1 and year 2 by about 0.9 percent and 1.5 percent respectively (industry-adjusted). The year 3 results are more in-line with the industry level. One explanation is that

incremental interest expense from LBO financing debt does not offset post-buyout incremental sales or cost savings, resulting in a profit margin decrease. A decrease in net income is most likely an explanation for ROA underperformance to industry (see Table 4, Panel C). Only a few companies provided sales per employee information. Year 1, year 2, and year 3 industry-adjusted change in sales per employee is -14.7, -3.1, and 2.3 percent. The first year's sharp drop is heavily skewed by private equity firm Apax Partners buyout of Acelity, which declined 24.7 percent. The median change excluding that sample is -4.7 percent. It is observed that after abnormal underperformance in sales per employee over the first two years post-buyout, it slightly outperformed its industry peers in year 3. However, this data lacks credibility as very few companies disclosed sales per employee data, making the sample size too small.

**Table 4. Post-LBO Impact on Operating Efficiency**

| I. Operating Efficiency | From year *i* to year *j* | | | |
|---|---|---|---|---|
| | -1 to 0 | 0 to +1 | 0 to +2 | 0 to +3 |
| A. EBITDA Margin | *N=19* | *N=21* | *N=18* | *N=15* |
| Percentage change | -4.1% | 2.3% | -0.8% | 3.4% |
| Industry adj. percentage change | -5.4% | 3.5% | 0.6% | 2.4% |
| B. Profit Margin | *N=19* | *N=21* | *N=18* | *N=15* |
| Percentage change | -3.5% | -2.0% | -2.4% | -1.3% |
| Industry adj. percentage change | -3.1% | -0.9% | -1.5% | 0.1% |
| C. Return on Assets [(a)] | *N=18* | *N=19* | *N=16* | *N=13* |
| Percentage change | -2.6% | -2.1% | -2.2% | -2.2% |
| Industry adj. percentage change | -1.8% | -1.0% | -1.5% | -2.3% |
| D. Sales per Employee [(b)] | -- | *N=6* | *N=4* | *N=3* |
| Percentage change | -- | -3.3% | 0.4% | -1.7% |
| Industry adj. percentage change | -- | -14.7% | -3.1% | 2.3% |

(a) As reported on sample companies' balance sheet rather than fair market value of hard assets.
(b) Lacks credibility due to small sample size.

Note: Table 4 displays industry adjusted performance measure on sample firms' operations during buyout year -1 to 0, 0 to +1, 0 to +2, and 0 to +3.

Table 5 reports the results of *Part 2: Cost Control.* Panel A shows that the median industry-adjusted percentage changes on capital expenditures as a fraction of sales are essentially flat (0.0, 0.2, and -0.4 percent in year 1, year 2, and year 3). While the median percentage change for aggregate target samples (not adjusted for industry peers) shows a substantial drop in capital expenditures, public peers also decreased their spending on capital expenditures by a similar amount. This can be interpreted as buyout targets do not aggressively cut long term investment in order to service LBO debt as this will harm the firm's long term growth. Similarly, Rosenbaum and Pearl (2009) suggest that ideal LBO candidates do not require a significant amount of capital expenditures. It can be interpreted that private equities tend not to invest in companies requiring high capital expenditures since a substantial downsizing in asset investment cannot be achieved. In Panel B the R&D/Sales data availability is very limited since many sample firms do not split out R&D expense on the income statement. With limited information, I observe that the unadjusted and industry-adjusted change in median R&D/Sales is essentially flat in all years. Datta, Gruskin, and Iskandar-Datta (2013) also find no evidence of reductions in R&D for their RLBO sample.

In Panel C the SG&A/Sales data is more reliable in that a higher percentage of firms provided SG&A data. In the final year before buyout the median change in SG&A/Sales was +4.3 percent unadjusted and +2.9 percent industry-adjusted. This shows that before buyout, target firms were spending more on operating expenses than what their peers were spending. In year 1, year 2, and year 3 following the buyout, target firms decreased their SG&A/Sales to 2.9, 3.3, and 0.0 percent (industry-adjusted) each. This shows that during the first two years, target firms were better able to control their operating expenses which eventually become in-line with their public peers in year 3. This finding is consistent with Jensen (2010) in that LBOs provide better management discipline on costs.

Panel D measures changes in employment. In year 1 and year 2, industry-adjusted employee reductions were 1.6 percent and 1.3 percent. In year 3 however, it is observed that staffing was expanded 1.4 percent (industry-adjusted). This can be interpreted that after headcount adjustments to an optimal level (Williamson, 1964), operating efficiency is achieved (Datta, Gruskin, and Iskandar-Datta, 2013). As successful cost cuts in SG&A and the resulting EBITDA margin improvement are achieved during the first two years after buyout, target firms are able to hire employees for long-term growth. However, this finding may be skewed due to the small sample size. I was not able to find salary expenses per employee, pension, and benefits information for any of my sample companies. Therefore, Shleifer's and Summers' (1988) and Jones' and Hunt's (1991) claim of reduction in wage, pension, benefits as well as employee demoralization and increased pressure cannot be tested due to lack of empirical data.

**Table 5. Post-LBO Impact on Cost Control Measure**

| II. Cost Control | From year *i* to year *j* | | | |
|---|---|---|---|---|
| | -1 to 0 | 0 to +1 | 0 to +2 | 0 to +3 |
| A. CapEx / Sales | *N=16* | *N=20* | *N=17* | *N=14* |
| Percentage change | 4.1% | -10.1% | -11.4% | -7.9% |
| Industry adj. percentage change | 0.0% | 0.0% | 0.2% | -0.4% |
| B. R&D / Sales | *N=8* | *N=10* | *N=9* | *N=9* |
| Percentage change | 0.0% | -0.1% | 0.0% | 0.0% |
| Industry adj. percentage change | 0.1% | 0.0% | 0.0% | 0.0% |
| C. SG&A / Sales | *N=16* | *N=19* | *N=16* | *N=14* |
| Percentage change | 4.3% | -2.9% | -2.9% | -1.3% |
| Industry adj. percentage change | 2.9% | -2.9% | -3.3% | 0.0% |
| D. Employee Headcount (implied) [(a)] | -- | *N=6* | *N=4* | *N=3* |
| Percentage change | -- | -7.3% | -12.3% | 4.5% |
| Industry adj. percentage change | -- | -1.6% | -1.3% | 1.4% |

(a) By dividing sales by sales per employee (both data available on FactSet), implied employee headcount is derived.

Note: Table 5 displays industry adjusted performance measure on sample firms' cost spendings during buyout year -1 to 0, 0 to +1, 0 to +2, and 0 to +3.

Table 6 provides post-buyout leverage statistics during the private period. Panel A shows the industry-adjusted percentage change in free cash flows as a fraction of total sales. Free cash flow (FCF) is calculated in equation (1) as:

FCF = EBIT * (1-tax rate) + depreciation & amortization – capital expenditures – changes in net working capital (1)

It is a metric that examines target companies' availability to pay down incremental debt raised to fund the LBO. Median industry-adjusted changes for companies that disclosed free cash flows are -2.4, -2.3, and -3.7 percent in year 1, year 2, and year 3. This finding suggests that within 3 years after buyout, sample companies were not able to start the de-levering process since free cash flows margin did not improve.

This is further evidenced by Panel B, Panel C, and Panel D which show median Debt/EBITDA, EBITDA/Interest Expenses, and Debt/Assets statistics during the first three years. Pre-buyout median Debt/EBITDA for 22 sample firms that disclosed sufficient information is 1.8x. After the buyout, this multiple increased to 5.6x. In year 1, year 2, and year 3, sample companies remained highly levered as median Debt/EBITDA for these periods are 4.7x, 4.8x, and 7.1x each. Similarly, pre-buyout median EBITDA/Interest Expenses is 9.5x. This means that for every $100 million in EBITDA, total interest expenses are only $11 million. Therefore, the higher the EBITDA/Interest ratio the better. However, median EBITDA/Interest Expenses multiples during year 0, year 1, year 2, and year 3 sharply drop as they are 3.0x, 1.7x, 2.1x, and 2.3x. This equals total interest expenses of $33 million, $58 million, $48 million, and $44 million spent on every $100 million in EBITDA, compared to an $11 million level a year before the buyout. The Debt/Assets ratio statistics also confirm that significant leverage that is being retained 3 years from the buyout. Median pre-buyout Debt/Assets is 29.0 percent. Following the buyout, it increases to

35.2, 44.8, 52.2, and 54.7 percent in year 0, year 1, year 2, and year 3. Year 0 median Debt/Assets of 35.2 percent is lower than year 1, year 2, and year 3 median as Debt/Assets is calculated as the average of beginning fiscal year and ending fiscal year debt and asset balances. Therefore, the year -1 ending balance that is used as year 0 beginning balance brings down the year 0 Debt/Assets ratio. These findings are supportive to Datta's, Gruskin's, and Iskandar-Datta's (2013) study in that LBO firms remain highly levered with de-levering starting post-RLBO when ownership concentration declines. In addition, Datta, Gruksin, and Iskandar-Datta (2013) suggest that private equity firms are not necessarily motivated by firms' debt underutilization when screening buyout targets. My finding confirms their view in that my sample firms Leverage in year -1 (pre-buyout year) is higher compared to industry peers.

**Table 6. Post-LBO Impact on Leverage**

| III. Leverage | | From year *i* to year *j* | | | |
|---|---|---|---|---|---|
| | | -1 to 0 | 0 to +1 | 0 to +2 | 0 to +3 |
| A. Free Cash Flow / Sales | | *N=16* | *N=19* | *N=16* | *N=13* |
| Percentage change | | -4.6% | -1.7% | -2.8% | -3.8% |
| Industry adj. percentage change | | -1.3% | -2.4% | -2.3% | -3.7% |
| | -1 [(a)] | 0 | +1 | +2 | +3 |
| B. Debt / EBITDA | *N=22* | *N=19* | *N=22* | *N=20* | *N=17* |
| Control median | 1.8x | 5.6x | 4.7x | 4.8x | 7.1x |
| Public comparables median | 1.2x | 1.3x | 1.7x | 1.7x | 1.9x |
| *Unadj. abnormal leverage* [(b)] | *0.5x* | *4.3x* | *3.0x* | *3.1x* | *5.2x* |
| C. EBITDA / Interest Expenses | *N=19* | *N=21* | *N=24* | *N=20* | *N=17* |
| Control median | 9.5x | 3.0x | 1.7x | 2.1x | 2.3x |
| Public comparables median | 12.2x | 11.3x | 12.2x | 11.6x | 13.5x |
| D. Debt / Assets [(c)] | *N=22* | *N=19* | *N=22* | *N=20* | *N=17* |
| Control median | 29.0% | 35.2% | 44.8% | 52.2% | 54.7% |
| Public comparables median | 17.2% | 18.0% | 18.7% | 18.9% | 23.3% |

(a) Higher leverage on LBO targets compared to public peers a year prior to buyout is observed.
(b) Simply calculated as aggregate median on sample companies minus aggregate median on all companies used as public comparables. Therefore, it is industry unadjusted.
(c) As reported on sample companies' balance sheet rather than fair market value of hard assets.

# Chapter 6

## CONCLUSIONS

This paper investigates phase 4 private equity development and modern LBO characteristics by analyzing 261 deals completed between 2008 and 2017. It is an extensional and distinguishable study from existing research in that modern LBO markets have changed materially from the pre-2008 buyout boom era (most previous studies use pre-2008 samples). In contrast to LBOs that were done before 2008, leverage ratios on total transaction value are lower for phase 4 LBOs. This may result from a changing regulatory environment for investment banks which execute and finance LBOs. Nonetheless, investment banks are financially incentivized to complete LBOs as most of them act as an M&A adviser and an arranger for financing, collecting fees on both sides. Diminishing leverage ratios during phase 4 has forced private equity firms to use more of their own cash (equity) to take companies private through LBOs. Moreover, there are more private equity firms today than there were during phases 1~3, which means there are more dry powder chasing deals. As a result, private equity firms' sourcing and acquisition of companies at the lower price have become more competitive and difficult since there are more bidders driving up the valuation. Finally, lower leverage and higher acquisition prices have dragged down private equity's rate of return on LBOs compared to returns achieved during phases 1~3. I find that top quartile private equity companies' average IRR fell from 25.2 percent (1992~2007) to 20.2 percent (2008~2013). Similarly, the average multiple on invested capital (MOIC), which measures nominal cash return not taking into account the time value of money, fell from 2.3x (1992~2007) to 1.6x (2008~2013). However, lowering LBO returns does not necessarily result in diminishing demands on private equity investing. Since a steep drop in 2009, private equity fund-raising has grown at a 10.2 percent annual compound growth rate (CAGR). Fiscal 2017 fund-raising amounts

were $453 billion, which surpasses the $413 billion peak in 2007. This strong demand may stem from institutional investors that have become more risk-averse due to a historically low yield environment and poor performing hedge funds. These investors have long been major private equity limited partners in order to diversify their portfolios by getting exposure to multi-asset alternatives.

The literature on phases 1~3 LBOs suggest that private equity management provides more disciplinary effects on firm operations in order to service debt. In addition, better aligned financial incentives for managers provide more powerful corporate governance and motivation to maximize firm value. I hypothesize that LBO firms are likely to be even more disciplined with firm operation and value maximization since private equity sponsors now have to put up more equity in the transaction structure (shifting more risk from LBO creditors to private equity owners). Supporting the previous literature, my sample firms during phase 4 demonstrate noticeable improvements in cost-cutting and thus, EBITDA margins. These cost-cuts are mainly from selling, general, and administrative (SG&A) rather than capital expenditures and R&D. This means that LBO firms do not aggressively curtail investing activities in hard assets and product innovation as this will harm the firm's growth in the long-term. Negative changes in employee headcount is observed in the first two years following the buyout. Consequentially, SG&A margins improved during the same period on an industry-adjusted basis. Three years after the buyout, positive changes in employee headcount is observed while the EBITDA margin still improved in comparison to non-LBO firms. In conclusion, evidence found on phase 4 LBOs supports the evidence found on previous studies in that temporary reductions in staffing to an optimal level results in enhanced productivity and efficiency. When optimal employment and improvement in margin is achieved, firms hire more employees to exploit growth. This contradicts the ethical stigma and public criticism of a wealth transfer from employees to private equity owners in that temporary employment reductions are

necessary for firm restructuring and more employees are hired once LBO firms become more efficient through better corporate monitoring. This is value-creating to the economy in the long-term.

Leverage retention post-LBO is also an explanation for continuous efficiency improvements during the private period. I find that LBO firms remain highly levered and incur high interest expenses consistently throughout the private period. Datta, Gruskin, and Iskandar Datta (2013) suggest that LBO firms' deleverage starts after LBO is exited (RLBO). Therefore, LBO firms remain closely monitored (to service debt) and more efficient until private equity exits. I do not investigate post-RLBO firm performance under new ownership in this paper (and this is the area to be explored more when dealing with phase 4 samples). High interest payments associated with retention of leverage results in industry-adjusted underperformance on a net income basis (profit margin and return on assets). It is likely that cost savings on firm's operation do not offset high interest payments from incremental LBO debt. Although LBO firms underperform on a bottom-line level, valuation is normally quoted using an Enterprise Value to EBITDA multiple, which is a pre-interest earnings measure. Therefore, private equity companies are likely to focus on EBITDA growth and EV/EBITDA multiple expansion so long as interest expenses are not pushing them to negative free cash flow territory, and private equity companies do not plan on de-levering during the holding period.

My sample also provides evidence on firm value maximization through enhanced cost structure and business efficiency as 80 percent of phase 4 LBOs were re-sold at a higher Enterprise Value/EBITDA multiple than that paid at the time of acquisition (multiple expansion). Therefore, better aligned management's financial incentive (suggested by Jensen, 2010) is realized through more equity ownership than that during the pre-buyout public period. I also find that the IPO is the least preferred option for LBO exit as private equity firms can achieve better valuation from a

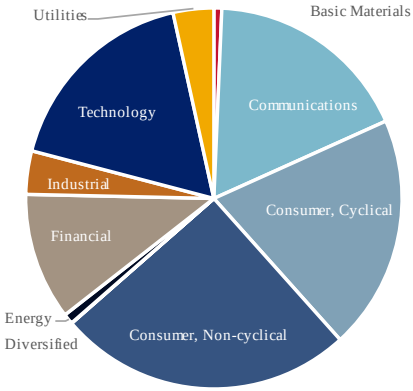
more competitive acquisition bidding environment. In this environment, strategic buyers seeking growth through M&A by allowing private equity companies to compete to strike a merger agreement. I also find that average private equity holding period is 4.21 years for phase 4 buyouts. It can be concluded that an LBO exit after a holding period of less than 3 years is not value maximizing as successful restructuring and efficiency improvements takes at least 4 years. On the other hand, too long a holding period will likely lower the internal rate of return (IRR) private equity firms can achieve.

# APPENDICES

## Appendix A. Sector Distribution of Sample LBO Firms

*$USD in millions*

| Target Industry | Volume | Percent[(a)] | *N* |
|---|---|---|---|
| Basic Materials | $3,300 | 0.7% | 5 |
| Communications | 85,870 | 17.7% | 47 |
| Consumer, Cyclical | 96,970 | 19.9% | 52 |
| Consumer, Non-cyclical | 123,170 | 25.3% | 53 |
| Diversified | 160 | 0.0% | 1 |
| Energy | 4,240 | 0.9% | 5 |
| Financial | 52,560 | 10.8% | 25 |
| Industrial | 17,890 | 3.7% | 24 |
| Technology | 84,980 | 17.5% | 44 |
| Utilities | 16,970 | 3.5% | 5 |
| Total | $486,110 | 100.0% | 261 |




(a) Calculated as a percentage of total deal volume

Note: Table 3 provides a sector distribution of 261 sample firms based on total transaction value. The statistics supports the view that private equity firms do not tend to invest in businesses that are heavily regulated (Utilities) and that require significant amount of capital expenditures (Rosenbaum and Pearl, 2009) such as Basic Materials, Energy, and Industrials due to the free cash flows needed to service additional debt. Consumer & Retail companies were the most common buyout target in my sample, representing 45.2 percent. This may be a proxy to Amazon's continued disruption of the traditional person-to-person sales model, causing retail businesses to underperform. This underperformance leads to low stock prices which attracts private equity companies to buy low, restructure the business to the optimum efficiency level, and exit at a profit. Technology, Media, and Communication (TMT) companies were the second most likely targeted by PE firms at 35.2 percent. Financials came at third with 10.8 percent.

## Appendix B. Leveraged Buyout Advisory League Table

*$USD in millions*

| Rank | Adviser | Market Share (%) | Total Deal Value |
|---|---|---|---|
| 1 | BofA Merrill Lynch | 15.6% | $262,800 |
| 2 | Goldman Sachs | 14.4% | 242,637 |
| 3 | JP Morgan | 12.5% | 210,304 |
| 4 | Morgan Stanley | 10.8% | 181,519 |
| 5 | Citi | 10.2% | 172,546 |
| 6 | Barclays | 9.2% | 154,541 |
| 7 | Deutsche Bank | 8.6% | 145,172 |
| 8 | Credit Suisse | 8.6% | 144,116 |
| 9 | Centerview Partners | 5.1% | 86,784 |
| 10 | Wells Fargo | 5.0% | $85,110 |

| Rank | Adviser | Market Share (%) | Deal Count |
|---|---|---|---|
| 1 | Goldman Sachs | 15.5% | 68 |
| 2 | BofA Merrill Lynch | 14.2% | 62 |
| 3 | Barclays | 12.1% | 53 |
| 4 | Morgan Stanley | 10.5% | 46 |
| 5 | Credit Suisse | 9.4% | 41 |
| 6 | JP Morgan | 9.1% | 40 |
| 7 | Citi | 8.0% | 35 |
| 8 | Deutsche Bank | 8.0% | 35 |
| 9 | Jefferies | 7.1% | 31 |
| 10 | RBC Capital Markets | 6.2% | 27 |

Note: It is often that both acquirers and targets hire multiple investment banks for deal advisory. Such overlaps are the reason why total deal value and total deal count exceed the actual LBO volume and deal count of 261 samples displayed in Appendix A and Appendix B.

## Appendix C. Sample Buyout Firm List

*$USD in millions*

| Rank | Buyer Name | Deal Count | Average Size |
|---|---|---|---|
| 1 | Apollo Global Management | 16 | $3,921 |
| 2 | Blackstone Group | 12 | 2,538 |
| 3 | TPG Capital | 11 | 4,057 |
| 4 | Thoma Bravo | 11 | 1,447 |
| 5 | Vista Equity Partners | 9 | 1,876 |
| 6 | Neuberger Berman Group | 8 | 1,960 |
| 7 | Golden Gate Capital | 8 | 1,814 |
| 8 | Siris Capital Group | 8 | 764 |
| 9 | Leonard Green & Partners | 7 | 2,569 |
| 10 | Canada Pension Plan Investment Board | 6 | $6,945 |

| Rank | Buyer Name | Total Value | Average Size |
|---|---|---|---|
| 1 | Apollo Global Management | $62,743 | $3,921 |
| 2 | TPG Capital | 44,622 | 4,057 |
| 3 | Canada Pension Plan Investment Board | 41,668 | 6,945 |
| 4 | Bain Capital Private Equity | 36,744 | 6,124 |
| 5 | 3G Capital | 31,337 | 15,669 |
| 6 | Blackstone Group | 30,453 | 2,538 |
| 7 | Berkshire Hathaway | 27,403 | 27,403 |
| 8 | AXA | 27,160 | 27,160 |
| 9 | Thomas H Lee Partners | 26,547 | 13,274 |
| 10 | BC Partners Holdings | $26,458 | $13,229 |

Note: This table shows top 10 most active private equity firms in terms of deal count and average deal size. It is notable that Canada Pension Plan Investment Board, which is a pension fund, direct invests in buyout rather than through private equity.

# BIBLIOGRAPHY

Amess, K., & Wright, M. (2012). Leveraged buyouts, private equity and jobs. *Small Business Economics*, 38(4), 419-430.

Bargeron, L., Schlingemann, F., Stulz, R., & Zutter, C. (2008). Why do private acquirers pay so little compared to public acquirers? *Journal of Financial Economics*, 89(3), 375–390.

Bharath, S., & Dittmar, A. (2010). Why do firms use private equity to opt out of public markets? *Review of Financial Studies*, 23(5), 1771-1818.

Billett, M., Jiang, Z., & Lie, E. (2010). The effect of change-in-control covenants on takeovers: Evidence from leveraged buyouts. *Journal of Corporate Finance*, 16(1), 1-15.

Billett, M., Tao-Hsien, D., & Mauer, D. (2004). Bondholder wealth effects in mergers and acquisitions: New evidence from the 1980s and 1990s. *Journal of Finance*, 59(1), 107–135.

Bruner, R., & Paine, L. (1988). Management buyouts and managerial ethics. *California Management Review*, 30(2), 89-106.

Datta, S., Gruskin, M., & Iskandar-Datta, M. (2013). Lifting the veil on reverse leveraged buyouts: What happens during the private period? *Financial Management*, 42(4), 815-842.

DeAngelo, L. (1988). Managerial competition, information costs, and corporate governance: The use of accounting performance measures in proxy contests. *Journal of Accounting and Economics*, 10(1), 3-36.

DeAngelo, H., DeAngelo, L., & Rice, E. (1984). Going private: Minority freezeouts and stockholder wealth. *Journal of Financial Economics*, 27(2), 367-401.

Femino, L. (2014). Ex ante review of leveraged buyouts. *Yale Law Journal*, 123(6), 1830-1830.

Frank, J., & Torous, W. (1989). An empirical-investigation of united-states firms in reorganization. *Journal of Finance*, 44(3), 747-769

Guo, S., Hotschkiss, E., & Song, W. (2011). Do buyouts (still) create value? *Journal of Finance*, 66(2), 479-517.

Healy, P., & Palepu, K. (1988). Earnings information conveyed by dividend initiations and omissions. *Journal of Financial Economics*, 21(2), 149-175

Jensen, M. (1986). Agency costs of free-cash-flow, corporate finance, and takeovers. *American Economic Review*, 76(2), 323–329.

Jensen, M. (1989). Eclipse of the public corporation. *Harvard Business Review*, 67(5), 61–75.

Jensen, M. (2010). Active investors, LBOs, and the privatization of bankruptcy. *Journal of Applied Corporate Finance*, 22(1), 77-85.

Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.

Jensen, M., & Murphy, K. (1990). Performance pay and top-management incentives. *Journal of Political Economy*, 98(2), 225-264.

Jones, T., & Hunt, R. (1991). The ethics of leveraged management buyouts revisited. *Journal of Business Ethics*, 10(11), 833-840.

Kaplan, S. (1989). The effects of management buyouts on operating performance and value. *Journal of Financial Economics*, 24(2), 217-254.

Kaplan, S., & Strömberg, P. (2009). Leveraged buyouts and private equity. *Journal of Economic Perspectives*, 23(1), 121-146.

Kosedag, A., Qian, J., & Mehran, J. (2009). Reverse-LBOs, re-LBOs and informational asymmetry hypothesis of LBO transactions. *Managerial Finance*, 35(8), 716-728.

Lehn, K. & Poulsen, A. (1989). Free cash flow and stock holder gains in going private transactions. *Journal of Finance*, 44(3), 771-787.

Marais, L., Schipper, K., & Smith, A. (1989). Wealth effects of going private for senior securities. *Journal of Financial Economics*, 23(1), 155-191.

Mehran, H., & Peristiani, S. (2010). Financial visibility and the decision to go private. *Review of Financial Studies*, 23(2), 519-547.

Meuleman, M., Wright, M., Manigart, S., & Lockett, A. (2009). Private equity syndication: Agency costs, reputation and collaboration. *Journal of Business Finance & Accounting*, 36(5-6), 616-644.

Myers, S. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, 5(2), 147-175.

Pindur, D. (2007). Value creation in successful LBOs (1. Aufl.;2007; ed.). *Wiesbaden: Deutscher Universitäts-Verlag*.

Rigamonti, D., Cefis, E., Meoli, M., & Vismara, S. (2016). The effects of the specialization of private equity firms on their exit strategy. *Journal of Business Finance & Accounting*, 43(9-10), 1420-1443.

Rosenbum, J., & Pearl, J. (2009). *Investment banking: valuation, leveraged buyouts, and mergers & acquisitions.* Hoboken, NJ: John Wiley & Sons, Inc.

Seth, A., & Easterwood, J. (1993). Strategic redirection in large management buyouts: The evidence from post- buyout restructuring activity. *Strategic Management Journal*, 14(4), 251-273.

Shleifer, A., & Summers, L. (1988). Breach of trust in hostile takeovers. *National Bureau of Economic Research.*

Smith, A. (1990). Corporate-ownership structure and performance - the case of management buyouts. *Journal of Financial Economics*, 27(1), 143-164.

Stein, B. (1987). Shooting fish in a barrel: Why management always makes a bundle in an LBO. *Barron's National Business and Financial Weekly.*

Stein, B. (1988). A new low? the RJR LBO makes A travesty of fiduciary responsibility. *Barron's National Business and Financial Weekly*, *68*(46), 16

Thompson, S., & Wright, M. (1995). Corporate governance: The role of restructuring transactions. *Economic Journal*, 105(430), 690–703.

Warga, A., & Welch, I. (1993). Bondholder losses in leveraged buyouts. *Review of Financial Studies*, 6(4), 959-982.

Wiersema, M., & Liebeskind, J. (1995). The effects of leveraged buyouts on corporate growth and diversification in large firms. *Strategic Management Journal*, 16(6), 447-460.

Williamson, O. (1964). *The economics of discretionary behavior: Managerial objectives in a theory of the firm*. Englewood Cliffs, NJ: Prentice Hall

Wright, M., Hoskisson, R., & Busenitz, L. (2001). Firm rebirth: Buyouts as facilitators of strategic growth and entrepreneurship. *Academy of Management Executive*, 15(1), 111–125.

Wright, M., Hoskisson, R., Busenitz, L., & Dial, J. (2000). Entrepreneurial growth through privatization: The upside of management buy-outs. *Academy of Management Review*, 25(3), 591–601.

Wright, M., Thompson, S., & Robbie, K. (1992). Venture capital and management-led leveraged buyouts: A European perspective. *Journal of Business Venturing*, 7(1), 47-71.

Yousfi, O. (2012). Financial capital structure in LBO projects under asymmetric information. *IUP Journal of Corporate Governance*, 11(3), 7.

# ACADEMIC VITA

**Academic Vita of Eric J. Oh**
ericoh95@gmail.com
https://www.linkedin.com/in/ericoh12

Education: The Pennsylvania State University
Major: Finance
Honors: Yes

Thesis Title: Phase 4 Private Equity Development: Reshaping Buyout Industry Dynamics and Review of Ethics

Thesis Supervisor: Mark Gruskin

Work Experience
Date: July 2018~
Title: Analyst
Description: Mergers & Acquisitions advisory within the Investment Banking Division
Company: Bank of America Merrill Lynch (New York City)
Supervisor's Name: John Yi, Kristina Coppolino

Past Internships: Morgan Stanley (Private Wealth Management), Tullett Prebon (Inter-Dealer Brokerage)

Grants Received: Pierce Trustee Scholarship, Tsui Honors Scholarship, UG Scholarship for Talented Student, Evans Trustee Scholarship, Provost 4 Year Merit

Awards: Rose Cologne Keystone Citizen Award, Evan Pugh Scholar Award, President Sparks Award, President Freshman Award

Professional Memberships: Beta Gamma Sigma
Community Service Involvement: Unpaid internship with U.S. Congressman Charlie Dent in the Constituent Services department

International Education: K-8 education in South Korea
Language Proficiency: English, Korean