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# Understanding the Effectiveness of Value Creation Strategies Used in Private Equity

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## ABSTRACT

The purpose of this thesis is to get a better understanding of the effectiveness of value creation strategies private equity firms use in their respective portfolio companies during the investment hold period. Private equity in general is not as transparent of an asset class compared to other investing strategies, thus the broader investing community often does not know how companies benefit from partnering with a private equity firm. The paper therefore starts with a comprehensive introduction of how the private equity industry started in the early 1900s with J.P. Morgan purchasing Carnegie Steel Co. and since evolved into a popular asset class among institutional investors. Moreover, the thesis dives deeper into specific value creation levers firms use, incorporating insights from an operating partner at a leading middle-market private equity firm in the United States. Data presented in this paper provided mixed results regarding private equity's effect on portfolio company performance a few years post-IPO, however the paper explores many tangible and intangible improvements private equity firms implement that may not provide immediate financial success, but long-term viability. Henry Kravis, Co-Chairman, and Co-CEO of KKR once said that private equity is so much more than its literal definition and that it always has been about building value over the long-term. This paper takes a closer look at exactly how that unfolds.

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# Chapter 1

## Introduction

Private equity at the very core is a type of financing where firms use equity to invest in private companies. Colloquially known as "PE," the private equity industry can be traced back to the late 1940s when the first venture capital firms were formed. Typically, private equity professionals invest in mature companies across a diverse set of industries, with strong cash flows, minimal capital expenditures, and opportunities for growth. These deals can be majority or minority acquisitions, allowing for value creation opportunities and professionalization of businesses. The industry developed a notorious reputation for being an opaque and non-transparent asset class where funds realize higher than normal internal rates of return (IRR) while leaving companies they invested in struggling to remain in business. Private equity has gone through many economic cycles and with that, several different labels in the effort to relate more with the public and broader investing community. At one point called vulture funds, to being called "leveraged buyouts" in the 1980s leverage buyout boom, to being formalized into "private equity" in the early 2000s, the industry looked very different than it does today, where the "asset class was new, and so too was its level of sophistication" (Zeisberger, Prahl, and White 2017).

As private equity explored new sources of funding, different capital structures, and larger pools of equity, investment firms failed to explain such complexities to the public, therefore building a reputation of being "corporate raiders" or "barbarians" that acquired, stripped, and sold an asset for a profit (Zeisberger, Prahl, and White 2017). Henry Kravis, Co-Chairman, and Co-CEO of KKR admitted that with 40 years of hindsight, miscommunication with various stakeholders was one of the hardest lessons to learn along the way. Kravis continued by saying that there is more to investing than buying low and selling high, often thinking of himself as an industrialist who continuously asks himself, "what can we do to make [companies] better? How can we create value? What constituents should we be mindful of"

(Zeisberger, Prahl, and White 2017)? Kravis once brought up a rhetorical question that sums up the PE industry: “so what is private equity? I hope I’ve made clear that private equity is so much more than its literal definition. For me, private equity always has been and always will be about building value over the long-term” (Zeisberger, Prahl, and White 2017).

**Overview and Evolution of Private Equity**

The first ever private equity transaction can be traced back to 1901, when J.P. Morgan–the man, not the institution–purchased Carnegie Steel Co. for $480 million from Andrew Carnegie and Henry Phipps (Vault 2022). Since this deal and through the 1950s, there were many instances where investors would invest private money into startups and commercial-stage businesses, which is now considered as venture capital; however, buying out well-established, public companies was not as mainstream. This changed in 1953, when President Dwight D. Eisenhower signed the Small Business Act, which created the Small Business Administration (SBA 2023) to “help Americans start, grow, and build resilient businesses…and protect the interests of small business concerns; preserve free competitive enterprise; and maintain and strengthen the overall economy of the nation” (SBA 2023). The SBA was a critical law passed by Congress as it paved the way for government loans to private investments firms, which allowed these firms to use more leverage to fund larger deals. It took some years for investors to play around with this novel concept of leverage until Lewis B. Cullman engineered the first modern leveraged buyout of Orkin Exterminating Co. in 1954, where he and his colleague used thousand dollars of their own money to buy Orkin for $62.4 million (Hotchkiss 2019). In the 1970s however, the government started to raise capital gains taxes, which limited fledgling private equity firms to implement leverage in their respective deals while also restricting pension funds in 1974 from investing in private equity funds, which were regarded as risky investments (Vault 2022.)

The significant boom of private equity activity started in the 1980s, when the government reversed its course on restricting pension funds and relaxing capital gains taxes and "money flowed back into private equity funds and some of the best-known firms were founded–Bain Capital in 1984, The Blackstone Group in 1985, and The Carlyle Group in 1987" (Vault 2022). Figure 1 below gives an idea of how the typical private equity fund operates. Throughout the thesis, the focus will primarily be on how the red box, the private equity firm, works with the black box, the portfolio company, through the value creation phase.

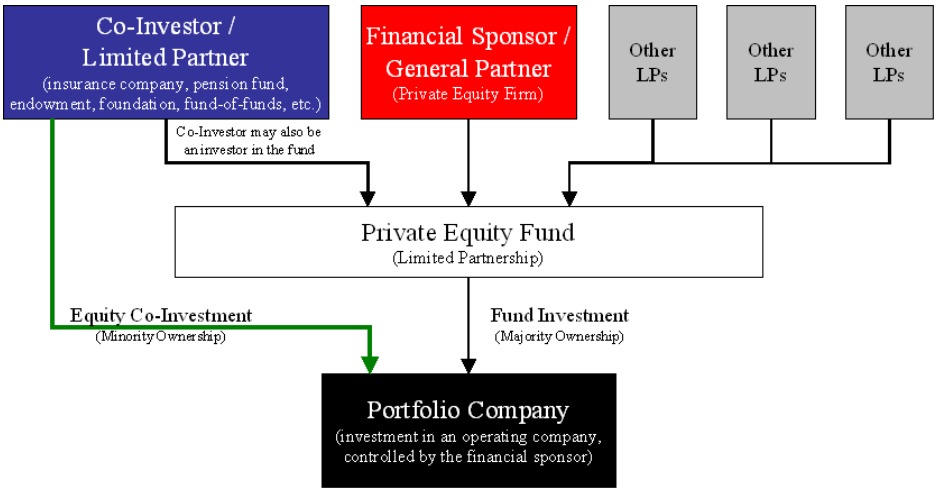


**Figure 1. Private Equity Fund Structure**

Source: Wikipedia

The 80s also saw the rise of business magnates such as Carl Icahn, who bought TWA Airlines in 1985 through a leveraged buyout transaction, cementing his reputation as a "corporate raider." Furthermore, KKR bought RJR Nabisco, an American tobacco and food products company, for $31.4 billion, a deal that inspired the award-winning novel, *Barbarians at the Gate*. Every investment bank at the time wanted a piece of the action and the deal offered a select few a large profit by piling significant amount of debt while extracting value from the company. The RJR Nabisco deal "started a debate over

the ethics of Wall Street and the outsized greed of some of its participants," and the corporate kleptocracy of the 1980s (Beattie 2022).

The 1990s saw rapid technological growth, with the period often regarded as a "tech boom," with companies' stock prices skyrocketing, even those public companies who were fundamentally struggling as a business. This dynamic limited private equity involvement since it was more difficult to justify buying companies at a higher price than usual, that too through a traditional buyout (Vault 2022). While the 1990s allowed for venture capital investment, traditional buyout investing didn't fully comeback until the early 2000s, when the markets faced the "dot-com" crash. The crash saw the Nasdaq index tumble from a high of 5,048 on March 10, 2000, to 1,139 on October 4, 2002, a 76.81% fall (Hayes 2022). While many retail investors faced significant losses, this period meant great opportunities for private equity investors to come in and buy undervalued companies. Shortly after in 2003, Congress passed the Sarbanes-Oxley Act, which implemented financial regulations and auditing procedures to prevent financial fraud. This law put pressure on companies to hit their numbers which made private buyouts more attractive (Vault 2022). In addition, the early 2000s saw a rise in hedge funds that needed to deploy capital, which led to a variety of institutional investors heading towards private equity.

Looking back at early 2007, private equity firms were having a successful year, with the leveraged buyout of the nation's largest utility company, TXU Corp., a $44.3 billion private buyout transaction (Vault 2022). However, the summer of 2007 saw private equity demand significantly fall due to the housing and subprime mortgage crisis. The result of this crisis was general tightening of credit, decrease in fund exits, and capital drying up. For example, Cerberus Capital Partners struggled to borrow $12 billion to purchase the Chrysler Group. When it finally secured the financing, it did so at unfavorable terms. Although recessions have historically resulted in less private equity activity (468 fund exits in the U.S. in 2008, compared to 1,213 in 2016) (Vault 2022), those firms that do participate, have generally seen stable returns and less volatility than public markets. Figure 2 below shows private equity's overall resilience and fast recovery from the dot-com crash compared the S&P 500.

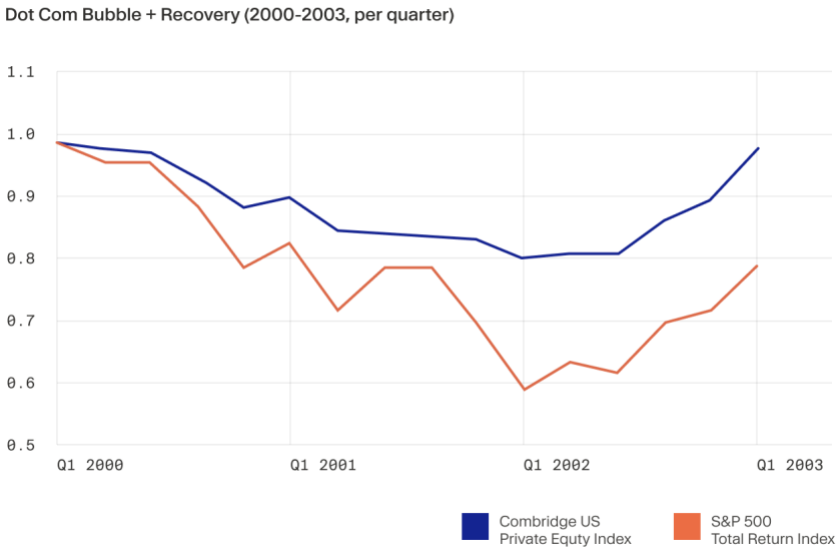


**Figure 2. Dot-Com Bubble Private Equity Performance vs. S&P 500**

Source: Moonfare

Moving through the 2010s, private equity deal activity remained strong and less than deal size, deal proliferation marked the decade; in 2009, private equity firms completed 1,927 deals worth $142 billion and 5,180 deals by 2018 worth $727 billion (Nocera 2019). At the turn of the decade, not only private equity, but the global economy was impacted by the COVID-19 pandemic. For the first six months of 2020, PE activity remained low due to government mandated lockdown measures. However, dealmakers were quick to deploy capital in the second half of 2020 even though deal count dropped 24% that year (MacArthur et al. 2021). Like in 2000 and 2009, private equity firms were once again tested in 2020 but momentum remained strong as the federal reserve "aggressively pumped trillions into the financial economy, easing liquidity concerns for firms and their portfolio companies; that shifted attention from portfolio triage back to making deals" (MacArthur et al. 2021). Because of the significant amount of money pumped into the economy by the U.S. central bank, firms saw less portfolio company distress while also witnessing record-high valuations.

Private equity has had its ebbs and flows as an industry since the dawn of the 20th century, but one thing it has consistently done is quickly adapt to market forces. For example, Henry Kravis believes that PE as an industry has learned to make a difference by integrating performance-focused investment strategies with environmental, social and governance (ESG) initiatives. The idea behind this shift, which started gaining traction in the 2010s, is to invest in communities of the corporations private equity firms invest in (Zeisberger, Prahl, and White 2017). Whether that be improving municipal water treatments facilities, implementing economic initiatives in underprivileged communities, or promoting eco-efficiency in plants and factories, ESG practices are becoming a "focal point throughout the lifecycle of an investment" and an ever-growing aspect of value creation strategies. (Zeisberger, Prahl, and White 2017). ESG is merely one new development in private equity, but to attract more sophisticated investors to the asset class, improve portfolio companies through value creation, or generate higher IRR (see Figure 3 below for comparison between net IRR of S&P 500 and U.S. buyout funds over a 30-year investment horizon), private equity must constantly change. As General Eric Shinseki once said, "if you don't like change, you will like irrelevance even less" (Zeisberger, Prahl, and White 2017).

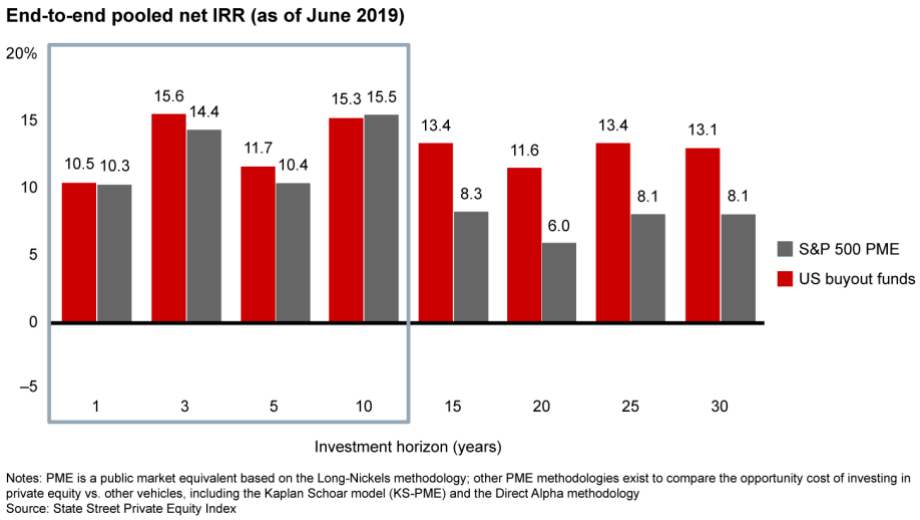


**Figure 3. PE Buyout Performance vs. S&P 500**

Source: Bain and Company

**Typical Private Equity Transaction Timeline**

"Dry powder" is a term often used in the private equity industry to describe the amount of committed, but unallocated capital investment firms have. As of 2022, dry powder rose to a record-high of $3.7 trillion (MacArthur et al. 2023). Because of the heavy competition firms face in PE and limited number of investment opportunities, fund managers must strike the right balance between quickly deploying capital they've raised from limited partners (LPs) during fundraising rounds yet being patient with their money, so they invest in companies that generate a favorable IRR. This means that private equity firms must have an organized transaction timeline that will give them time to do the necessary due diligence on the firm, sign legal documents, and then ultimately transition the newly acquired portfolio company to the value creation team, often led by operating partners.

The first step in the transaction process is sourcing and deal teasers. This is when private equity firms' business development teams source for investment opportunities through equity research reports, networking events, tradeshows, conversations with industry experts and contacts at investment banks, or cold-calling initiatives (Dealroom 2023). Private equity firms, which are usually termed the "buy-side," often interact with investment banks, "sell-side" advisors, who are helping companies with the sale of their business. These investment banks initially release a "teaser" which is no more than a one- or two-page deal summary on the target company, but the company name tends to be blinded at this phase. Teasers give a flavor of the company in discussion and attracts several financial and strategic buyers. If a private equity firm likes what they say see, they will execute a non-disclosure agreement (NDA) which allows the PE firm access to a confidential information memorandum (CIM). A CIM is much more detailed than the teaser, often being 60-70 pages long, giving potential buyers a comprehensive understanding of the company. Private equity firms on the other hand take copious notes to understand the financials and overall business model of the company before going ahead with any further diligence.

A CIM allows private equity firms to pinpoint areas where they could come in and create value since they've either had experience dealing with a certain problem in one of their portfolio companies or

have an in-house expert who can suggest improvements. Once PE firms get past the CIM, it is usual to start kicking off initial due diligence streams and coming up with financial projections over the following 3-7 years, which is the typical investment timeline. Investment banks set up an online data room that potential buyers can access to get more detailed information on a target company, but this only tends to happen when private equity firms submit an indication of interest (IOI). An IOI is a non-binding contract that demonstrates a buyer's interest in a company at a certain valuation. An investment bank then proceeds to select a few bids that offer favorable valuations to proceed to the next auction round. An IOI consists of a purchase price, post-acquisition capital structure, the private equity firm's experience and expertise, value creation strategy, and credibility of the offer (Dealroom 2023). At this point of the deal process, private equity firms have completed initial diligence and have also developed a 30–40-page investment presentation that lets a firm's respective investment committee know more about the deal and gather thoughts on the target company. This presentation consists of a company overview, market/industry overview, financial/valuation thoughts, key risks, and exit details (Dealroom 2023). If the presentation is approved internally, deal teams start to accelerate the diligence process by requesting additional information in the data room from investment bankers, discuss leverage details with lenders, and consult third party diligence providers to do further financial, commercial, and legal diligence (Dealroom 2023). Before submitting a letter of intent (LOI), which is a binding final bid, PE firms develop another final investment presentation to their internal team to get final thoughts, confirm the valuation range, and vote on the target company. If the LOI is approved by the target company and investment bank, the buyer and seller will sign the deal, with the help of lawyers of both parties.

The private equity transaction timeline is an arduous one to say the least. PE professionals need to be prompt, efficient, and well-organized since there are many moving parts. It takes time to reach a reasonable valuation range for a target company and usually PE firms are competing with other firms to buy companies that are good targets for an LBO. As much as the due diligence and screening of a target company is important, the next step post-deal closing is as, if not more, important. This critical step is

called the value creation phase, where private equity professionals use their operating capabilities to improve businesses.

**Role of Value Creation Post-Deal Closing**

As mentioned earlier, competition for the best deals in private equity is intense and with rising valuations, PE professionals rely on "sophisticated operational improvements to create value and boost returns for investors" (Kupec and Feder 2022). There are three distinct ways for private equity funds to create value after signing a deal. The first is leverage. The more leverage a firm puts on a target company's balance sheet, the higher the return for the firm at the time of exit. This concept of leverage may sound complicated at first, as it took a while for the early PE investors in the 1950s to get a grasp of this strategy, but it is quite simple. Private equity firms will often try to put as much debt on the target company, sometimes up to 70-80%, while putting very little of their own equity in the deal so that they can realize higher return on equity (ROE) and IRR. For reference, the median net IRR for private equity deals is between 20-25% (Gompers et al. 2015). To achieve such returns, fund managers will play around with how much leverage they can put on a target company and that is based on how easily the company can service the debt. If a private equity firm comes in and piles 90% of debt on a target company, but the company struggles to pay interest and the principal amount back, the leveraged buyout transaction will not be favorable for the private equity firm.

Leverage was the primary way to boost returns in the 1980s, but since then PE firms have shifted away from financial engineering and more towards operational improvements (Kupec and Feder 2022). Figure 4 on the next page shows how value creation has shifted from leverage to multiple expansion in 1990s, a type of arbitrage strategy, to operational enhancement in the 2010s and beyond, which is used in approximately 54% of the deals nowadays. The idea behind operational improvements is that any business can be improved in some way. PE firms can "apply their deep industry expertise to uplift

revenue, improve operational efficiency, retain talent, or increase the bottom line before selling upgraded companies for a higher multiple than they were acquired for" (Kupec and Feder 2022). In recent years, firms have adopted a value creation playbook, where they are looking for opportunities to improve a company even before they have invested, which goes to show that attitudes towards buying companies have changed for the better since the 1980s.

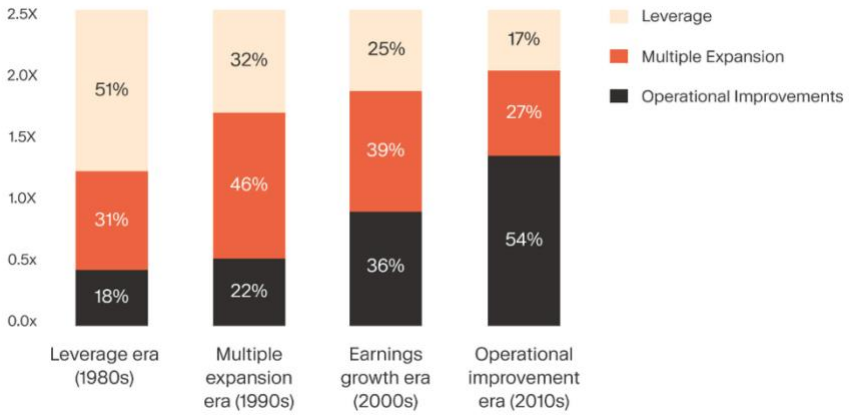


**Figure 4. Change in Value Creation Focus**

Source: Moonfare

Another popular strategy to create value in private equity deals is traditional mergers and acquisitions. PE firms do this by completing "add-on" acquisitions and implementing a "buy and build strategy." All this means is that when a PE firm buys a company, they build on that platform through additional acquisitions. Such deals allow for revenue growth and margin expansion and can create favorable market expectations of continued success, thereby increasing exit valuations (Brigl et al. 2016). To give a better idea of how add-on acquisitions have increased over time in private equity transactions, Boston Consulting Group collaborated with the HHL Leipzig Graduate School of Management to analyze ~2,400 deals exited from 1998-2012. Results showed that the percentage of private equity deals that included add-on acquisitions jumped from 20% of all deals in 2000 to 53% in 2012. Additionally, average

number of add-on acquisitions per deal grew from 1.3 in 2000 to 2.7 in 2012 (Brigl et al. 2016). Figure 4 below shows the growing popularity of "buy and build" deals to create value in portfolio companies.

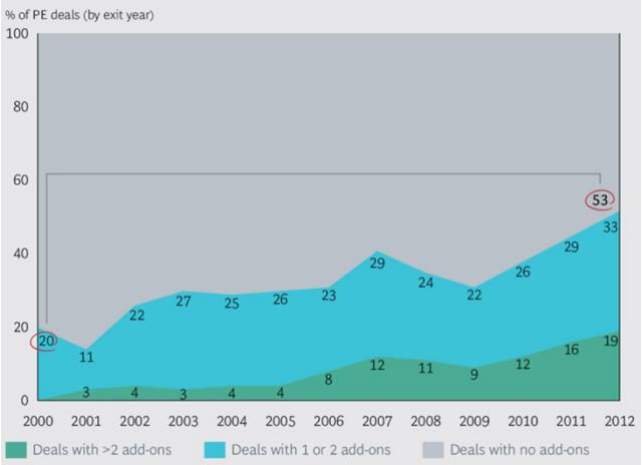


**Figure 5. Growing Popularity of Add-on Acquisitions**

Source: BCG

While these are high level strategies on how to create value in portfolio companies, the following chapter will take a closer look at how what specific tools private equity firms use to improve the companies they invest in and to get real-world perspective, the next chapter showcases insights from an operating partner at Argosy Private Equity in Wayne, Pennsylvania.

# Chapter 2

# A Closer Look at Value Creation Strategies

## Operating Partners' Gameplan

There is only limited amount of time, or as operators often say, fiscal quarters, for private equity firms to make improvements in portfolio companies during the holding period. While there is a myriad of operational improvement initiatives to choose from, fund managers do not go into a deal with the mindset of exhausting entire lists of things to change. In fact, PE firms and their respective operating teams are very selective in their choices, choosing to focus on three to four primary areas at any time. Should firms do the alternative and try to change as much as they can in a company, they could overburden management teams, which results in poor performance. Therefore, operating partners play a critical role in the transaction process to identify low-hanging fruit, which are areas for obvious potential for operational improvement, which are then added to a "100-day plan" that operating partners use to guide newly acquired portfolio companies in the right direction (Zeisberger, Prahl, and White 2017).

I was fortunate to sit down with a seasoned operating partner (referenced as OP for simplicity purposes) at Argosy Private Equity, a middle-market private equity firm that invests in advanced manufacturing and specialized businesses services sectors and has over 120 platform investments. Argosy is proud to leverage over "150 years of collective experience as operators and investors" and to be included in GCI Publishing's "Top 50 PE Firms in the Middle Market" for 2022 and 2023 (GCI 2023). Our first point of conversation in our hour-long interview was regarding the "100-day plan" PE firms implement in their companies. The partner mentioned that "we get a jumpstart on value creation during diligence. Gone are the days when value creation started post-close. The faster we complete talent assessments, voice of customer research, market studies and strategic planning, the faster we can contribute to professionalizing and growing the business."

**Building A Value Creation Toolkit**

Moving on from the topic, I asked about Argosy's own value creation toolkit, Value Acceleration Method (VAM). The OP mentioned how every PE firm has their own unique toolkit, but when he was building the blueprint for VAM, it was more of his collection of the best corporate practices from his previous employers and practices implemented in global companies such as Toyota, Honeywell, or GE. For him, more than an operator, he thinks of himself as a "borrower of best practices" and tries to implement those ideas in the companies Argosy invests in. The OP went on to mention that after years of experience in leadership positions at global engineering companies, he decided to leverage his experiences at large organizations and transition to working with smaller, middle-market companies, this time through private equity. I proceeded to ask the OP what the process was like building the VAM toolkit. He mentioned that while he borrows best practices from various corporations, he wanted to make a system that fostered a continuous improvement mindset. Figure 6 gives a good idea of what the OP was talking about in terms of Danaher's ability to continuously improve its operations and he wanted his toolkit to do that for the firms Argosy invests in. He added that it's not only him, but all private equity professionals think in this way, because ideally a firm would want to make things repeatable, deal after deal.

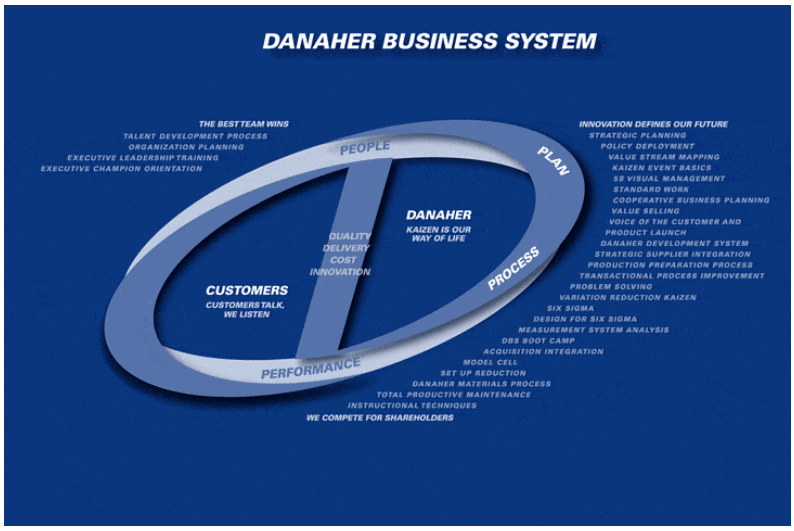


**Figure 6. Danaher's Business System**

**Five Specific Value Creation Levers**

With the VAM toolkit, there are five basic ways to create value. Those five are Lean Manufacturing, Human Capital, Strategy, Growth, and Lean Enterprise. Within Lean Manufacturing there is Quality Improvement Process (QIP), Six Sigma, and Safety Improvement Process (SIP), to name a few. These are all generally holistic approaches to improving business operations, especially industrial companies Argosy invests in. Within Human Capital there is talent assessments, talent development, change management, ESG and Diversity, Equity, and Inclusion (DEI). For the OP I spoke with, talent assessments play a critical role in companies' hiring practices to ensure the right person is selected for the job. Growth is another important value creation method within VAM, be it market segmentation, new product tollgate processes, or pipeline management. Additionally, Lean Enterprise is a value creation lever that incorporates methods such as Kaizen, a Japanese continuous improvement technique focused on eliminating waste and improving productivity. Last but not the least, VAM's fifth value creation lever is Strategy, which means voice of customer analysis (VOC), strategic planning, strategy deployment, and/or exit readiness. When I asked the OP which value creation lever was the most important, if there was any, he said Strategy and within that the tools mentioned above are extremely important.

**Relationship Management with Portfolio Companies**

A big takeaway from the conversation with the OP was how there are various tools available to use when working with portfolio companies, but every company also brings on its own set of challenges. Therefore, the purpose of VAM, or any other value creation method PE firms use, is to help portfolio companies get a "clear vision, culture and set of business priorities" and have a ready-made library of "timeless and comprehensive business tools" (Sachar and Argosy 2023). While all these strategies are helpful, I was curious to know how easy it is for private equity firms to implement these changes in companies they acquire. What if management teams hesitate to make changes? Does all this value

creation talk scare away founders or family-owned businesses from private equity? If so, how do you put them at ease? The OP mentioned that “companies won’t let you in unless they trust you and see that you provide value. Once you’re invited in, then you can start to introduce change.” For the OP, he adds the most value when he’s invited in and the earlier he builds trust, the earlier value creation starts. He also added that at the end of the day if Argosy does not build alignment, it will be tough to create value. On the point of alignment, we started discussing the various personalities private equity firms interact with. The OP mentioned that CEOs of companies tend to be “Type-A” personalities who will be reluctant to allow an operating team complete access, let alone start making changes. Therefore, it is up to operating partners to positively influence management teams. Sometimes it can be very quick and sometimes it can never happen. Therefore, the OP has ended up having “triple arms-length” relationships with some portfolio companies during the value creation phase. The OP repeatedly mentioned that interacting with people and businesses on a daily business is what ultimately makes the job of a private equity professional so exciting. There is a lot of emotional intelligence involved in transactions, but that makes the value creation even more exciting according to the OP.

**High-Level Portfolio Company Performance Indicators**

Another key learning from my conversation with the OP was some high-level performance indicators/metrics operating partners analyze to determine long-term success and financial viability of a portfolio company. One of those performance indicators is a scorecard operators use during the investment hold period, assessing characteristics of top-level management team members. Such human capital scorecards quantify qualitative aspects of a professional, giving actionable insights on changes private equity firms need to make, whether it be hiring a new CEO, getting rid of a C-suite position, or adding support staff. The OP emphasized that the talent acquisition process is an extremely important part of the value creation phase since PE firms have a short window to get a new executive on board and have

them up to speed on running the portfolio company. If they choose the wrong candidate, PE firms may fail to achieve certain targets they set for themselves at the onset of the deal. The OP also brought up a point about the "halo effect" in management. The concept behind this halo effect is that there are some CEOs who thrive in companies that are doing well and outperforming, but when placed in companies that are struggling or are not meeting their targets, they struggle as well. Alternatively, there are some CEOs who are born leaders and inherently have strong leadership skills but struggle to make an impact in poor business environments. Now, put those same CEOs in a more positive environment, they will thrive despite any challenges that arise. That said, The OP is more relaxed with the talent acquisition process and more patient regarding hiring timelines than perhaps other PE firms that are much more aggressive and critical of human capital. Additionally, over an average five-year holding period, if there's a high degree of turnover, voluntary or not, that often correlates to a deal that is struggling through value creation. In the middle-market space, turnover is especially looked at to determine success of a portfolio company.

As mentioned in Chapter 1, ESG is a growing area of focus for private equity firms who have realized that considering ESG into their strategies could result in higher returns. The OP at Argosy Private Equity started an ESG initiative, as he realized that it was picking up momentum in the American private equity market. Europe has been ahead of the United States in terms of adopting ESG considerations but in the past three to five years, limited partners, who are investors in private equity funds, have been putting pressure on general partners to pay more attention to ESG as a value creation lever. In fact, ESG has become so serious in the minds of investors, they have now started to qualify investing groups with scorecards, favoring those firms who make ESG a priority. According to Bain Capital research, "93% of limited partners would walk away from an investment opportunity if it posed an investment concern" while "50% cite better investment performance as a key reason to incorporate ESG" (Bain 2023). At Argosy, the OP said that they have an ESG committee in place and are also completing energy assessments across portfolio companies to promote sustainable practices. The OP also added that he

believes “diverse groups perform the best” and that he and his colleagues are being mindful of that internally and in their portfolio companies.

My Q&A interview with the operating partner at Argosy Private Equity was a fruitful one to say the least. I got real-world insights from a leading middle market private equity firm across the United States and got a thorough sense of how private equity firms create value in their portfolio companies.

**Value Creation Initiatives in The Carlyle Group’s Leveraged Buyout of AZ-EM**

There have been many instances of portfolio companies successfully implementing value creation strategies led by private equity firms and the following deal gives a glimpse of that process.

In July 2004, The Carlyle Group acquired AZ Electronic Materials (AZ-EM), an operating division of Clarient, a specialty chemicals company for 338 million euros. The leverage buyout is a classic example of the type of value creation strategies firms like Carlyle implement to maximize returns. When considering the AZ-EM acquisition, Carlyle knew it could make a meaningful impact given the firm’s prior experience dealing with semiconductors and electronic materials companies, such as Jazz Semiconductor, Ness, and CPU Technology (Leleux et al. 2009). This meant that the Carlyle team would be better aligned with AZ-EM’s management team throughout the value creation process. With 750 employees globally and 2003 revenue of approximately $700 million, Carlyle had to first and foremost take a closer look at AZ-EM’s management. The management team mostly remained the same, except the CEO and CFO, the two most important positions in the company. Carlyle recognized early-on that they needed to hire the two executives externally who had a firm understanding of the industry AZ-EM operates in and the mindset of making meaningful change over the following 3-5 years, the typical private equity timeline. Carlyle recognized that one of their very own advisors, Ken Greatbach, who had assisted in the initial due diligence of AZ-EM, was a great match for the CFO position given his prior experience as CFO of a few companies in the chemicals industry. Shortly after, through an executive search firm,

Carlyle found a CEO and announced AZ-EM's operating board members, which would include the two new executive hires, three executives from Carlyle, and four non-executive directors (Leleux et al. 2009). What is unique about such hiring practices during the value creation phase is that private equity firms offer generous compensation packages to executives to incentivize them to achieve certain financial targets over the course of the investment hold period.

Furthermore, Carlyle conducted a thorough review of AZ-EM's product lines, assessing which products were to stay, which ones were to get phased out, or needed time to show potential. The newly-minted CEO of AZ-EM mentioned that "we improved profitability by getting rid of businesses that were a cash drain. We put one product line on watch, and we gave ourselves a year to bring that to breakeven. That one proved to be an absolutely superb business that could be half of our sales three years from now" (Leleux et al. 2009). Additionally, a key value creation achievement for Carlyle in this deal was executing AZ-EM's spinoff from Clarient, the parent company. The biggest issue facing AZ-EM post-spinoff from Clarient was ensuring it did not rely on Clarient's central administration for finance, IT, and HR support services. With Carlyle coming in, AZ-EM was able to form its own central administration and operate independently from Clarient within nine months of the leveraged buyout (HBR). Moreover, the CEO realized there was no formal company-wide reporting system. The CEO therefore proceeded to implement SAP's enterprise reporting software, which ended up helping AZ-EM immediately manage working capital more strictly, which generated significant cash flow after one year of the acquisition. The software implementation was so successful that SAP chose AZ-EM as one of their flagship customer stories (Leleux et al. 2009). Additionally, the carve-out from Clarient changed the way AZ-EM's financials were monitored. Initially, as a part of Clarient, AZ-EM's financials were consolidated with other divisions, which made it tougher to track AZ-EM's individual contributions. Under Carlyle however, AZ-EM had to report cash flows daily and publish full financial results at the end of each month. This frequency in reporting made it more transparent for Carlyle to see which "part of the

company affected the bottom line; it also became evident which actions did not add value" (Leleux et al. 2009).

AZ-EM's new CEO made it one of his priorities to improve the company's product quality and supply chain network. While Carlyle was focused on the financial success of the portfolio company, equally important was AZ-EM's relationships with its customer base. Focusing on this side of the business paid off in 2007, as AZ-EM received Intel's Preferred Quality Supplier (PQS) award (Leleux et al. 2009). The PQS award is given to suppliers that are focused on continuous improvement and score a minimum of 80% on a quality systems report card (Leleux et al. 2009). Coming back to the point of compensation packages, the value creation initiatives mentioned above are often successfully implemented when management's interests are aligned with the private equity firm. That said, Carlyle implemented two management incentives, one being an equity incentive scheme where top management members of AZ-EM were required to purchase equity in the company. This requirement got both Carlyle and AZ-EM's management working towards improving the company, with opportunities for management to earn higher equity stakes in the company if AZ-EM generated certain multiples and IRRs upon exit (Leleux et al. 2009). The second management incentive Carlyle implemented was a global cash bonus scheme, where management team members would earn a target bonus of 40% of base salary if objectives were met, and 80% if they significantly exceeded those objectives. Such bonuses were given based on two crucial metrics: EBITDA and debt repayments. Each fiscal year, the company had to reach at least 80% of targeted EBITDA and debt repayments for a bonus pool to be created. For reference, in 2005 and 2007, management team members received bonuses of at least 40% of base salary, and ended up surpassing expectations in 2006, receiving an 80% bonus (Leleux et al. 2009). This goes to show that when all parties in a transaction are aligned, progress can be made. In 2007, Carlyle ended up selling half of their stake to Vestar Capital Partners, and while financials behind the deal remain private, it is estimated that AZ-EM was worth around 10x EBITDA in 2007, which was approximately 2.8 billion euros at the time (Leleux et al. 2009).

This leveraged buyout by The Carlyle Group of AZ-EM is testament of private equity's value creation efforts. As mentioned earlier, private equity firms do not need to come into a deal aiming to make as many changes as possible. It's the quality of the initiatives that matter and focusing on three to four action items is often the best way to grow a company.

# Chapter 3

## Literature Review

Kaplan (1989) published a paper on the "effects of management buyouts on operating performance and value" that continues to serve as a foundation for research into the private equity industry. Kaplan (1989) used 76 buyouts as his sample size to analyze financial performance three years post-LBO. The results showed that on average, companies saw improvement in operating income (before depreciation), decreases in capital expenditures, and increase in net cash flows. Additionally, the paper concluded that the mean and median increases in market value were 96% and 77%, respectively, from two months prior to the buyout to the post-LBO exit. These results were attributed to improved incentives rather than mass layoffs or managerial exploitation.

Biesinger, Bircan, and Ljungqvist (2020) have published a working paper that attempts to "open up the black box of value creation in private equity" through analyzing confidential information on value creation initiatives used by PE firms. Biesinger, Bircan, and Ljungqvist (2020) acknowledge prior academic research of Ljungqvist and Richardson (2005) and Kaplan and Schoar (2003) that have observed that private equity funds achieve higher returns than in the public equity markets and such firms contribute to operational improvements in the form of profitability, pricing, or even productivity. However, this paper wanted to explore the connection between value creation and investor returns through using proprietary data. Moreover, Biesinger, Bircan, and Ljungqvist (2020) used a sample size of 1,580 transactions by 171 private equity funds raised from 1992 through 2017, along with access to high quality, quantitative cash flow data and limited partners presentations to look closely at which value creations strategies are used the most and of those strategies, which brings the highest returns.

The paper identifies five main value creation plans (VCPs) that were used across their sample set: operational improvements, top-line growth, governance engineering, financial engineering, and cash management. Of these 5 VCPs, the two most popular ones they discovered through their findings were

operational improvements (used by 84% of sample deals) and top-line growth (74% of sample deals). The conclusion of the paper was that after analyzing proprietary data and multiple investor presentations, value creation plans are highly differentiated and are tailored to each type of portfolio company. In other words, there is no such "playbook" where one set of actions items can be implemented across any portfolio company. Moreover, the paper concluded that VCPs are subject to resource constraints, economies of specialization, and diminishing returns, which also varies systematically across PE firms.

Acharya, Gottschalg, Hahn, and Kehoe (2012) take a different approach in their paper towards exploring value creation within PE transactions. The authors utilize deal-level data from large private equity institutions to observe that high abnormal performance within PE can be attributed to improvement in top line sales and operating margins when the portfolio companies are private entities. The paper also goes on to discover that general partners who have been former industry managers or consultants tend to emphasize more on internal value creation programs that improve operations, while general partners who were ex-accountants and ex-bankers tend to derive value out of a company through add-on acquisitions, another lever firms use, as mentioned earlier in this paper, to increase IRR.

Acharya et al. (2012) mention seminal pieces of work by Lerner, Sorenson, and Stromberg (2008) that provided evidence through a sample of 495 buyouts that, unlike popular belief that private equity tends to have short-term incentives, buyout deals lead to long-term success. This discovery played an important role in the paper as Acharya et al. (2012) went on to discover that PE's superior performance can be partly due to differences in human capital or skill level within general partners. Specifically, the combination of deal strategy (organically or inorganically) and type of deal partner (ex-banker vs. ex-consultant) is directly correlated to deal performance.

Additionally, Gompers, Kaplan, and Mukharlyamov (2016) posted a paper in the *Journal of Financial Economics*, surveying 79 PE investors with combined assets under management of more than $750 billion regarding their respective practices in value creation. Their paper acknowledges that apart from Acharya et al. (2012), much remains unknown about specific value creation levers. The survey the

authors completed ended up getting 64 PE investor responses, asking them about how they think about value creation before and after closing transactions. According to the paper's results, the sources of added value, in order of importance, are increasing revenue, improving management incentives, facilitating a high-value exit, add-on acquisitions, replacing management, and reducing costs. The paper concludes with the hope that more research is done testing the effectiveness between operational engineering and management changes and if any one of these strategies exhibit superior performance.

Cohn, Mills, and Towery (2014) published a study that analyzes corporate tax returns to observe portfolio companies' capital structure and financial performance after an LBO. The study collected a sample of 317 LBOs between 1995 and 2007 and through tax return data, observing that there was little to no evidence that LBOs in the 1990s and 2000s resulted in improved operating performance, on average. The paper goes on to suggest that firms that were unprofitable pre-LBO, known as "loss firms," did see an increase in operating performance after the LBO was completed, however such improvements were driven by a mean reversion in operating performance and would have likely occurred regardless of an LBO. However, the paper found promising results with companies that had public information available. The 71 LBO firms that had public information covering at least two years post-LBO found a mean increase in pre-interest return on sales (ROS) of 9% from one year pre-LBO to two years post-LBO.

Davis, Haltiwanger, Handley, Jarmin, Lerner, and Miranda (2014) published a paper that studied the effects of jobs and productivity due to private equity buyout activity. The paper's results clearly indicate that while buyouts have led to employment shrinkage of up to 3% over a two-year period post-buyout, target companies tend to create new jobs at a faster pace than control companies (control companies representing non private equity-backed companies).

# Chapter 4

## Data and Methodology

This section includes the data sample set used for the analysis and how it was selected, along with a walkthrough of the data analysis that was completed to see if there was any statistical significance of value creation among the companies post-IPO.

Table 1 below is a list of 76 companies compiled from FactSet which showcases leveraged buyout transactions from January 1st, 2000, to December 31st, 2022. All transactions that were selected were leveraged buyout transactions (LBOs), meaning the acquirer in each transaction is borrowing significant debt to finance the acquisition. Moreover, all these deals were "going private" transactions, where the target company is no longer publicly traded on a stock exchange. Incorporating this was a conscious decision on my end because I wanted to observe performance of companies that were once on a public stock exchange, went private through a leveraged buyout, then went public again through an initial public offering (IPO). Through this method, my goal was to observe how these PE-backed companies performed after deal exit. It is important to note that observing individual portfolio company performance is generally quite difficult since private equity firms do not tend to report deal-by-deal specifics, but this was my attempt to leverage public data to analyze private equity's effect on company performance and detect any notable difference and/or improvements.

Additionally, all the companies in Table 1 were acquired by financial buyers rather than strategics, since the latter tend to have different motives in buying companies that are not always aligned with private equity interest. The list is industry agnostic, so the deals come from diverse sectors with the minimum deal size being $5 billion. I chose $5 billion as the minimum because many sources suggest that is the minimum transaction size for a deal to be considered a "mega-deal" and will help me collect the necessary data more easily, given that these companies are public (Pitchbook 2019). Furthermore, I had to cut the list down from the 76 companies below, to 10 companies that are highlighted in Table 1. These are

the primary companies used for my data analysis since they went public after going through a leveraged buyout prior, allowing me to observe any changes in performance that could indicate value creation.

I used Wharton Research Data Services (WRDS) to extract financial metrics for each of the ten highlighted companies. The first metric I analyzed was Enterprise Value, which is a type of valuation ratio that reflects the total market value of a company. The next three multiples used were Gross Profit Margin, Return on Assets (ROA), and Return on Equity. These are profitability ratios which assess a "businesses' ability to generate earnings relative to its revenue, operating costs, balance sheet assets, or shareholders' equity over time (Hayes 2022). Additionally, I also collected Cash Flow Margins and Total Debt/EBITDA figures for the ten companies. These two metrics are helpful in analyzing financial soundness of a company, with Cash Flow Margins indicating the earnings quality of a company, while Total Debt/EBITDA indicates how levered a company is. Lastly, I collected Current Ratios for each company, which indicate liquidity and how easily assets can turn into cash.

Once compiled, I completed t-Tests to statistically calculate and determine whether there was any significant difference between the sample set's financial performance pre-LBO and post-IPO. Results of these t-tests across the seven metrics mentioned above would determine whether to reject the null hypothesis of no statistical significance of value creation in the portfolio companies post-IPO.

**Table 1. List of Notable Leveraged Buyout Transactions Since 2000 ($mm)**

| Target | Industry | Announcement Date | Transaction Value |
|---|---|---|---|
| Actavis Group hf | Pharmaceuticals: Major | 5/10/07 | 6,568.55 |
| Albertson's, Inc. | Food Retail | 1/23/06 | 16,110.87 |
| Alliance Boots Plc | Drugstore Chains | 4/20/07 | 17,408.69 |
| Alltel Corp. | Major Telecommunications | 5/20/07 | 26,790.80 |
| Anaplan, Inc. | Packaged Software | 3/20/22 | 9,347.54 |
| ARAMARK Corp. /Old/ | Restaurants | 5/1/06 | 7,939.05 |
| Atlantia SpA | Other Transportation | 4/7/22 | 45,198.85 |
| AusNet Services Ltd. | Electric Utilities | 9/20/21 | 13,270.18 |
| Avalara, Inc. | Packaged Software | 8/8/22 | 8,280.16 |
| Avaya, Inc. | Telecommunications Equipment | 6/4/07 | 7,178.35 |
| BioMed Realty Trust, Inc. | Real Estate Investment Trusts | 10/8/15 | 7,780.28 |
| Biomet, Inc. | Medical Specialties | 12/18/06 | 11,413.15 |
| BMC Software, Inc. | Packaged Software | 5/6/13 | 6,388.43 |
| Buckeye Partners LP | Oil & Gas Pipelines | 5/10/19 | 10,356.82 |
| Caesars License Co. LLC | Hotels/Resorts/Cruise lines | 10/2/06 | 16,882.04 |
| Citrix Systems, Inc. | Packaged Software | 1/31/22 | 14,607.16 |
| Clear Channel Communications, Inc. /Old/ | Broadcasting | 11/16/06 | 25,942.46 |
| CoreLogic, Inc. | Data Processing Services | 2/4/21 | 7,501.54 |
| Coupa Software, Inc. | Packaged Software | 12/12/22 | 7,456.77 |
| Crown Resorts Ltd. | Casinos/Gaming | 3/22/21 | 7,063.56 |
| CyrusOne, Inc. | Real Estate Investment Trusts | 11/15/21 | 15,244.52 |
| Dell, Inc. | Computer Processing Hardware | 2/5/13 | 17,301.59 |
| Dollar General Corp. | Discount Stores | 3/12/07 | 6,978.06 |
| EMC Corp. | Computer Peripherals | 10/12/15 | 64,671.31 |
| EMI Group Plc | Commercial Printing/Forms | 5/21/07 | 6,063.78 |
| Envision Healthcare Corp. | Medical/Nursing Services | 6/11/18 | 9,324.32 |
| Equity Office Properties Trust | Real Estate Investment Trusts | 11/19/06 | 34,574.17 |
| First Data Corp. | Regional Banks | 4/2/07 | 25,637.06 |
| FIS Data Systems, Inc. | Packaged Software | 3/28/05 | 10,270.73 |
| Freescale Semiconductor, Inc. | Semiconductors | 9/15/06 | 17,464.86 |
| Genesee & Wyoming, Inc. | Railroads | 7/1/19 | 9,137.64 |
| Gramercy Property Trust | Real Estate Investment Trusts | 5/7/18 | 7,580.55 |
| H.J. Heinz Co. | Food: Major Diversified | 2/14/13 | 27,169.24 |
| HCA, Inc. | Hospital/Nursing Management | 7/24/06 | 32,557.66 |
| Hilton Hotels Corp. | Hotels/Resorts/Cruise lines | 7/3/07 | 24,174.82 |
| Home Properties, Inc. | Real Estate Investment Trusts | 6/22/15 | 6,757.09 |
| HomeServe Plc | Engineering & Construction | 3/24/22 | 6,207.45 |
| Inovalon Holdings, Inc. | Data Processing Services | 8/19/21 | 7,205.38 |
| Kelda Group Plc | Environmental Services | 11/26/07 | 10,122.98 |
| Kinder Morgan, Inc. (Kansas) /Old/ | Oil & Gas Pipelines | 5/30/06 | 27,649.51 |

| | | | |
|---|---|---|---|
| Lyondell Chemical Co. | Finance/Rental/Leasing | 7/17/07 | 12,173.54 |
| McAfee Corp. | Packaged Software | 11/8/21 | 13,591.70 |
| Merlin Entertainments Plc | Movies/Entertainment | 6/28/19 | 6,912.02 |
| Nielsen Holdings Plc | Miscellaneous Commercial Services | 3/29/22 | 15,039.23 |
| Osprey Jersey Holdco Ltd. | Engineering & Construction | 10/2/06 | 9,763.30 |
| PartnerRe Ltd. | Specialty Insurance | 4/14/15 | 6,593.42 |
| PetSmart, Inc. | Specialty Stores | 12/14/14 | 8,512.93 |
| Proofpoint, Inc. | Packaged Software | 4/26/21 | 10,396.88 |
| Puget Energy, Inc. | Alternative Power Generation | 10/26/07 | 7,081.56 |
| Qihoo 360 Technology Co., Ltd. | Commercial Printing/Forms | 6/17/15 | 7,619.09 |
| QTS Realty Trust, Inc. | Real Estate Investment Trusts | 6/7/21 | 8,303.16 |
| Realogy Corp. | Real Estate Development | 12/17/06 | 6,528.69 |
| RealPage, Inc. | Packaged Software | 12/21/20 | 9,542.45 |
| Recipharm AB | Pharmaceuticals: Other | 12/14/20 | 11,389.07 |
| SailPoint Technologies Holdings, Inc. | Packaged Software | 4/11/22 | 6,185.15 |
| SIGNATURE AVIATION PLC | Other Transportation | 12/17/20 | 6,015.39 |
| South Jersey Industries, Inc. | Gas Distributors | 2/24/22 | 7,985.88 |
| Spanish International Communications Corp. | Broadcasting | 6/27/06 | 10,472.16 |
| Staples, Inc. | Specialty Stores | 6/28/17 | 6,488.31 |
| Station Casinos, Inc. | Hotels/Resorts/Cruise lines | 12/4/06 | 7,160.12 |
| STORE Capital Corp. | Real Estate Investment Trusts | 9/15/22 | 13,801.66 |
| Switch, Inc. (Nevada) | Data Processing Services | 5/11/22 | 10,171.03 |
| Tenneco, Inc. | Auto Parts: OEM | 2/23/22 | 6,211.85 |
| The Dun & Bradstreet Corp. | Data Processing Services | 8/8/18 | 6,521.33 |
| The Michaels Cos., Inc. | Specialty Stores | 3/3/21 | 6,155.07 |
| The Mills Corp. | Real Estate Investment Trusts | 2/5/07 | 7,469.64 |
| The Ultimate Software Group, Inc. | Packaged Software | 2/4/19 | 10,352.11 |
| Toys "R" Us, Inc. | Specialty Stores | 3/17/05 | 6,034.14 |
| Tribune Co. | Broadcasting | 4/2/07 | 11,350.59 |
| Twitter, Inc. | Internet Software/Services | 4/14/22 | 37,869.88 |
| TXU Corp. | Electric Utilities | 2/26/07 | 44,458.78 |
| VH Holdings, Inc. (Illinois) | Information Technology Services | 5/29/07 | 6,834.07 |
| VNU NV | Publishing: Newspapers | 3/8/06 | 10,556.58 |
| Wm Morrison Supermarkets Ltd. | Food Retail | 6/19/21 | 13,242.14 |
| Zayo Group Holdings, Inc. | Specialty Telecommunications | 5/8/19 | 14,186.63 |
| Zendesk, Inc. | Data Processing Services | 6/24/22 | 9,893.50 |

# Chapter 5

## Data Analysis and Results

This section discusses the results of the financial metrics collected from WRDS and the t-tests that were completed on them, respectively.

Figure 7 gives a visual representation that post-IPO (which represents time periods 1, 2, and 3), Enterprise Value generally increases across the portfolio companies. Table 2 indicates that after taking the averages of the change between Pre-LBO and Post-IPO across each portfolio company, Enterprise Value increased by 0.56x. However, after completing the t-Test, the null hypothesis was retained since the p-value of 0.40 turned out to be greater than the alpha value of 0.05. Additionally, the t-statistic of -0.25 is less than the t-critical value of 1.83, thereby confirming once again that the null hypothesis is retained, meaning there is no statistical significance of enterprise value increasing post-IPO due to private equity value creation efforts.

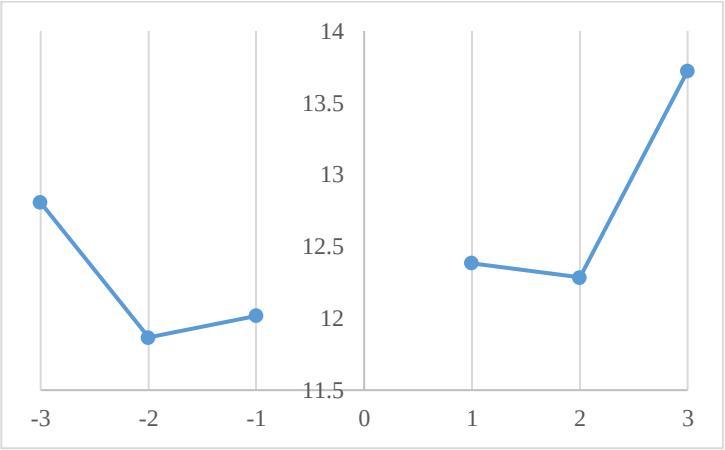


**Figure 7. Pre-LBO vs. Post-IPO Enterprise Value Performance**

**Table 2. t-Test on Enterprise Value**

| | Enterprise Value | | |
|---|---|---|---|
| Company | Pre-LBO | Post-IPO | Change |
| Albertson's | 13.36 | 6.23 | -7.13 |
| Aramark | 7.61 | 11.9 | 4.29 |
| Biomet | 15.61 | 11.83 | -3.78 |
| Caesar's Entertainment | 8.61 | 13.18 | 4.57 |
| Dell | 6.89 | 10.74 | 3.85 |
| Dollar General | 9.11 | 8.96 | -0.15 |
| HCA | 7.81 | 10.94 | 3.13 |
| Hilton | 12.02 | 17.7 | 5.68 |
| Kinder Morgan | 27.63 | 13.43 | -14.2 |
| DNB | 13.65 | 23.07 | 9.42 |
| **Average** | | | **0.568** |

| t-Test: Paired Two Sample for Means | |
|---|---|
| Observations | 10 |
| Degrees of Freedom | 9 |
| t Stat | -0.2544506 |
| P(T<=t) one-tail | 0.402433 |
| t Critical one-tail | 1.8331129 |
| Alpha value | 0.05 |

Moving on, I found that across the portfolio companies, gross margin increased by 6% post-IPO. Figure 8 shows the increase compared to Pre-LBO and Table 3 indicates that the null hypothesis was rejected since the p-value of 0.01 is less than the alpha value of 0.05, meaning that the gross margin results are statistically significant.

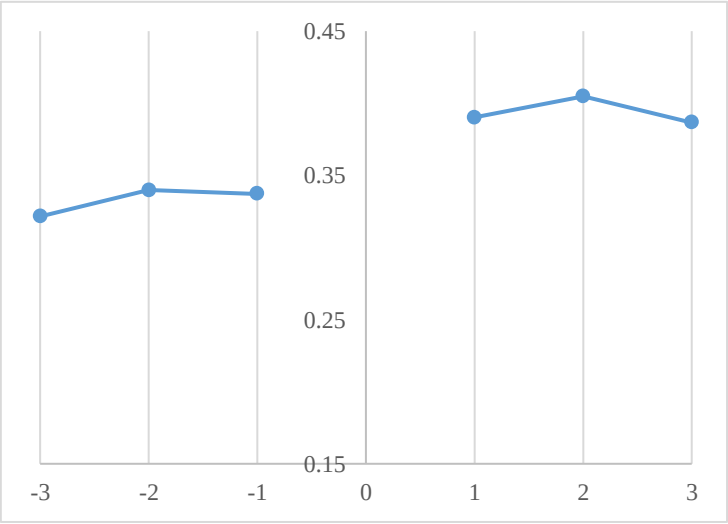


**Figure 8. Pre-LBO vs. Post-IPO Gross Margin Performance**

**Table 3. t-Test on Gross Margin**

| | Gross Margin | | |
|---|---|---|---|
| Company | Pre-LBO | Post-IPO | Change |
| Albertson's | 0.13 | 0.29 | 0.16 |
| Aramark | 0.10 | 0.10 | 0.00 |
| Biomet | 0.82 | 0.81 | -0.01 |
| Caesar's Entertainment | 0.25 | 0.44 | 0.20 |
| Dell | 0.22 | 0.33 | 0.11 |
| Dollar General | 0.31 | 0.34 | 0.03 |
| HCA | 0.17 | 0.26 | 0.09 |
| Hilton | 0.23 | 0.26 | 0.04 |
| Kinder Morgan | 0.41 | 0.39 | -0.02 |
| DNB | 0.70 | 0.73 | 0.02 |
| **Average** | | | **0.06** |

| t-Test: Paired Two Sample for Means | |
|---|---|
| Observations | 10 |
| Degrees of Freedom | 9 |
| t Stat | -2.57484 |
| P(T<=t) one-tail | 0.01497453 |
| t Critical one-tail | 1.83311293 |
| Alpha value | 0.05 |

Cash flow margins across the portfolio companies decreased on average approximately 5% post-IPO. A paper by Long, Lin, and Chen (2021) brings up an interesting question on why operating performance decreases of post-IPO firms. Through their research they suggest that significant amount of capital is spent on pre-IPO and business development efforts to ensure they meet IPO requirements. When companies do go public, they transfer capital to equity investments to quickly increase the company's market value, which alternatively decreases operating performance and metrics such as cash flow margin. According to the t-Test results shown in Table 4, the null hypothesis retained because the p-value was recorded at 0.137, greater than the alpha value of 0.05, meaning that there is not enough statistical significance that cash flow margin performance was affected post-IPO due to private equity involvement.

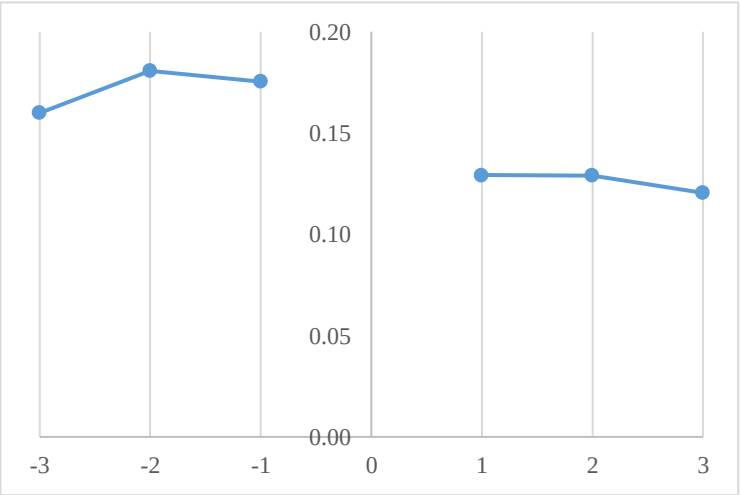


**Figure 9. Pre-LBO vs. Post-IPO Cash Flow Margin Performance**

**Table 4. t-Test on Cash Flow Margin**

| | Cash Flow Margin | | |
|---|---|---|---|
| Company | Pre-LBO | Post-IPO | Change |
| Albertson's | 0.12 | 0.05 | -0.08 |
| Aramark | 0.06 | 0.05 | -0.01 |
| Biomet | 0.25 | 0.19 | -0.06 |
| Caesar's Entertainment | 0.13 | -0.11 | -0.24 |
| Dell | 0.06 | 0.11 | 0.05 |
| Dollar General | 0.06 | 0.07 | 0.01 |
| HCA | 0.1 | 0.11 | 0.01 |
| Hilton | 0.15 | 0.17 | 0.02 |
| Kinder Morgan | 0.53 | 0.26 | -0.27 |
| DNB | 0.26 | 0.37 | 0.11 |
| **Mean** | | | **-0.05** |

| t-Test: Paired Two Sample for Means | |
|---|---|
| Observations | 10 |
| Degrees of Freedom | 9 |
| t Stat | 1.16626884 |
| P(T<=t) one-tail | 0.13673991 |
| t Critical one-tail | 1.83311293 |
| Alpha value | 0.05 |

Results in Table 5 showed that across the portfolio companies, Return on Assets decreased by an average of 3% and while close, a p-value of 0.056, which is greater than the alpha value of 0.05, proves that statistical significance does not exist of ROA improving post-IPO due to value creation initiatives led by private equity. Therefore, the null hypothesis in this test is also retained.

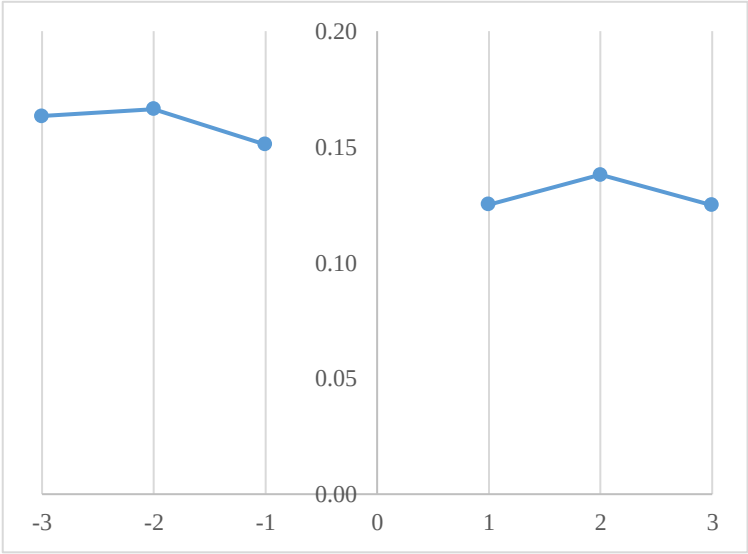


**Figure 10. Pre-LBO vs. Post-IPO Return on Asset Performance**

**Table 5. t-Test on Return on Asset**

| | Return on Assets | | |
|---|---|---|---|
| Company | Pre-LBO | Post-IPO | Change |
| Albertson's | 0.08 | 0.15 | 0.07 |
| Aramark | 0.18 | 0.10 | -0.08 |
| Biomet | 0.23 | 0.14 | -0.09 |
| Caesar's Entertainment | 0.1 | 0.07 | -0.03 |
| Dell | 0.13 | 0.08 | -0.05 |
| Dollar General | 0.24 | 0.18 | -0.06 |
| HCA | 0.18 | 0.18 | 0.00 |
| Hilton | 0.12 | 0.08 | -0.04 |
| Kinder Morgan | 0.04 | 0.09 | 0.05 |
| DNB | 0.29 | 0.22 | -0.07 |
| **Average** | | | **-0.03** |

| t-Test: Paired Two Sample for Means | |
|---|---|
| Observations | 10 |
| Degrees of Freedom | 9 |
| t Stat | 1.75162262 |
| P(T<=t) one-tail | 0.05687644 |
| t Critical one-tail | 1.83311293 |
| Alpha value | 0.05 |

Return on Equity on average decreased 11% overall post-IPO across the portfolio companies. In the t-Test that followed, the p-value came out to be 0.289, greater than the alpha value of 0.05, thereby retaining the null hypothesis. This meant that there was no statistical significance of ROE improving post-IPO due to value creation efforts by private equity firms during the investment hold period.

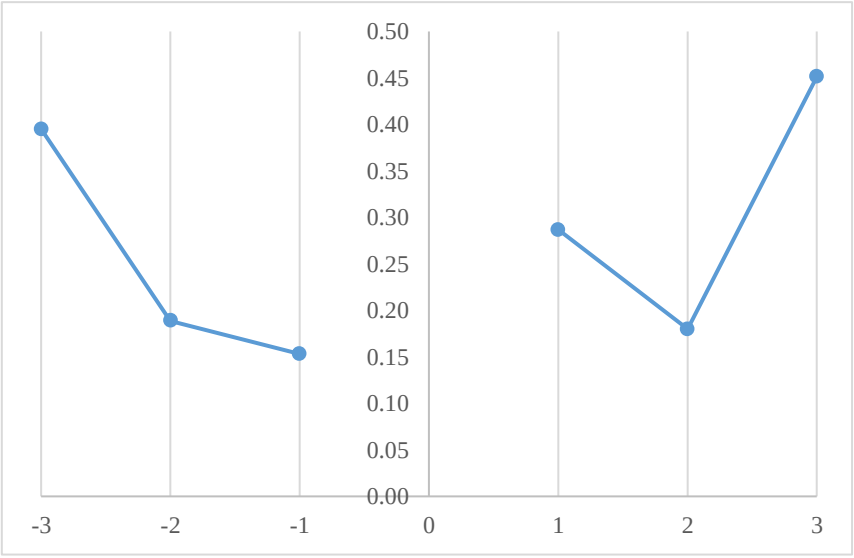


**Figure 11. Pre-LBO vs. Post-IPO Return on Equity Performance**

**Table 6. t-Test on Return on Equity**

| | Return on Equity | | |
|---|---|---|---|
| Company | Pre-LBO | Post-IPO | Change |
| Albertson's | 0.07 | 0.42 | 0.35 |
| Aramark | 0.25 | 0.10 | -0.15 |
| Biomet | 0.16 | 0.06 | -0.10 |
| Caesar's Entertainment | 0.02 | -0.26 | -0.28 |
| Dell | 0.37 | 1.32 | 0.95 |
| Dollar General | 0.18 | 0.15 | -0.03 |
| HCA | 0.2 | -0.05 | -0.25 |
| Hilton | 0.13 | 0.08 | -0.05 |
| Kinder Morgan | 0.09 | 0.08 | -0.01 |
| DNB | 2.63 | 1.06 | -1.57 |
| **Average** | | | **-0.11** |

| t-Test: Paired Two Sample for Means | |
|---|---|
| Observations | 10 |
| Degrees of Freedom | 9 |
| t Stat | 0.57506694 |
| P(T<=t) one-tail | 0.28966816 |
| t Critical one-tail | 1.83311293 |
| Alpha value | 0.05 |

Total Debt/EBITDA increased 2.13x on average post-IPO across the portfolio companies. Figure 12 also depicts how leverage increased over time and according to the t-test done on Total Debt/EBITDA, the p-value came out to be 0.012, less than the alpha value of 0.05. Therefore, in this scenario, the null hypothesis was rejected, meaning there is statistical significance given the sample used that total leverage increased post-IPO due to value creation initiatives used by private equity firms over the investment hold period.

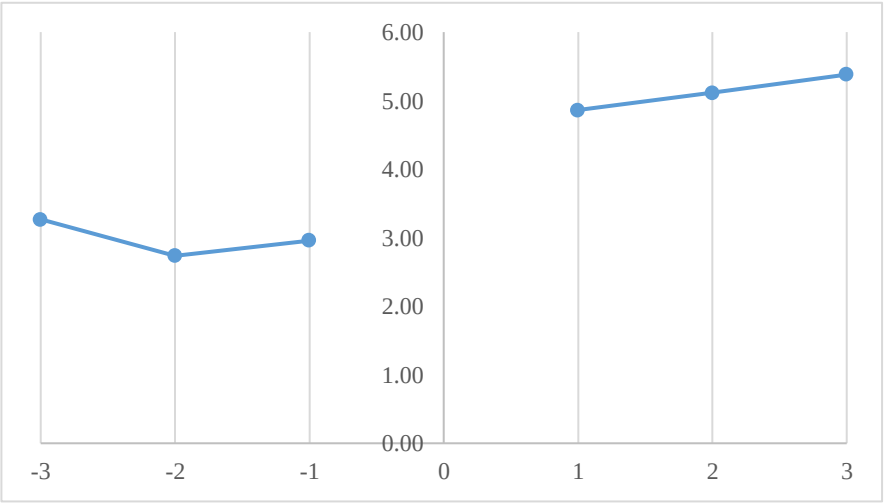


**Figure 12. Pre-LBO vs. Post-IPO Total Debt/EBITDA Performance**

**Table 7. t-Test on Total Debt/EBITDA**

| | Total Debt/EBITDA | | |
|---|---|---|---|
| Company | Pre-LBO | Post-IPO | Change |
| Albertson's | 4.09 | 3.67 | 0.42 |
| Aramark | 2.14 | 4.95 | -2.81 |
| Biomet | 0.41 | 2.96 | -2.55 |
| Caesar's Entertainment | 4.52 | 12.12 | -7.60 |
| Dell | 1.44 | 5.42 | -3.98 |
| Dollar General | 0.48 | 1.86 | -1.38 |
| HCA | 2.29 | 5.14 | -2.85 |
| Hilton | 4.39 | 5.77 | -1.38 |
| Kinder Morgan | 7.62 | 6.55 | 1.07 |
| DNB | 2.48 | 2.73 | -0.25 |
| **Average** | | | **-2.13** |

| t-Test: Paired Two Sample for Means | |
|---|---|
| Observations | 10 |
| Degrees of Freedom | 9 |
| t Stat | -2.7038907 |
| P(T<=t) one-tail | 0.01211938 |
| t Critical one-tail | 1.83311293 |
| Alpha value | 0.05 |

Results showed that the current ratio did not change much throughout the pre-LBO and post-IPO periods, with a 0% average change post-IPO. The null hypothesis was also retained since the p-value of 0.5 is greater than the alpha value of 0.05, meaning there is no statistical significance of the current ratio increasing or decreasing post-IPO due to private equity value creation initiatives. This was the last of seven t-Tests completed as a part of the data analysis within this paper to explore any effects private equity may have had on the portfolio companies that went through an LBO and subsequently exited through an IPO.

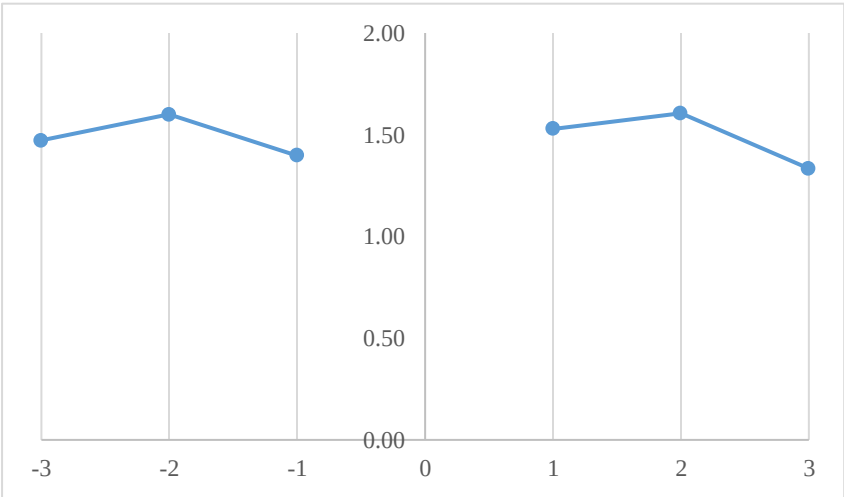


**Figure 13. Pre-LBO vs. Post-IPO Current Ratio Performance**

**Table 8. t-Test on Current Ratio**

| | Current Ratio | | |
|---|---|---|---|
| Company | Pre-LBO | Post-IPO | Change |
| Albertson's | 1.69 | 1.08 | -0.61 |
| Aramark | 0.91 | 1.09 | 0.18 |
| Biomet | 2.46 | 3.98 | 1.52 |
| Caesar's Entertainment | 1.02 | 1.34 | 0.32 |
| Dell | 1.37 | 0.77 | -0.60 |
| Dollar General | 2 | 1.61 | -0.39 |
| HCA | 1.48 | 1.5 | 0.02 |
| Hilton | 1.44 | 1.1 | -0.34 |
| Kinder Morgan | 0.53 | 0.59 | 0.06 |
| DNB | 2 | 1.84 | -0.16 |
| Average | | | 0.00 |

| t-Test: Paired Two Sample for Means | |
|---|---|
| Observations | 10 |
| Degrees of Freedom | 9 |
| t Stat | -2.825E-16 |
| P(T<=t) one-tail | 0.5 |
| t Critical one-tail | 1.83311293 |
| Alpha value | 0.05 |

# Chapter 6

# Conclusion

Professionals, academicians, and researchers who cover the private equity industry, often say the same thing: private equity is hard to track given its private nature and difficulty in obtaining quality data. The aim of this thesis was to contribute to existing literature that explored the various types of value creation levers private equity firms use. The paper also incorporates real-world insights from a leading middle-market private equity firm in the United States to explore the initial question that inspired this thesis: how exactly do private equity firms create value and is there a way to track portfolio company performance after exiting through an IPO? Furthermore, to statistically determine whether private equity value creation strategies play a role in improving a portfolio company's valuation, leverage, liquidity, and profitability, 76 companies were initially shortlisted as "going-private" transactions. Out of that list, 10 companies were used to observe changes in company performance before they went through a leveraged buyout, then subsequently went public through an IPO as an exit strategy. Once pre-LBO and post-IPO data was collected on the seven metrics, averages were taken across the board to see if the portfolio companies improved their enterprise value, gross margin, ROA, ROE, cash flow margin, total debt/EBITDA, and current ratio, respectively.

Additionally, based on the seven t-Tests that were completed, only two ended up rejecting the null hypothesis, specifically gross margin, and total debt/EBITDA. Within those two, only gross margin showed statistical significance that the portfolio companies improved their gross margins by 6% on average post-IPO, while total debt/EBITDA increased on average by 2.13x. The rest of the metrics retained the null hypothesis. While these are mixed results and shows that within the sample set there were no clear-cut signs of value creation post-IPO for the portfolio companies apart from gross margin, it is important that note that ultimately being listed on a public stock exchange leads to noise and volatility and financial performance could be attributed to many different reasons apart from being private equity

backed. While that is a topic that should be considered for future research, it may suggest that not everything a company does after going public should be attributed to the actions of private equity. In fact, many companies consider going private through an LBO to avoid public market pressure. A prime example of that is Dell, who went private in 2013 to focus on long-term strategies without having to be pressured by short-term targets and quarterly earnings (Edwards 2022).

There are many intangible/tangible improvements private equity firms make that may not necessarily translate to immediate financial success, but the aim of this paper was to take a microscopic view and add to existing literature of how value creation occurs and how private equity firms work towards setting up their portfolio companies for long-term success.

# BIBLIOGRAPHY


Zeisberger, Claudia, et al. *Mastering Private Equity: Transformation via Venture Capital, Minority Investments & Buyouts*. John Wiley & Sons, 2017.

Staff, V. (n.d.). *Private equity*. Private equity:Background. Retrieved March 20, 2023, from https://firsthand.co/industries/private-equity/background

Staff, SBA. "SBA Mission." *U.S. Small Business Organization*, SBA, https://www.sba.gov/about-sba/organization#:~:text=SBA%20was%20created%20to%20preserve,remain%20committed%20to%20that%20goal.

WRDS. (n.d.). *Financial Metrics Compiled From WRDS*. Wharton Research Data Services. Retrieved 2023, from https://wrds-www.wharton.upenn.edu/

Factset. (2023). *List of Notable Leveraged Buyout Transactions*. Factset. Retrieved 2023, from https://www.factset.com/

Hotchkiss. "Lewis B. Cullman '37: Building a Life around Philanthropy and Service, and Inspiring Others to Do the Same." *Home - Connecticut Boarding School*, Hotchkiss, 11 June 2019, https://www.hotchkiss.org/post-page/~board/alumni-news/post/lewis-b-cullman-37-building-a-life-around-philanthropy-and-service-and-inspiring-others-to-do-the-same.

Beattie, Andrew. "Corporate Kleptocracy at RJR Nabisco." *Investopedia*, Investopedia, 13 July 2022, https://www.investopedia.com/articles/stocks/09/corporate-kleptocracy-rjr-nabisco.asp.

Hayes, Adam. "What Ever Happened to the Dotcom Bubble?" *Investopedia*, Investopedia, 18 July 2022, https://www.investopedia.com/terms/d/dotcom-bubble.asp.

Nocera, Joe. "Private Equity Ran Amok in the 2010s." *Australian Financial Review*, Financial Review, 30 Dec. 2019, https://www.afr.com/companies/financial-services/private-equity-ran-amok-in-the-2010s-20191231-p53nrm.

MacArthur, Hugh, et al. "The Private Equity Market in 2020: Escape from the Abyss." *Bain and Company*, Bain, 4 May 2021, https://www.bain.com/insights/the-private-equity-market-in-2020/.

MacArthur, Hugh, et al. "Global Private Equity Report 2023." *Bain and Company*, Bain, 27 Feb. 2023, https://www.bain.com/insights/topics/global-private-equity-report/.

Kupec, Blazej, and Jason Feder. "Private Equity Value Creation: 5 Real-World Examples." *Moonfare*, Moonfare, 2 May 2022, https://www.moonfare.com/blog/5-examples-pe-value-creation#:~:text=%E2%80%8DHow%20does%20private%20equity%20create,expansion%2C%20leverage%20and%20operational%20improvements.

Gompers, Paul, et al. "What Do Private Equity Firms Say They Do?" Harvard Business School, Apr. 2015.

Brigl, Michael, et al. "How Private Equity Firms Fuel next-Level Value Creation." *BCG Global*, BCG Global, 19 Feb. 2016, https://www.bcg.com/publications/2016/private-equity-power-of-buy-build.

Pitchbook. "What Are Mega-Deals?" *PitchBook*, PitchBook, 23 Aug. 2019, https://pitchbook.com/blog/what-are-mega-deals.

Sachar, Parth, and Argosy. "Value Creation at Argosy Private Equity." 21 Feb. 2023.

Leleux, Benoit F, et al. "The Carlyle Group and the AZ-EM Buyout: Value Creation After the Transaction." *IMD International*, Sept. 2009, Buyout, Private Equity, Turnaround, Leverage, Electronics, General Management. Accessed 15 Mar. 2023.

Kaplan, S. N., & Strömberg, P. (2009). Leveraged Buyouts and Private Equity. *Journal of Economic Perspectives*, *23*(1), 121–146. Retrieved from https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.23.1.121.

Wikipedia. "Equity Co-Investment." *Wikipedia*, Wikimedia Foundation, 11 Feb. 2023, https://en.wikipedia.org/wiki/Equity_co-investment.

GCI. "Top 50 PE Firms." *GCI Publishing*, GCI, 2023, https://gcipublishing.com/top-50-pe-firms.

Bain. "ESG in Private Equity." *Bain*, https://www.bain.com/industry-expertise/private-equity/esg-in-private-equity/.

Hayes, A. (2023, January 17). *Profitability ratios: What they are, common types, and how businesses use them*. Investopedia. Retrieved March 30, 2023, from https://www.investopedia.com/terms/p/profitabilityratios.asp#:~:text=Investopedia%20%2F%20Julie%20Bang-,What%20Are%20Profitability%20Ratios%3F,a%20specific%20point%20in%20time.

Biesinger, M., Bircan, C., & Ljungqvist, A. (2020). Value Creation in Private Equity. *European Bank for Reconstruction and Development* . Retrieved April 1, 2023, from https://www.ebrd.com/home.

Acharya, V. V., Gottschalg, O., Hahn, M., & Kehoe, C. (2012). Corporate Governance and Value Creation: Evidence from Private Equity. *Review of Financial Studies*. Retrieved March 20, 2023, from http://rfssfs.org/.

Gompers, P., Kaplan, S. N., & Mukharlyamov, V. (2016). What do private equity firms say they do? *Journal of Financial Economics*. Retrieved March 19, 2023, from http://rfssfs.org/.

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

Cohn, J. B., Mills, L. F., & Towery, E. M. (2014). The evolution of capital structure and operating performance after leveraged buyouts: Evidence from U.S. corporate tax returns. *Journal of Financial Economics*, *111*(2), 469–494. Retrieved March 25, 2023, from https://www.sciencedirect.com/science/article/abs/pii/S0304405X13002961.

Davis, S. J., Haltiwanger, J., Handley, K., Jarmin, R., Lerner, J., & Miranda, J. (2014). Private Equity, Jobs, and Productivity. *American Economic Review*. Retrieved March 20, 2023, from https://www.aeaweb.org/journals/AER.

Long, H., Lin, X., & Chen, Y. (2021). Why the Operating Performance of Post-IPO Firms Decreases: Evidence from China. *Journal of Risk and Financial Management*. Retrieved from https://doi.org/10.3390/jrfm14090424.

Ljungqvist, A., & Richardson, M. P. (2005). The Cash Flow, Return and Risk Characteristics of Private Equity. *NYU*. Retrieved March 10, 2023, from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=369600.

Kaplan, S. N., & Schoar, A. (2003). Private Equity Performance: Returns, Persistence and Capital Flows. *MIT Sloan*.

Cohen, J. R. (2022, November 7). *What is private equity? A brief history what is private equity? A brief history*. Financial Poise. Retrieved April 2, 2023, from https://www.financialpoise.com/what-is-private-equity-a-brief-history/

Edwards, J. (2022, December 19). *How Dell Stock ceased to exist*. Investopedia. Retrieved April 2, 2023, from https://www.investopedia.com/articles/markets/110915/dell-stock-doesnt-exist-here-why.asp#:~:text=Michael%20Dell%20partnered%20with%20Silver,analysts%27%20focus%20on%20quarterly%20earnings

Lopez, L. (2012, January 10). *Take a look at a classic private equity deal: RJR Nabisco Goes Private and the street goes wild*. Business Insider. Retrieved April 2, 2023, from https://www.businessinsider.com/rjr-nabisco-lbo-private-equity-deal-2012-1?IR=T

**ACADEMIC VITA**

# PARTH SACHAR

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## EDUCATION

**The Pennsylvania State University** — **University Park, PA**
*Schreyer Honors College, Smeal College of Business* | Bachelor of Science in Finance — *Class of 2023*

## PROFESSIONAL EXPERIENCE

**Argosy Capital Group** — **Wayne, PA**
*Incoming Private Equity Analyst* — *Feb 2023 – Present*

**Graham Partners** — **Newtown Square, PA**
*Private Equity Summer Analyst* — *Jun 2022 – Aug 2022*

- Gained live leveraged buyout deal experience through conducting comprehensive financial, market, customer, and competitor due diligence on investment opportunities, as well as reviewing CIMs and data room materials, building LBO models, and participating in diligence meetings with company management teams
- Pitched a platform investment opportunity through developing a Gating Committee deck consisting of investment highlights, diligence areas, and an LBO model with refined assumptions, and presenting investment thesis and recommendations
- Completed an Investment Theme Presentation on life sciences automation through conducting research on the specific industry niche, building an actionable target list that fit within Graham's investment criteria, and presenting findings to team members
- Completed Training the Street course covering three statement modeling, LBO modeling, and valuation methodologies

**Homestead Smart Health Plans** — **Philadelphia, PA**
*Business Development Summer Analyst* — *Jun 2021 – Aug 2021*

- Utilized CRM software, Zendesk, to organize sales pipeline for business development team and clarify deal timelines
- Led calls with prospective clients about Homestead's flagship products and transition them to sales onboarding
- Developed a target client database using bulk data software and added due diligence notes on all prospective companies

**1315 Capital** — **Philadelphia, PA**
*Summer Analyst* — *Jun 2018 – Jul 2018*

- Shadowed the investment advisory team during investor-relations phone calls, audit meetings, and board room discussions
- Researched healthcare companies' financial history, management, clients, and authored reports based off findings
- Played an intermediary role in connecting the firm with Homestead Smart Health Plans, which turned into a portfolio company

## RELEVANT EXPERIENCE

**Leveraged Lion Capital** — **University Park, PA**
*Director of Equity Research* — *Apr 2020 – Dec 2021*

- Interviewed and selected for the nation's first student-run paper leveraged loan and high yield bond portfolio partnered with Bank of America Merrill Lynch, the Loan Syndications and Trading Association, and S&P Global
- Analyzed prospective leveraged loan and high yield bond investments by performing credit analysis and building financial models, and then pitched non-investment grade companies such as Owens and Minor, Bausch Health, and Akumin
- Managed the $8.81 million paper fund in the Healthcare sector of the $125 million portfolio while attempting to outperform the S&P/LSTA Leveraged Loan Index and the Bloomberg Barclays U.S. HY Index
- Authored bi-weekly equity research reports and presented commentary on latest macroeconomic events
- Initiated and moderated a Q&A discussion with Chairman and CEO of Medtronic for undergraduate business students

**Wall Street Boot Camp** — **University Park, PA**
*Graduate* — *Aug 2020 – Dec 2020*

- Selected out of 500 applicants to participate in a fifty-member program and attend weekly sessions led by Wall Street professionals working at various firms in the financial services industry
- Learned about various career paths on Wall Street, which includes investment banking, sales and trading, private wealth management, asset management, and capital markets while working on networking skills

**Delta Sigma Pi Professional Fraternity – Alpha Gamma Chapter** — **University Park, PA**
*Active Brother* — *Nov 2020 – Present*

- Led weekly professional development workshops for the Spring 2021 pledge class on resumes and cover letters, interview preparation, and LinkedIn profiles and critiqued such documents and profiles for individuals before any upcoming event
- Contributed to general body chapter meetings to improve fraternity operations and prepare for incoming pledge classes

## LEADERSHIP EXPERIENCE

**Schreyer Dean's Student Advisory Committee** — **University Park, PA**
*Committee Member* — *Mar 2020 – Present*

- Selected for a position on a twelve-member student committee that reports to the Dean of the Honors College
- Served as a liaison to the administration to foster change and improvements in the honors scholar community

## HONORS, SKILLS, AND INTERESTS

**Honors:** National Latin Exam *Cum Laude* Recipient, Schreyer Academic Excellence Scholarship, Dean's List
**Skills:** Microsoft Office products, Bloomberg, FactSet, S&P Capital IQ
**Interests:** cricket, golf, tennis, Philadelphia 76ers, traveling, public speaking, podcasts, The Germination Project