



# **An analysis of value creation in Private Equity Portfolios**

A Research Report

By

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degree of Masters of Business Administration.

## ABSTRACT

Academic literature on the analysis of value creation in private equity industry is still in its infancy. The approach to value attribution is still a contended subject by both academic and professional writers. The purpose of this research was to determine how South African Private Equity industry generates value in portfolio companies. This was achieved by gathering 24 transactions from institutional investors and private equity firms and disaggregating their returns into value drivers. Identified value drivers were financial leverage, revenue growth, EBITDA multiples and EBITDA margin.

Contrary to the common belief that the private equity model is more dependent on cutting costs and less on growing businesses, the findings of the study revealed that revenue growth was the biggest relative driver of value while operational efficiency, the least. Results regarding the importance of financial leverage in value creation in the last 10 years could not confirm the popular argument which states that as the private equity model matures the industry is moving towards other value levers.

While descriptive statistics confirmed that the level of gearing and size of companies influence the relative importance of EBITDA margin and revenue growth, results from statistical tests were in several cases inconclusive.

## DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Masters in Business Administration at Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

.....

Signed

11 November 2011

Date

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## **CHAPTER 1 INTRODUCTION**

### **1.1 Research Title**

An analysis of value creation in Private Equity Portfolios.

### **1.2 Background of research Study**

Largely unknown outside South Africa's financial fraternity, a silent industry by the name of "Private Equity" is rapidly growing in influence and has begun to redefine the notion of value creation in South African companies. Much of what is known about this industry is concerned with allegations of excessive use of debt in acquiring companies and the subsequent asset stripping to generate what are viewed as abnormal profits. Unfortunately, very little has been done to illuminate the process of Private Equity value creation in order to isolate fundamental drivers of value. This research endeavours to provide answers to specific pertinent questions surrounding value creation in Private Equity.

Today's Private Equity industry is believed to consist of two value creation models, namely the "Financial investor" and the "Interventionist" (Klier, Welge, & Harrigan, 2009). Between these two extreme management models is a spectrum of strategies which offer variations of intensity of both models. Interspersed in this spectrum are all Private Equity firms in operation today. The "Financial investor" represents the traditional form of Private Equity that centres on financial engineering and use of financial incentives to augment governance. Through aggressive use of financial

leverage in acquiring a target, “financial investor” enthusiasts essentially create a long option on the business they acquire with only limited equity injection as their risk (Klier et al., 2009). On the other side of the spectrum is the “Interventionist”, which represents a contemporary approach largely comprising of active involvement in decision making as well as a focus on value creation through active ownership. While modest amounts of financial leverage are applied, interventionist investors actively influence the strategic decision making process and act as partners and owners whose interests are aligned to those of the management (Palter, Roy, & Cockwell, 2004). Diversity and the experience of professionals with backgrounds in consulting, industry, banking, accounting and finance facilitate value creation during the holding period in the portfolio companies.

The above generalisation of the two Private Equity value creation models offers a foundation upon which the researcher can answer one of the most important questions being asked in the Private Equity space: How do Private Equity firms create value?

### **1.3 Research Problem**

In one of the most practical yet theoretical textbooks published to date, titled “International Private Equity”, Talmor and Vasvari (2011) described Private Equity as a victim of its own success. The authors perceived that the abnormal returns earned by the industry in the late 1990s and early years of 2000 led to acquisitions of large and public companies which drew the attention and scrutiny of the public. The disastrous effects of the 2008 global financial crisis that resulted from a credit bubble

appear to have been partly fuelled by the excessive use of debt in leverage, which has also reinforced the need to monitor the Private Equity industry. Whether the need for scrutiny is a direct result of the inherent flaws of the industry's model, or a lack of understanding of the model, is a secondary question not to be attended to in this study.

The Private Equity industry is reputed for lacking transparency; often stripping assets at the expense of jobs; accepting too much debt to finance deals and enjoying lighter taxes as a result thereof (Economist, 2007). In South Africa, the Minister of Finance, Pravin Gordon's remarks concerning the need to provide oversight on the industry with regard to its compliance to global regulatory standards in banking, insurance and securities markets can be viewed as part of the government's concern over the robustness of the industry's model in light of the volatility of the country's financial markets (PENewsAfrica, 2010). The notion that the Private Equity industry's abnormal returns are attributed to excessive gearing is still popular among critics. A more sympathetic view argues that it is a common misperception that Private Equity firms solely focus on maximising short term returns at the expense of jobs or break up of organisations to sell off their individual parts (Kearney, 2007). From the perspectives shared above, it is clear that there is need for empirical studies to expose the subject of value creation, particularly in places such as South Africa where such research is still in its infancy.

In response to the public's demand to understand the operations and the impact of the industry on the wider society and economy, Private Equity firms through their industry associations, particularly in the advanced markets, have been conducting and publishing surveys and research to disclose the intricacies of the industry's

operations. Much of the research has dwelt on the benefits and value that the industry provides to the global economy and the society. Locally, the South African Venture Capital Association (SAVCA) has been on the forefront of publishing surveys and research. In the SAVCA (2010) Industry Review report, it was reported that within a three year period (2006-2009) the local Private Equity industry achieved average employment growth of 110% per annum and had average turnover growth of 20% which compared well to the 18% achieved by companies listed on the Johannesburg Stock Exchange (JSE). The report also observed that Private Equity's leveraged model creates opportunities for the involvement of black management and other Black Economic Empowerment (BEE) parties in the ownership and management of portfolio companies (SAVCA & KPMG, 2010). These observations emphasise certain successes of the Private Equity industry in South Africa.

Nonetheless, the question of how South African Private Equity firms create value in their portfolios still remains obscure mainly due to the opaqueness of the industry and the reluctance of Private Equity firms to release performance data on portfolio companies. Despite the ever-increasing economic and political importance of Private Equity, the industry is still perceived as very young. This, in combination with information concealment, partially explains the limitedness of academic literature on the subject of value creation in the industry (Pindur, 2007). While value creation performance analysis has been limited at the portfolio company level, research on performance of Private Equity industry at fund level is relatively accessible.

Although several South African scholars have undertaken Private Equity studies in the last fifteen years there is still no analysis that quantifies the relative importance of value levers for the industry. As a result, there is a restricted appreciation of how the

industry generates value. This research therefore seeks to contribute to this subject by performing an analysis of value creation in Private Equity portfolios in South Africa through disaggregation of value levers.

## **1.4 Objectives of the research study**

The topical research problem of this study is the determination of how Private Equity firms in South Africa generate value. In exploring this subject, the relative importance of the key value drivers will be the main focus of the study. To aid the reader in understanding this subject, the research problem will be discussed under the following general objectives:

- First, the research study aims to identify quantifiable and comprehensive levers relevant for the South African Private Equity industry;
- After the determination of the key levers, the study intends to establish the relative importance of each lever through a value attribution methodology;
- Third, the study intends to evaluate whether the relative importance of value levers has changed over the time that the South African Private Equity industry has been in existence;
- Appraise the effect of financial gearing on operational improvements in portfolio companies and;
- Last, the research also intends to evaluate whether the relative importance of value creation levers differs with the size of a portfolio company.

## **1.5 Research Scope**

The research will be confined to Private Equity firms and portfolio companies operating in South Africa. It will also be restricted to quantifiable financial and operational value levers.

In this research, value creation analysis will be performed at the portfolio company level and not fund level. The term Portfolio Company used in this research will refer to a company that a Private Equity firm has acquired as an investment (Wright & Gilligan, 2008).

Though the term Private Equity encompasses both leveraged buyouts and venture capital, this study will be confined to buyouts. Since the majority of venture capital transactions do not include financial leverage, which is an important component of the value creation, any non-buyout transactions will be excluded.

## **1.6 Research motivation and need**

On a personal level the researcher has a passion for Private Equity as an investment model. The researcher intends to develop a deeper understanding of the subject through this study. The researcher views this research as a valuable opportunity to understand the subject through review of existing literature on the subject and through data collection and analysis.

The need for well informed and unbiased analysis on Private Equity industry is much more important now than any other time. The actual Private Equity industry is still less than 40 years old yet fast becoming a recognisable driver of the global economy



(Private Equity Council, 2007). As a result, an advancement of the body of knowledge on the subject will be expected to enhance development of both the industry and national economies. Worldwide, growth in the academic body of knowledge on value creation in Private Equity is hampered by a lack of access to detailed information on the performance of Private Equity firms (Achleitner, Lichtner, & Diller, 2008).

In South Africa a few studies have been carried out on the analysis of value creation in Private Equity. However, such studies have not gone as far as disaggregating the returns into specific levers. It is this absence of empirical knowledge on South Africa that has motivated the researcher to carry out this study. In doing this study the researcher looks forward to providing indicative insights on value creation of Private Equity industries in emerging markets.

The recent financial crisis that swept throughout the world in the three years ending 2010 raised several questions regarding the viability of the Private Equity model. With some Private Equity portfolio companies defaulting on debt payments during the financial crisis and others becoming distressed, questions on whether the use of large amounts of debt in Leveraged Buyouts (LBOs) is still a sustainable strategy have become relevant. These developments have added a lot of pressure against the use of what is viewed as excessive debt in Private Equity portfolios. Such sentiments have also been felt in South Africa. For example, recently in July 2011, South Africa's National Treasury cited excessive debt in LBOs as a reason for the suspension of section 45 of the Income Tax Act, a rule that offered tax relief to intra-group asset transfers (Private Equity Manager, 2011). In its statement, the South African Treasury expressed concern that LBOs had become a form of abusive

restructuring which placed fiscus at risk by introducing excessive debt to companies and thereby reducing corporate tax. In response to the Treasury's statement, SAVCA argued that the industry was not dependent on financial leverage as the Treasury believed. Among other objectives, this research is set to help shed light on the extent to which Private Equity firms rely on financial leverage through analysis of empirical data.

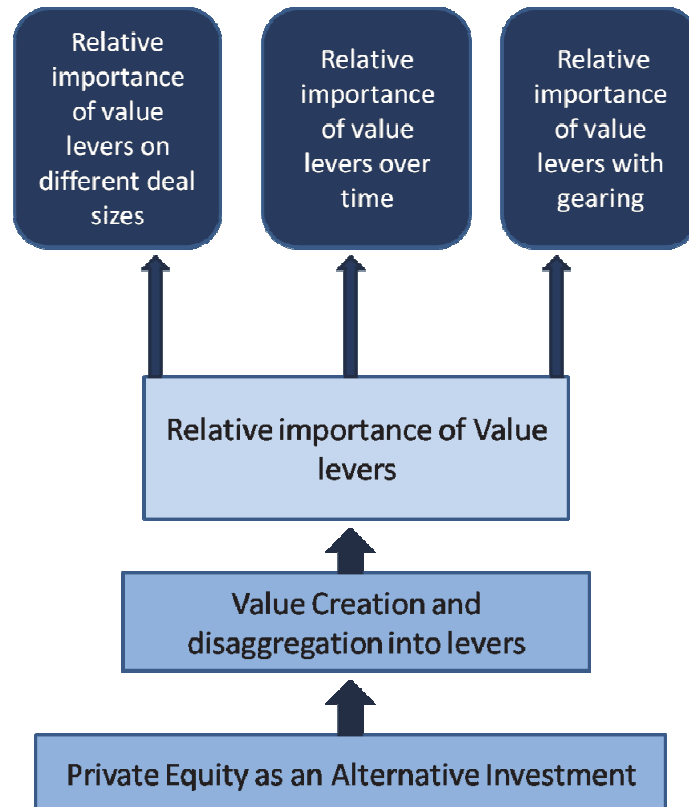
In their paper titled "Value creators at the Gates", Legere, Ooi, Sarma and Campbell (2008) noted that institutional investors and funds of funds (funds that invest in a portfolio of Private Equity funds) are now requiring Private Equity firms to create value in ways different from financial engineering. It is probable these investors are realising that debt solely is no longer a sustainable source of value. The diminished supply of debt in many economies including South Africa and the commoditisation of financial engineering skills have meant that financial leverage is no longer a strong source of competitive edge. As Matthews, Bye, and Howland (2009) explained, Private Equity firms are increasingly becoming dependent on operational improvements in order to reach their investment goals. In South Africa the increased level of activity in Private Equity marked by 70 managers' actively investing and managing portfolios of private companies has meant that institutional investors now have many options in terms of Private Equity firms to invest with (RisCura & SAVCA, 2011). Consequently, limited partners can now become selective of whom to invest with based on value creation strategy. Through disaggregation of returns, this research study aims to provide a basis upon which institutional investors can identify fund managers that follow value creation philosophies suiting their investment plans. Due to pressure on the use of debt in the industry, institutional investors are likely to be interested in assessing the extent to which returns earned by Private Equity firms

are attributable to financial leverage. As the EVCJ (2004) seminal paper noted, analysis of value levers does help to inform investors of the quality of Private Equity managers. The majority of Private Equity firms claim that their primary source of abnormal returns is active ownership in the form of operational improvements and not financial leverage. This research study hopes to provide a standard basis upon which such claims can be tested.

## CHAPTER 2 LITERATURE SUMMARY

The literature summary is subdivided into six major sections. Figure 1 shows a diagrammatic structure of the literature review flow. The first section discusses the general definition and performance of the Private Equity industry world-wide and in South Africa. This section aims to shed light on why interest on the subject of Private Equity has grown in recent years. The second section identifies and reviews literature on the recognisable and major value levers in Private Equity. A third section will cover the relative importance of each value lever discussing the significance of each in previous studies. This will be followed by a fourth section on the relative importance of different value levers across deal sizes. The fifth section looks at literature on time series studies showing the relative importance of different value levers on deals done over time. The final section of the literature summary reviews studies on the impact of financial gearing on value creation levers.

Figure 1: literature review structure



## 2.1 Private Equity as an alternative investment

### 2.1.1 Introduction to Private Equity

The term Private Equity is viewed as an investment in usually unlisted enterprises that is in the form of pure equity, shareholder loans or junior debt, with the objective of increasing the value of the company over the medium to long term (EVCA, 2007). Kearney (2007), defined Private Equity as the medium to long term equity financing of unquoted companies at many stages in the life of a company from start up to expansion or even management buy-outs (MBOs) and management buy-ins (MBIs)

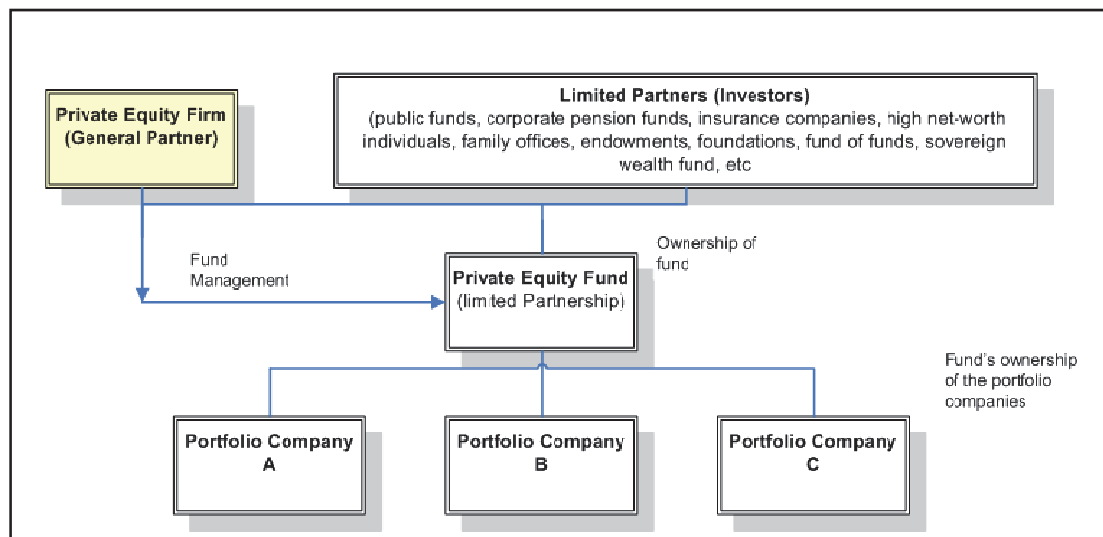
of established companies with growth potential. From the two definitions, Private Equity at a high level can be subdivided into buyout and venture capital (Talmor & Vasvari, 2011). Though similar in structure, buyout funds are larger in size and usually focus on established and mature companies rather than young businesses and they utilise debt as well as equity. On the other hand venture capital focuses on start-ups, early stage and high growth companies and does not depend on debt when financing businesses (Talmor & Vasvari, 2011).

Though many researchers state that Private Equity emerged in the 1970s, the history of Private Equity in fact dates back to the pre-Second World War with the beginning of Angel Investing in the 1930s and 1940s (Talmor & Vasvari, 2011). According to research, J. H. Whitney & Company, and American Research & Development Corporation (ARDC) were both founded in 1946 and were the first venture capital firms to be established. However, the most noticeable and popular breakthrough in Private Equity occurred in the 1970s when some of the present day Private Equity behemoths were founded, namely Thomas Lee Partners, KKR and Warburg Pincus (Talmor & Vasvari, 2011). One of the first Private Equity funds was launched in 1976 in the United States of America (USA); thereafter a proliferation of leveraged buy-out funds ensued throughout the 1980s (Robertson, 2009).

In the last 20 years Private Equity has emerged to be a significant asset class and at its pinnacle, Private Equity has been found to be responsible for up to a quarter of global Merger & Acquisitions activity and as much as half of the leveraged finance issues in the capital markets (Talmor & Vasvari, 2011). At the end of 2009, Private Equity funds under management amounted to two trillion five hundred billion dollars (US\$2.5tn) which was more than double the (US\$1tn).amount in 2003.

In terms of structure, Private Equity investing is generally carried out through a limited partnership structure in which a Private Equity firm serves as the general partner (GP). The limited partners (LPs) consist largely of institutional investors and wealthy individuals who provide the bulk of the capital (Kaplan & Schoar, 2004). The GP then has an agreed time period in which to invest the committed capital - usually over a period of five years. The GP also has an agreed time period in which to return capital to the LPs (Kaplan & Schoar, 2004). Typically, a Private Equity (PE) sponsor attempts to invest the committed capital within the first five years after the fund is launched, and has approximately another five years to sell the investments (Kaplan and Strömberg, 2008). The diagram below depicts the structure of a Private Equity fund.

**Figure 2: Structure of a Private Equity Investment vehicle. SOURCE: Talmor & Vasvari, 2011**



The GP invests the LPs' capital along with funds borrowed from banks, pension funds, endowments and other lenders. The GP then acquires companies with potential for further growth and profitability, significant competitive advantage and

good performance track records. The approach of the Private Equity firm is to position strategies, financial leverage and governance structures to enhance the company's performance. The majority of Private Equity firms charge an annual management fee to the LPs that range from 1.5% to 2% of the invested funds that investors commit to a fund (Private Equity Council, 2007). This fee is called a "management fee" and serves the purpose of meeting the daily operational costs that the GP incurs in managing the fund, including employee salaries and office rent (Private Equity Council, 2007).

When Private Equity funds sell investments for a profit, the Private Equity firm will not be able to keep any profit until it has returned the financed capital to investors, as well as the "hurdle" rate on the total invested capital (Private Equity Council, 2007). In the event that part of the proceeds remain after the agreed hurdle rate is cleared, they are typically split in such a way that the investors receive 80% and the Private Equity firm (GP) receives 20% of net overall fund profits (Private Equity Council, 2007). This 20 percent is known as the "carry" or the carried interest for the Private Equity firm and varies with different firms.

### **2.1.2 Entry types for Private Equity investments**

When defining how Private Equity firms acquire portfolio companies several approaches are considered. The first approach that can be adopted involves the delisting of a publicly listed company (Pindur, 2007). This approach is normally defined as a Public-Private transaction: a restructuring of corporate ownership by replacing the entire public shares ownership by an incumbent management group which in this case would be the Private Equity firm (Pindur, 2007). The delisting of



EDCON from Johannesburg Stock Exchange by US Private Equity firm Bain Capital is an example.

Pindur (2007) also defined a private to private transaction which is characterised by a majority selling shareholder. One type of private to private transaction is a spin-off that occurs when a parent company sells off one of its divisions. Another case would be the sale of family businesses which is defined as a succession buyout.

### **2.1.3 Exit types for Private Equity investments**

Academic literature often makes mention of four modes that are used by exiting portfolio companies, namely trade sale, and initial public offering (IPO), secondary buyout and a sale to existing management. According to Pindur (2007), an IPO is a form where proceeds from the public shares offered are normally used to recompense exiting shareholders and any existing debt. The remaining exit strategies are private to private modes. The first model is the secondary sale which entails disposal of stake to a financial sponsor such as another Private Equity firm. A trade sale occurs when a portfolio company is acquired by a strategic investor. A sizeable premium is paid when the acquirer is able to realise strategic synergies. Last, a resale to management occurs when the incumbent management buys out the Private Equity firm.

#### 2.1.4 Private Equity Performance as an Asset Class

As an asset class the evaluation of Private Equity performance is normally completed at a fund level or at a Private Equity firm (General Partner) level (Pindur, 2007). Information on performance of funds is normally provided by institutional investors. Research demonstrates that as an asset class Private Equity outperforms public listed companies. In a study titled “*Do buyouts still create value*”, Guo, Hotchkiss, & Song (2010), concluded that the empirical knowledge based on buyout transactions of the 1980s supported the notion that buyouts create value.

The Swedish Private Equity backed companies are known to outperform companies listed on the Stockholm Stock exchange and all Swedish companies as a whole. For example, during the period 1999- 2004, the annual growth rate for portfolio companies was 21% compared to 7% for public companies and 1.5% for all other companies (Bengtsson, Nagel, & Nguyen, 2008). There are several studies that show the superiority of Private Equity over the stock market. Various reasons have been cited as the key determinants of this exceptional performance. Unlike most of the public listed companies that are subjected to quarterly targets, Private Equity investors have a long term view of the investment; therefore managements’ objectives are to improve the underlying drivers of performance.

Contrary to studies that have concluded that Private Equity produces returns higher than those of public companies, some authors such as (Kaplan & Schoar, 2004), have challenged these studies by showing that after adjusting for fees and the industry’s related risk, Private Equity managers on average do not out-perform public companies.

## 2.2 South African Private Equity industry

Relative to other countries, the global venture capital and Private Equity country attractiveness index 2011 ranks South Africa's Private Equity industry at number twenty six (26) (Groh, Liechtenstein, & Lieser, 2011). Compared to African peers, South Africa appears to be the most attractive Private Equity destination on the continent followed by Morocco which is ranked number fifty four (54). In creating the index, the following key drivers were evaluated:

- Economic activity
- Depth of the capital market
- Taxation
- Investor protection and corporate governance
- Human and social environment
- Entrepreneurial culture and deal opportunities

This publication also revealed that Africa has recently moved up the rankings when compared to Latin America and Central and Eastern Europe. This rise in rankings is attributed to the improvement in the economic prospects of most African economies demonstrated by a robust Sub-Saharan average Gross Domestic Product (GDP) growth rate estimated to grow to 5.5% in 2011. Economic reforms, increased cross border trade and expansionary public spending are also identified as key drivers for an improvement in ranking (Groh et al, 2011).

At the close of 2009 the South African Private Equity industry had R105.4 billion in funds under management which was a 3.6% fall from 2008 figures of R109.3 billion. R5.6 billion was raised during 2009, which was down from R10.6 billion in 2008 and R15.4 billion in 2007 (SAVCA & KPMG, 2010). The SAVCA and KPMG (2011) report revealed that as at the end of 2010, funds had fallen to R97.6 billion, culminating in a 7.35% fall. The latest funds under management represent 3.6% of GDP of South Africa. Apart from showing the impressive extent of development of the industry, the 2008 and 2009 data also illustrated the adverse effects of the 2008 financial crises on the industry (SAVCA & KPMG, 2010).

Despite these recent challenges the industry is improving and is expected to be further boosted by a favourable change in South Africa's Pensions Fund Act. The change states that South African Institutional and Retail investors will be allowed to commit up to 10 percent of their assets in Private Equity under new regulations, an increase from the current 2.5 percent allocation (Private Equity Manager, 2011). Regulation 28 of South Africa's Pension Funds Act will allow private pensioners and individuals to invest with both international and domestic Private Equity firms. This development is expected to increase funds available for Private Equity investments.

In terms of fundraising and portfolio management in South Africa, the major sources of funds under management and being raised are still predominantly from outside the borders of South Africa. In 2009, the United States of America (USA) contributed 51% of funds raised; the United Kingdom (UK) contributed 23% while local contributions amounted to 29% (SAVCA & KPMG, 2010).

With regard to performance, RisCura and SAVCA (2011) reported a net Internal Rate of Return (IRR) of 21.7% to September 2010 for the South African Private

Equity industry against a return of 17% accrued by the JSE All Share Index for a comparable period. According to the same quarterly research report published by RisCura and SAVCA, using ten year polled Internal Rate of Return (IRR) rates, South Africa fared better than the UK and USA funds (RisCura & SAVCA, 2011). Against South Africa's IRR of 21.7%, the UK and the USA industries managed to return 10 year polled IRR rates of 13.1% and 8.1% respectively. The authors argued that UK and USA have traditionally followed a higher leverage model than SA Private Equity and have consequently shown poor returns over the financial crisis as portfolio company earnings became depressed.

### **2.3 Value creation and disaggregation of returns**

In spite of the difficulty of accessing Private Equity performance data, several researchers have managed to conduct insightful studies with the aim to disaggregate Private Equity returns. Since Private Equity research is still recent, there is yet to be a universally agreed value attribution /disaggregation methodology that can be adopted as standard. Most of the value attribution studies have been carried out in the developed world with doctoral studies being the majority in Germany, UK, Sweden, Netherlands and USA.

While several authors find it easy to use the phrase “value creation” in a great deal of literature, its interpretation is not uniform among readers. According to Fernández (2001), a company creates value for the shareholders when the shareholder return exceeds the share cost (the required return to equity). Fernández quantified the value creation equation as follows:

*Created shareholder value = Equity market value X (Shareholder return - Required return to equity)*

For the purposes of this study and to illustrate the relative importance of each value lever, value creation will refer to shareholder value. In this study the size of absolute returns is not of consequence, rather it is the relative significance of each value lever which is of importance. As a result the time value of returns will be ignored. “Shareholder value added is the term used for the difference between the wealth held by the shareholders at the end of a given year and the wealth they held the previous year” (Fernández, 2001). According to Fernández (2001) shareholder value consists of the following:

*Increase of equity market value*

*+ Dividends paid during the year*

*- Outlays for capital increases*

*+ Other payments to shareholders (discounts on par value, share buy-backs and others)*

*- Conversion of convertible debentures*

Similar to acclaimed value creation studies that have been conducted before, in determining value created, the perspective of the equity investor will be considered by comparing the equity values at exit and at entry (Pindur, 2007). By adopting this approach, portfolio company performance data will comprise gross returns before deduction of general partner fees and carried interest.

### 2.3.1 South African Studies

In 2008, van Niekerk of the University of Stellenbosch conducted a research study titled “*An analysis of return in South African Private Equity*” in which the relationship between the IRR of portfolio companies and sources of value were studied (van Niekerk, 2008). Among the variables studied, the author observed a positive relationship between IRR returns and the following variables: Earnings before interest, taxes, depreciation and amortization (EBITDA), multiples effect and earnings growth. Based on a sample of 46 transactions obtained from two Private Equity firms, the author concluded that changes in EBITDA multiples had a very strong positive correlation with IRR. Similarly, earnings growth also had a positive relationship with IRR.

On the contrary, results of a regression analysis of IRR returns and debt used demonstrated no relationship. This finding was in contradiction with the general belief that Private Equity firms increased their returns by employing more debt. The study managed to reveal insightful findings on the relationship between returns and the perceived sources of return; however the author recommended further studies that would isolate and compute the factor contributions of individual drivers of value. At the time of his study, the author noted the non-existence of a methodology that could be used to disaggregate value created into different levers. Fortunately, only recently such methodologies have been made available in the Private Equity academic field. It is therefore the purpose of this research to take the next step of disaggregating the known value drivers and assess their relative importance.

### 2.3.2 Identification of value creation levers

For the past three decades international scholars and professionals in the Private Equity industry have come up with several propositions of value creation drivers for Private Equity returns. The greatest challenge that academics have faced in studying value creation in Private Equity portfolio companies has been the lack of a consensus on what constitutes a value lever or driver (Pindur, 2007). Without standardised value levers, the formulation of a formal value attribution mechanism has become a complicated goal for most academics. Drivers such as leverage, operational improvements, governance, strategic direction, EBITDA multiples effect, and urgency costs reduction are widely used but still contested in some academic circles. However, it is encouraging that with the publication of more academic and professional papers, authors seem to have been converging on a few comprehensive drivers.

In their seminal study titled “Understanding Value Generation in Buyouts”, Berg and Gottschalg (2006) suggested that value creation be classified into two broad value levers namely; Primary value creation levers and Secondary value creation levers. The authors identified EBITDA multiple effect as a mere value capturer, meaning it is passive. Among the primary value levers, Berg and Gottschalg (2006) identified financial engineering, operational efficiency and revenue growth. Secondary value levers were defined as those levers which have no direct impact on the financial performance but influence value creation through the primary levers (Berg & Gottschalg, 2006). The authors argued that since secondary levers impact performance through primary levers, value creation analysis is best approached by focussing on primary levers and ignoring secondary levers.



A comprehensive study by the Centre for Entrepreneurial and Financial studies and Capital Dynamics on Private Equity transactions and their value drivers, went on to offer in-depth insight into Private Equity value creation of 241 firms from 1989 until 2006 (Achleitner et al., 2008). The study revealed five main sources of value, namely: Financial leverage; Operative contribution; Free-cash flow improvement; Multiples contribution and Combination effect. The combination effect entailed the correction factors that capture the combined effects of EBITDA and multiples. As part of the detailed breakdown of the value drivers, operative contribution was broken down into sales growth and improved operational margins.

Similar to Berg and Gottschalg's (2006) work, management consulting firm, Boston Consulting Group & IESEC Business School (2008), also conducted a similar study of 32 companies from different funds belonging to seven European Private Equity firms. The authors divided the value created by these Private Equity firms into the following levers: Leverage effect; Sales growth; Improvement of Earnings before interest and Tax (EBIT) margin; and Improvement of EBIT multiple (BCG & IESEC Business School, 2008).

Achleitner, Braun, Engel, Figge, & Tappeiner (2010) then conducted a follow-up study in the form of a study that only included European transactions. Similar to the previous study, the authors classified returns into EBITDA growth; Free Cash flow; EBITDA multiples effect and combination effect. This research covered data from 1991 to 2005. A working paper by Kaiser and Westarp (2010) also subdivided value levers in a similar way.

Kaiser and Westarp (2010) carried out their research at INSEAD business school and identified seven drivers of Private Equity returns which could be categorised into

three main drivers namely: acquisition and sales price negotiation; superior value based management and potential refinancing of acquisitions to ensure optimal leverage. The value levers mentioned were all qualitative and the relative significance of each could not be determined. For this reason and for the purposes of this study, these suggested value levers could not be adopted. In a case study research for a company called TDC, Aaen (2000) disaggregated the company's returns and concluded that the following could be considered as value drivers: leverage, earnings improvements, EBITDA multiples effect and free cash-flow. From the studies identified above, six value levers could be observed namely:

- Financial leverage
- EBITDA Margin
- Revenue growth
- EBITDA multiples effect
- Free cash-flow effect
- Combination effect

While the first four drivers enjoy some consensus from academics, there is variance on the role that free cash-flow effect plays in value creation in portfolio companies. According to a pioneer study by Loos (2005), it was determined that increasing revenues, cutting expenses and sophisticated financial engineering all serve to enhance free cash-flow. As a result, the cash-flow effects are contained in EBITDA margin improvements, revenue growth and financial leverage. As a result, accounting for free cash-flow in addition to the other levers would be tantamount to double counting in value creation. The researcher makes use of a similar view and has therefore decided to recognise the following value creation levers as standard:

financial leverage, revenue growth, EBITDA margin improvements and EBITDA multiples effect. Below, the identified value levers are discussed in detail through evaluating literature that has been gathered so far.

### ***2.3.2.1 EBITDA Multiples Effect (Financial Arbitrage)***

EBITDA multiples growth is defined as the ability to generate a return from differences in portfolio company valuation between its acquisition and its disposal independent of its financial performance (Berg & Gottschalg, 2006). The value arises primarily when a Private Equity firm buys a company at a low EBITDA multiple and sells it at a higher multiple. For example, a company acquired at an EBITDA multiple of six in year zero is then sold at an EBITDA multiple of eight in year five. EBITDA multiple growth is achieved from quality earnings, improved growth prospects and general industry and market increases in valuations (Achleitner, Braun, Engel, Figge, & Tappeiner, 2010).

Private Equity firms' ability to consistently buy companies at lower prices than strategic acquirers can be explained by the way the Private Equity functions. Compared to strategic acquirers, Private Equity firms follow a dispassionate, more objective approach which includes screening numerous potential deals before settling on an eventual target (Loos, 2005).

Schwetzler and Wilms (2007) argued that EBITDA multiple growth/expansion is a passive method of generating returns through different valuations of the company at the date of the acquisition and at exit. According to Schwetzler and Wilms (2007)

and Berg and Gottschalg (2006) EBITDA multiples growth can be viewed as arising out of the following four primary behaviours:

- A change in public market valuation multiples of comparable companies. Company values, especially those of listed companies, are based on public market valuation multiples; investors may benefit from changes in these multiples.
- Possession of private information about the portfolio company can provide an advantage when negotiating the price of a business. In management buy-outs, incumbent management often takes advantage of its knowledge of companies' non-public information to negotiate and determine an offer price.
- Superior negotiation ability in deals. Exceptional deal making skills is a prerequisite in the Private Equity industry. Private Equity firms are renowned for being strong negotiators that make use of sophisticated financial engineering skills to design deal structures that benefit them on price.
- Ability to identify the “discount effect”, which means identifying a conglomerate which might be worth more in separate pieces. Through the disposal of peripheral undervalued assets which are part of a conglomerate, Private Equity firms engage in asset stripping which results in a conglomerate being more valuable as separate pieces more than as one company.

### ***2.3.2.2 Financial leverage***

Berg and Gottschalg (2006) define financial engineering as the optimisation of a capital structure and lessening of after-tax cost of capital of the portfolio company through use of debt. Private Equity firms use market knowledge, expertise and financial engineering skills to determine optimal capital structures. As a result of their

reputation as “good” borrowers and analysing their often solid track records, Private Equity investors receive better debt terms and thus reduce the cost of capital (Schwetzler & Wilms, 2007). Furthermore, they may assist their target companies in negotiating bank loans and bond underwritings at favourable terms. In so doing, the Private Equity industry is reputed for employing huge amounts debt to maximise return on equity hence the term leveraged buyouts.

Leverage’s most important benefit is that it produces larger tax shields which may boost returns by increasing the cash flows available to the providers of capital owing to tax deductibility (Guo et al, 2010). Tax shields also mean that since net earnings are maximised, returns are also enhanced. When deals are levered they mostly help realise the highest return on equity and improve discipline for managers of Private Equity portfolios (Axelson, Stromberg, & Weisbach, 2009). In his paper titled “*Agency costs of Free Cash Flow, Corporate Finance and Takeovers*”, Jensen (1986), argued that debt also acts as a secondary value lever by reducing the agency costs of free cash flow through curtailing cash flow that is available for spending at the discretion of managers. As a result managers have a greater requisite to use cash efficiently lest the company goes into bankruptcy, leading to loss of both jobs and their equity holdings in the company. By increasing the amount of debt that a portfolio company carries, the threat caused by failure to make debt service payments serves as an effective motivating force to strive towards efficiency. However, the benefit of using debt is being reduced in many countries where tax reforms are being carried out. Achleitner, Braun, and Engel (2010) observed that in contrast to EBITDA multiples growth and Operational improvements, the leverage effect is primarily related to equity returns and does not necessarily affect enterprise value.

### **2.3.2.3 Operational efficiency enhancements (EBITDA margin)**

In this case, value creation is generally inferred by comparing pre and post-buyout operational performance measures of the portfolio company (Pindur, 2007). Lerner (2009) defined operational engineering as the means by which Private Equity firms improve their portfolio companies through the provision of formal and informal consulting services to boost production processes, working capital management, marketing and product mix, and related areas. Operational engineering improves the productivity and effectiveness of operations. There are many studies (Acharya, Hahn, & Kehoe, 2008; Achleitner, Braun, Engel, Figge, & Tappeiner, 2010; Barber & Goold, 2007; Bengtsson, Nagel, & Nguyen, 2008; Guo, Hotchkiss, & Song, 2010) that all support the position that the Private Equity model enhances operational effectiveness of portfolio companies. Studies and papers by two consulting companies, Deloitte and Boston Consulting Group also argue that operational effectiveness is the new value creation frontier for Private Equity firms (BCG & IESEC Business School, 2008; Legere et al, 2008). Cut throat competition for fewer deals, popularity of deal auctions, tax reforms, tight credit that curtailed financial leverage and heightened market scrutiny are all factors forcing Private Equity firms to broaden their value levers to embrace operational effectiveness. Berg and Gottschalg (2006) proposed three major categories of measures which increase operational efficiency namely cost-cutting and margin improvements, reduction of capital spend and removal of managerial inefficiencies. These will be discussed in the following paragraphs.

#### 2.3.2.3.1 Cost cutting and margin improvements-

One of the biggest attractions for a target company to Private Equity firms is a large scope for costs cutting. Upon acquisition one of the first assignments for a management team in charge of a portfolio company would be to institute cost cutting measures. This is perhaps why the Private Equity model is infamously known for cutting jobs with the intention of improving margins. Some of the measures that are taken to decrease costs include business process optimisation; spend reduction, procurement process optimisation and lean management (Legere et al, 2008). Procurement is one of first cost centres to be targetted for cost cutting exercises. Functions, such as information technology, administration and production also follow. Another popular measure for decreasing costs is outsourcing functions that external parties can offer the portfolio company at less than it costs the company to offer in-house.

#### 2.3.2.3.2 Reduction of capital spend-

Increasing capital productivity leads to operational improvements. By enhancing inventory control and optimising receivables and payables management Private Equity firms improve the operations of businesses. In most cases the Private Equity firm introduces tight capital spending measures that cut down spending on sub-optimal investment programs and also divest inefficient assets and business units (Berg & Gottschalg, 2006). This results in higher productivity of factors of production and enhanced cash-flow performance.

#### 2.3.2.3.3 Removal of managerial inefficiencies-

Private Equity led buyouts are also known to be motivated by ineffective incumbent management teams of target businesses. This follows the logic that poor performance of a target company may be the result of an inefficient management team (Berg& Gottschalg, 2006). Private Equity acquisitions have therefore been proposed as a vehicle to takeover companies with inefficient management teams at a valuation that is based on their poor performance with the intention to change the management thus removing the cause of underperformance (Jensen, 1986). After new and efficient management has been installed, Private Equity firms now benefit through enhanced performance. In their research paper titled “*Time to engage or fade away*”, Liechtenstein and Meerkatt (2010) argued that there is a significant positive correlation between company performance and the forced replacement of managers with outsiders. A related study of 100 deals on the subject of Corporate governance and value creation by Acharya et al. (2008) revealed that 67% of the top tercile organic deals replaced management.

#### **2.3.2.4 Revenue growth**

The Private Equity model enhances value beyond operational efficiency measures such as cost cutting. In most cases Private Equity firms help portfolio companies in the redefinition of key value drivers such as the markets to participate in; the products and service mix to offer; the pricing strategy and the customers to focus on (Berg & Gottschalg, 2006). When improved, these value drivers aid in promoting revenue growth. Schwetzler and Wilms (2007) stated ways in which Private Equity firms enhance revenue growth:



1. Revenue generation with new business opportunities. In addition to current operations and projects, new products and new geographical markets can enhance revenue.
2. External growth. Add on acquisitions to vertically intergrate the company or capitalise on synergies.
3. Revenue optimization. Product quality, target marketing, appropriate resource allocation across products and services as well as phasing out non-performing products and creating product cost awareness, together with adjusting pricing and adhering to a customer approach are factors that can be implemented to optimize revenue.
4. Concentration of the firm on core activities. Organic growth through further investment in areas of key competencies.

## **2.4 Relative importance of value levers**

Although the ability to raise debt and leverage portfolio companies will remain a key component of Private Equity, the recent protracted decline in debt availability in the global financial system has sharply reduced the ability of the industry to create value through financial engineering (Matthews, Bye, & Howland, 2009). By making it challenging to find debt capital to acquire larger companies, it has meant that returns on equity have decreased while competition for small deals soared thereby prompting Private Equity firms to analyse operational improvements as the core source of return (Matthews et al, 2009).

In their research study of 60 deals from 11 leading Private Equity firms, Heel and Kehoe(2005) revealed that 63% of the value was traceable to company outperformance which is a case of company portfolios outperforming peers. Financial arbitrage accounted for 5% of the value created while market or sector appreciation and financial leverage accounted for 32%. Among the largest drivers for outperformance, was the amount of time spent by Private Equity partners with the portfolio company management. The study revealed that within the first 100 days of acquiring a company, partners working for Private Equity firms in the top third devoted between 45 and 54 percent of their time with the portfolio company. On the other hand, for the bottom third, partners devoted between 15 and 24 percent of their time on the company. This observation pointed to the importance of operational improvements which are a function of active involvement and oversight by Private Equity firm in its investments.

In their observation of private sector deals worth more than \$100 million, Beroutsos, Freeman and Kehoe (2008) argued that top performance does not, as many imagine, come from unusual financial acumen (leverage). Instead very few of the successes came about because firms paid less than prevailing market prices for similar assets. Beroutsos, Freeman, and Kehoe (2008) asserted that markets are reasonably efficient, and that most important assets sold to Private Equity firms undergo a relatively wide auction. Indeed, the risk is that Private Equity firms actually overpay for their assets as they compete against strategic public buyers (Beroutsos et al. 2007). This argument reasserted the view that financial leverage and multiples arbitrage are increasingly becoming less important in value creation.

Achleitner et al. (2008), undertook a study titled “*Value creation in Private Equity*” of a sample of 241 transactions studied between 1989 and 2006, ranging between EUR 1 million to EUR 4.3 billion. In the period between 2001 to 2006, the study revealed that the financial leverage contribution to generated value was 28% on average while total EBITDA growth was 41%; free cash contribution 23%; EBITDA multiples contribution 17% and the combination effect was -8%. The study also revealed that the leverage’s contribution to value was 8% higher during the period between 2001 and 2006 than during the period between 1989 and 2000 while EBITDA decreased by 16%. During both periods, breaking down EBITDA growth further showed that almost 80% is accounted for by sales growth, while only 20% resulted from improved margins. This study strongly disputed the view that Private Equity industry extracts value predominantly by cutting down on labour and becoming more frugal with resources than by growing revenue in their portfolio companies.

In the research “*do buyouts still create value*”, Guo et al.(2010) restricted value drivers to three metrics. Out of the total value generated, the research revealed that operational improvements contributed 23% to the return. Multiples growth accounted for 18%, while the effect of debt on value was 29%. Based on a case study research, Aaen (2010) concluded that 42% of the value created was attributable to financial leverage. On the other hand, this study also revealed that unlevered IRR had been entirely driven by EBITDA growth and the free cash flow effect. Organic EBITDA growth largely consisted of improved profit margins.

From the studies reviewed it is evident that on average financial leverage accounted for a third of the value generated in deals while multiples arbitrage accounted for

18%. On average, the general notion of operational improvements was responsible for 48% of value created. Of this 48%, on average revenue growth explained 35% of value while EBITDA margin improvements accounted for an average of 13%. These generalisations pertain to developed markets. Views on contribution of respective value creation levers in emerging markets differ widely. Some professionals argued that on account of easily extractible-high yields in emerging markets lesser debt is required to generate returns. The rationale is that Private Equity firms would find it very easy to generate value through revenue growth since markets are already underserved. A contrary view is that financial leverage would constitute a relatively large contribution to value creation due to less competition for debt.

## **2.5 Relative importance of value levers on different deal sizes**

### **2.5.1 Global studies**

The study of the relative significance of value levers across deal sizes still remains a sparsely researched area. However, there are generally accepted theories on the subject which have not been adequately tested in the Private Equity space. One such theory is that larger companies offer a relatively bigger scope for margin improvements than smaller companies. The opposite can also be said to be true, because due to the limited size of market shares for smaller companies it is logical to assume that there is relatively more scope to increase revenue in a small company than in a larger company. From a study of buyouts in Europe, Achleitner et al (2010) agreed with the theory that larger deals created more value by EBITDA margin improvements, while sales growth played a more important role in smaller deals.

The Centre for Entrepreneurial Studies in association with Capital Dynamics undertook a study of 241 transactions exited between 1989 and 2006. Of the 241 transactions 85% were completed in Europe. Achleitner et al. (2008) observed that of the operational improvements realised in smaller deals, 10% was attributed to margin improvements while 86% was found to come out of revenue growth. Regarding larger deals, the study revealed that margin improvements contributed 37% to the total value of operational improvements. On the other hand the contribution of revenue growth to EBITDA growth for larger countries was 71% compared with 85% for smaller companies. The results of this study were in line with the assertions made by Achleitner et al. (2010).

Before the above findings can be generalised to a country such as South Africa, it should be taken into consideration that due to the maturity of markets or industries in western countries, it would be relatively difficult for large companies to significantly and proportionately increase their revenue. However, in an African environment like South Africa, due to the stage of development of markets (defined as emerging) many industries and markets are far from being saturated and mature. As a result it is likely that both large and small companies still have scope to increase their revenue. If so, it would therefore mean that both large and small companies are able to enhance value creation from revenue growth.

In their seminal article on managerial behaviour, ownership and agency costs, Jensen and Meckling (1976) hypothesised that the larger a firm becomes, the larger the agency costs are because it is likely that the monitoring function is inherently difficult and costly in larger firms. This perspective provides credence to the common

belief that there is a greater scope for margin improvements in larger firms than in small firms.

In his Phd dissertation paper, Pindur (2007) also hypothesised that “the larger the firm at entry the higher are potential FCF-Margin effects but the lower is the revenue effect” (Pindur, 2007). In assessing EBITDA margin, Pindur (2007) used two proxies namely the Cost of Goods Sold margin (CoGS) and Selling, General and Administration (SG&A) costs margin. An increase in these margins during the holding period would constitute a positive variation whereas a drop would be termed a negative variation. This would mean that an improvement in EBITDA margin would be equivalent to a negative variation in SG&A and CoGS margins. Contrary to his hypothesis that larger firms offer more room for margin improvements, results of the study revealed that the larger the firm the less negative is the variation in CoGS margin (Pindur, 2007).

### **2.5.2 South African studies**

The analysis of data made available for Private Equity investments made in South Africa for the past decade shows that historically, smaller funds have performed very well (RisCura & SAVCA, 2011). According to the report this strong performance may be due to smaller funds investing in the high growth mid-market sized companies which have performed well under generally good economic conditions. The report revealed that funds that were under R500m returned an IRR of 45.1%, while funds of between R500m and R1billion had an average rate of 20.7%. The largest class of funds of an excess of R1billion had an IRR of 18.9%. Since the average revenue growth accounts for 35% of value creation in Private Equity while margin

improvements are responsible for 13%, it can therefore be construed that the large returns in smaller funds are a result of the relative importance of revenue growth.

The above periodic surveys by RisCura and SAVCA are confined to fund level analysis. The researcher therefore believes that there is merit and insight in applying a similar study at a portfolio company level.

## **2.6 Relative importance of value levers over time**

### **2.6.1 Globally and South Africa**

The general belief is that over time and due to commoditisation of financial engineering skills, depressed debt markets and tax reforms financial leverage is becoming relatively less of an important value driver when compared to operational improvements. This belief is also echoed by South African Private Equity firms who assert that in recent years there has been less and less applications of debt in acquiring companies. Private Equity firms approached in this study assert that value creation in the recent years has been a result of 'rolling up sleeves'- a term used to portray active ownership of general partners in the operations of portfolio companies.

Contrary to the belief that Private Equity includes only cost cutting, Boucly, Sraer, & Thesmar (2010) argue that the 1980s was an era of intense corporate restructuring, hence cost cutting became popular among Private Equity firms. However, the authors believe that today the industry has changed its value creation approach. Gone is the era when assets could be acquired at a modest price and returns generated from executing relatively easier value creation strategies (Talmor & Vasvari, 2011). In the present day, where competition for deals is stiff, deep

industrial insight, flawless execution and competitive intelligence are vital for the success of Private Equity firms. Value creation through leverage is therefore increasingly being viewed as an unsustainable value creation strategy.

In a study of 241 exited transactions between 1989 and 2006, Achleitner et al. (2008) divided the transactions into two time frames: 1989- 2000 and 2001-2006. In the period 1989-2000, 128 transactions were studied whilst in the second period 2001-2006 a sample of 113 transactions were analysed. The authors observed that in the first period financial leverage accounted for 28% of the value generated. Interestingly, in the second period (2001-2006), financial leverage accounted for 36% of the total value generated, an 8% jump in the relative importance of debt. On the contrary both the local and international Private Equity industry made the claim that less and less debt has been used since the 1990s.

In developing countries the common view is that Private Equity is mainly based on growth and less on leverage (Talmor & Vasvari, 2011). In the absence of leverage; untapped markets, minimal competition and low labour rates are enough to drive abnormal returns. This research study helps to test this belief and ascertain whether Private Equity firms in South Africa depend on leverage less than their counterparts in the West.

## **2.7 Relative importance of value levers against gearing levels**

Fox and Marcus (1992) observed that very profitable and rapidly growing industries are less attractive to Private Equity firms because they invite new entrants and are unstable. The two also concluded that the growth rate of sales is a significant negative contributor for possible target firms. The rationale of their argument was



that due to cash flow constraints in LBOs, rapidly growing companies are synonymous with large working capital requirements. Hence, if significant gearing is applied, large repayments would likely drag a portfolio company into liquidity constraints that can lead to bankruptcy. Therefore only mature and defensive industries such as retailing, utilities and FMCG are perceived as attractive targets for LBOs where usage of debt is important. Therefore it follows that rapidly growing industries and cyclical industries are likely to be acquired through application of proportionately less debt compared to mature industries. An inference can therefore be made that targets acquired by huge amounts of debt are unlikely to generate value through large revenue growth compared to those acquired with less debt.

Academic theory generally concludes that use of excessive leverage hampers revenue growth. As the pressure to make principal and high interest repayments mounts, a company is renegaded to a position where it can no longer afford to sell services and products on credit. Furthermore, cashflow constraints discourage the building of a business's capacity, specifically through acquisition of fixed assets and maintenance of large working capital balances which are all important for sustaining revenue growth. Based on this view, a company intending to rapidly grow its revenue figures will be less likely to apply significant financial leverage on its balance sheet. On the other hand a company with stable sales, growing gradually will be comfortable to use more debt with the hope of improving performance through operational efficiencies more than revenue growth.

In an academic research paper on effects of LBOs' debt in large companies, Wiersema and Liebeskind(1995) studied 1000 manufacturing LBOs exited between 1980 and 1986 in USA. In this study, the authors observed that the sales growth rate

was significantly lower in LBOs firms than in control firms (non-LBOs). Furthermore, it was also discovered that LBOs divested a large number of periphery businesses than the control firms. This confirmed the general belief that LBOs incentivise managers to downsize and trim most non-core operations and discourage them to acquire additional business units (Wiersema & Liebeskind, 1995). It is assumed that the control variable in this study was debt. On that basis it would appear plausible that as a company levers up its balance sheet with more debt, it places itself under the pressure to extract value through trimming costs- a form of margin improvements.

Pindur (2007) observed that the larger the proportion of debt being employed in a company at entry, the higher the pressure for the management to improve the operational performance through approaches such as working capital management and better and efficient procurement measures. Pindur's hypothesis stated that "The higher the debt financing at entry, the lower the revenue growth effect, but the higher EBITDA margin effect is and thus the better the LBO investment performance" (Pindur, 2007). Results of his study confirmed the positive effect of debt on operational efficiencies.

As expected, excessive debt financing of Private Equity portfolio companies had the effect of hampering revenue growth and this seemed to confirm the general understanding that faster growing companies are preferably financed through equity to debt. Having considered the above findings, it would be insightful to test whether the proportional amount of debt applied in a portfolio company at entry would have an impact on the relative importance of revenue growth and margin improvements value drivers. Since debt effects on company operations are generally uniform

notwithstanding the region or country similar results are therefore expected in the case of South Africa.

South African statistics published by SAVCA and DBSA (2009) noted that between 2005 and 2009 a sample of Private Equity backed firms yielded a 20% growth rate in sales while the JSE growth rate was 18% and the All Share Index Top 40 was 16%. In the same period EBITDA growth for Private Equity backed firms was 16% while the JSE was 14% and the ALSI 40 15%. If anything can be understood from these figures, it is the notion that in terms of revenue growth, debt laden companies do not perform worse than their public listed companies which arguably carry less debt.

## **2.8 Summary of key literature review**

Key contributors to the subject of value creation in Private Equity portfolio companies have included Pindur(2007), Berg and Gottschalg(2006), Achleitner, Lichtner, & Diller(2008), Kaiser and Westarp (2010)and Loos(2005). While these authors do not entirely agree on the interpretation of what constitutes value creation drivers, the common thread of argument among them is that value creation levers include: Financial leverage, EBITDA multiples, Revenue growth and EBITDA margin and that the relative importance of these drivers on average is 33%, 18%, 35% and 13% respectively.

According to common belief, a relatively large firm would find it easier to grow its EBITDA through improving EBITDA margin than improving revenue. Conversely, smaller companies would find it easier to grow EBITDA through revenue than margin

improvements. Most studies reviewed tended to support the above theoretical arguments.

There is a general belief in the Private Equity industry that over the past years the industry has been progressively depending less and less on financial gearing and debt as a lever and as a form of capital. Most of the studies have revealed small descents in debt proportions applied, however studies conducted by Achleitner et al. (2008) for transactions exited during 1989 and 2000 and between 2001 and 2006 contradicted with this conviction by revealing that the relative importance of financial leverage had become more significant with time. Studies have also been conducted on the impact of debt on operational improvements value levers. The common belief that higher proportions of debt at acquisition results in increases in relative importance of EBITDA margin improvements and fall in importance of revenue growth as a value lever. Below is a table showing key research themes and respective findings by authors from the literature review.

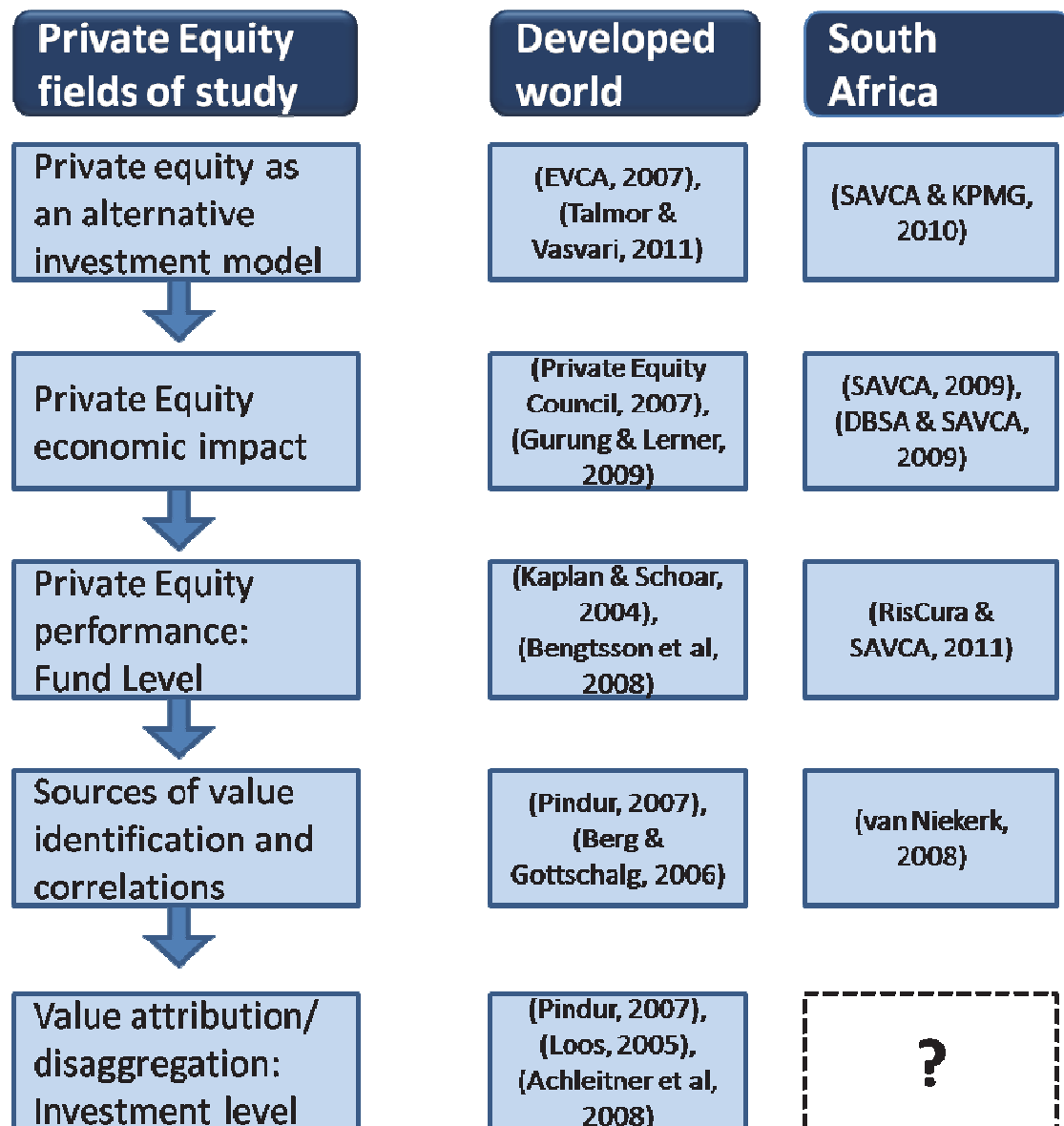
Table 1: Summary of literature review

Key themes	Literature review findings	Authors
Identification of value creation levers	leverage, earnings improvements, EBITDA multiples effect and free cash-flow	(Aaen, 2000)
	Leverage effect; Sales growth; Improvement of Earnings before interest and Tax (EBIT) margin; and Improvement of EBIT multiple	(Achleitner, Braun, Engel, Figge, & Tappeiner, 2010), (BCG & IESEC Business School, 2008).
	Financial leverage; Operative contribution; Free cash flow improvement; Multiple contribution and Combination effect	(Achleitner, Lichtner, & Diller, 2008).
	Financial engineering, Operational efficiency and Revenue growth	(Berg & Gottschalg, 2006)
	Operational improvements (Revenue growth and EBITDA margin growth) and Free cash flow,	(Pindur, 2007)
Relative importance of value levers	Financial leverage (32%); Operational improvement (63%); and EBITDA multiple growth (5%)	(Heel & Kehoe, 2005)
	EBITDA growth (41%); Free cash contribution (23%); EBITDA multiples contribution (17%) and Combination effect (-8%).	(Achleitner, Lichtner, & Diller 2008),
	Operational improvements (23%); EBITDA multiples growth (18%) and financial leverage (29%).	(Guo, Hotchkiss, & Song 2010)
Relative importance of value levers with size	Larger deals created more value by EBITDA margin improvements, whereas sales growth played a more important role in smaller deals	(Achleitner et al. 2010)
	Study disapproved the hypothesis that the larger the deal is the greater is EBITDA margin improvements .	(Pindur, 2007).
Relative importance of value levers over time	Study divided the transactions into two time frames: 1989- 2000 and 2001-2006. In the first period relative importance of leverage was 28% and in the second period it was 36%	(Achleitner, Lichtner & Diller, 2008), (Loos, 2005)
	Companies are using less and less leverage over time.	(Talmor & Vasvari, 2011).
Impact of debt on value levers	Sales growth rate was significantly lower in LBOs firms than in control firms (non-LBOs).	(Wiersema & Liebeskind, 1995)
	The higher the debt financing at entry, the lower the revenue growth effect	(Pindur, 2007)
	LBOs do not perform less on sales than public listed firms	(SAVCA & DBSA, 2009)

## 2.9 Literature review: Research Gap

Having reviewed international and South African Private Equity studies, figure 3 depicts the research gap in the South African literature that this research study intends to fill. In summary, value attribution or returns disaggregation is an area in need of research and analysis.

Figure 3: Research gap on South African Private Equity



## **CHAPTER 3      RESEARCH HYPOTHESIS / PREPOSITIONS / QUESTIONS**

### **3.1 Purpose of the research**

The aim of this research study is to provide an analysis of value creation in Private Equity portfolios in South Africa. The research is intended to create an understanding of the relationship between value levers and the value created with respect to the sizes of deals, the period when deals were completed and the proportion of debt used at acquisition. The purpose of this research will be achieved when the uniqueness of Private Equity value creation in South Africa is distinctly appreciated.

### **3.2 Research proposition and hypothesis**

This research was aimed at applying and testing the relevance of finance and management theory on the Private Equity industry in South Africa. Based on the theoretical and empirical literature reviewed in the previous section one research question and four research hypotheses were put forward. In developing hypotheses formulae abbreviations in table 2 were used to represent the terminology:

**Table 2: Value lever abbreviations**

<b>Term</b>	<b>Symbol</b>
Financial Leverage	FL
EBITDA Multiple	EM
Revenue Growth	RG
EBITDA Margin	EM
Debt/Equity	D/E

- Transactions exceeding six hundred million rands(R600m) enterprise value on exit will be described as large
- Transactions falling below six hundred million rands(R600m) enterprise value on exit will be described as small
- The term enterprise value is denoted as EV
- Higher debt/equity ratio will be defined as ratio exceeding 1.5 whereas lower debt equity will be defined as one falling below 1.5

### **3.2.1 Research Question1:**

Using the sample as a pilot study on the South African Private Equity industry, what has been the relative importance of value levers (financial leverage, EBITDA margin improvements, Revenue growth and EBITDA multiple growth)?

### **3.2.2 Hypothesis 1**

Due to commoditisation of financial engineering, debt constraints and tax regime reforms, the research hypothesis states that over the past years the financial leverage lever has become relatively less significant in value creation.



$$H_0: FL_{2001-2007} - FL_{2008-2011} \leq 0$$

$$H_1: FL_{2001-2007} - FL_{2008-2011} > 0$$

The hypothesis tests how value creation with respect to financial leverage has changed as the Private Equity industry has matured over the past years. The entire sample was divided into two groups by exit year, namely exits that took place between 2001 and 2007 and those that took place between 2008 and 2011 (Achleitner et al. 2010)

### 3.2.3 Hypothesis 2a

The research hypothesis states that the proportionate contribution of EBITDA margin to value creation in portfolio companies is more significant on larger transactions than smaller transactions.

$$H_0: EM_{\text{large deals}} - EM_{\text{small deals}} \leq 0$$

$$H_1: EM_{\text{large deals}} - EM_{\text{small deals}} > 0$$

### 3.2.4 Hypothesis 2b

The research hypothesis states that the proportionate contribution of value driver revenue growth to value creation in portfolio companies is more significant on smaller transactions than on bigger transactions.

$$H_0: RG_{\text{small deals}} - RG_{\text{large deals}} \leq 0$$

$$H_1: RG_{\text{small deals}} - RG_{\text{large deals}} > 0$$

### 3.2.5 Hypothesis 3a

The research hypothesis states that the lower the debt/equity ratio at entry, the higher the relative importance of Revenue growth value creation lever in portfolio companies.

$$H_0: RG_{\text{low D/E}} - RG_{\text{high D/E}} \leq 0$$

$$H_1: RG_{\text{low D/E}} - RG_{\text{high D/E}} > 0$$

### 3.2.6 Hypothesis 3b

The research hypothesis states that the higher the debt/equity ratio at entry, the higher the relative importance of EBITDA Margin value creation lever in portfolio companies.

$$H_0: EM_{\text{high D/E}} - EM_{\text{low D/E}} \leq 0$$

$$H_1: EM_{\text{high D/E}} - EM_{\text{low D/E}} > 0$$

## CHAPTER 4 RESEARCH METHODOLOGY

### 4.1 Population and sampling

#### 4.1.1 Population

The population and sample was determined at two levels namely, Private Equity firm level and at portfolio company level. At Private Equity firm level the researcher determined the criteria for selecting Private Equity firms that were targeted for this exercise. At this level the population of the study comprised firms that were resident in South Africa and managing portfolio companies operating in South Africa. The rationale of confining this study to South Africa was to enable the researcher to attract insights into Private Equity value creation unique to South Africa.

At the transaction level the relevant population of the study included all portfolio companies acquired and exited by Private Equity firms in South Africa between 2001 and 2011. The challenge of having Private Equity firms produce reliable data for period pre-2000 led the researcher to exclude any data before 2000.

The unit of analysis included exited portfolio companies which had been under Private Equity firms' management. In addition the unit of analysis was extended to cover un-exited portfolio companies which had been under management for a period of not less than three years. Private Equity firms were asked to value portfolio companies not yet exited in order to provide equity figures for the companies.

In determining the size of transactions the researcher used the exit prices (enterprise value) of the portfolio companies. Only portfolio companies acquired for R1million or more were incorporated as part of the population. The rationale for choosing R1million and above was to enable the researcher to sufficiently test all hypotheses including the impact of size on value creation. Data for transactions of less than R1million was likely to fall within the venture capital bracket and would not give a representative picture of Private Equity.

#### **4.1.2 Sampling- Private Equity firms**

The researcher adopted a pilot study approach that focused on seven Private Equity firms. To determine the sample of Private Equity firms, judgemental sampling was employed. The first criterion was Private Equity firms that had exited portfolio companies since formation. In order to maximise the probabilities of retrieving data and to minimise the difficulty of requesting data from numerous Private Equity firms, the researcher targeted firms that had executed not less than 5 transactions each with an exit enterprise value exceeding R1million. For example, soliciting data from a Private Equity firm with ten or more exits of at least R50million would have been easier than approaching ten Private Equity firms with each having a single qualifying transaction.

#### **4.1.3 Sampling- Portfolio companies**

A sample size of a minimum of thirty portfolio companies was targeted. A minimum of thirty transactions would improve the quality of results of the study fulfilling the

central limit theorem minimum requirements of 30 observations. In this study a portfolio company was defined as a company in which a Private Equity firm through its funds and together with incumbent management took a controlling equity stake. Due to the difficulty associated with accessing data and the need to minimise collection of unusable data, a purposive sampling technique was adopted (Blumberg, Cooper, & Schindler, 2008). Purposive sampling is a form of sampling based on the judgement of the researcher regarding which subjects best fit the criteria of the study.

## **4.2 Data Collection**

The data collection process comprised three stages of engaging Private Equity firms with the intention of persuading them to release confidential information. Firstly, the full list of targeted Private Equity firms was obtained from SAVCA. From the list, the twenty largest Private Equity firms were issued with invitations to attend a workshop where the research proposal was to be presented.

### **4.2.1 Workshop**

The workshop's programme entailed a presentation on the background of this study which included objectives of the study, similar studies elsewhere, relevance of the study and the support and participation needed from Private Equity firms. At the workshop the researcher requested commitments from Private Equity firms to provide data. Data requirements and hypotheses of the research were also

discussed and issues surrounding the confidentiality and treatment of data were also agreed upon.

#### **4.2.2 Company visits**

Based on commitments made at the workshop, visits were made to Private Equity firms to secure portfolio company data. A questionnaire (see Appendix A) was used for data collection. During company visits Private Equity senior managers and partners were requested to enter their data into the questionnaire in an Excel format and return them via email. In other cases where respondents had limited time, the researcher was asked to come into their offices and extract the necessary data from company records. In all cases, the respondents wanted assurance that data would be kept confidential. In addition to committing to confidentiality, the research ensured the participants that data would be aggregated; hence it would not be easy to attribute any results to a particular portfolio company or fund.

During the course of data collection, the researcher also approached three limited partners in the form of institutional investors with a request for their participation in this survey. Two of the institutional investors indicated that they did not have the data and needed to request Private Equity firms for the data. One institutional investor was able to assist with data extracted from a few funds. However, most of the information was incomplete and as a result only data for four portfolio companies was used.

### **4.2.3 Data validation and follow up**

Data collected through the data questionnaire was also checked for discrepancies and inconsistencies that would affect the analysis. In cases where data was not suitable, suppliers of the data were contacted for correction or the entire entry was discarded.

Out of the twenty (20) Private Equity firms identified and approached for data, four indicated that they had not carried out any exits and that their portfolio companies were still in the early stages of investment. Of the sixteen that remained four were not interested in participating for confidentiality reasons. The remaining twelve committed to providing data for the purposes of this study, however only ten of them were available to assist. Three Private Equity firms of the ten supplied incomplete data which was not usable, hence their contribution was discarded. Finally, only seven Private Equity firms were able to contribute to this study with each firm providing an average of four transactions. In addition, data that was obtained from institutional investors was extracted from three funds from different Private Equity firms. In total, out of data belonging to thirty two (32) portfolio companies only twenty four were finalised into the sample.

### **4.2.4 Financing structure**

During data collection it was observed that quasi-equity instruments were widely used by almost all the Private Equity firms in the sample. Such quasi-equity instruments included shareholder loans and preference shares. Treating such instruments as debt would significantly distort any value creation in the portfolio

companies (Pindur, 2007). As a result the researcher endeavoured to analyse all preference shares and shareholder loans as *equity*.

#### **4.2.5 Data integrity and bias**

Discarding of certain transactions due to non-availability of information might have triggered selection bias. It can be argued that data was readily available for successful transactions which had performed well while the non-availability of information on certain transactions could have been a sign of underperformance (Pindur, 2007).

Another concern was that given the small numbers of deals that Private Equity firms provided, averaging four per firm, relative to the large number of transactions they had conducted over the past years; it is likely that transactions provided to the researcher might have been hand-picked resulting in a positive selection bias.

### **4.3 Research Design**

This research is causal in nature and was designed with the intention to evaluate the relative importance of each value lever to the total value created (Blumberg, Cooper, & Schindler, 2008). In this study, relative means that the importance of one lever can only be assessed in relation to the other levers. For the purpose of this analysis total value creation per Portfolio Company is standardized to 100% (Pindur, 2007). Due to the sensitivity of data that was sought and the difficulty of obtaining reliable data on



intermediate cash-flows such as dividends, the study made use of a simplified DuPont-enabled value decomposition formula based on entry and exit values.

#### **4.4 Review of methodologies and other studies carried out.**

The literature review revealed that there were several methodologies that had been used to conduct value attribution and disaggregate Private Equity portfolio company returns. Most of the identified methodologies were hybrids of two major approaches, namely the 'Du-pont based approach' and the 'De-leveraging approach'. The researcher's review was limited to these two major methodologies.

In their research titled 'Value creation drivers in Private Equity', Achleitner et al. (2010) made use of the deleveraging approach. The approach unlevers the IRR return by removing the debt component leaving a return for equity holders. This approach results in the following value drivers: financial leverage, EBITDA growth, cashflow effect and EBITDA multiple growth. The deleveraging approach complicated the study as it accounts for the cash-flow effect separately which has a double counting effect if EBITDA growth is included. In addition, the methodology does not distinguish between revenue growth and margin improvements. Both levers are taken together into EBITDA growth. For this reason the De-leveraging approach was not used.

The Du-pont based approach used by Loos (2005) is derived from the DuPont formula. Based on the IRR formula, Loos (2005) stated that the increase in equity value between entry and exit year for a portfolio company can be decomposed by use of DuPont formula. The product of this decomposition provided insight into the

value creation process. Overall, equation 1 below offered a logical deduction based on the formula and its results could be objectively appraised. As revealed in equation 1 below the Du-pont based approach disaggregates returns into financial leverage, revenue growth, EBITDA margin improvement and EBITDA multiple growth as follows:

**Equation 1: Value Attribution formula. SOURCE: (Loos, 2005)**

$$\begin{aligned}
 \text{IRR (Equity)} &= \text{IRR (Equity)} \left( \frac{\ln(1+(\text{CAGR}(\text{Rev})))}{\ln(1+(\text{CAGR}(\text{E})))} \right) + \text{IRR (Equity)} \left( \frac{\ln(1+(\text{CAGR}(\frac{\text{EBITDA}}{\text{Rev}})))}{\ln(1+(\text{CAGR}(\text{E})))} \right) \\
 &+ \text{IRR (Equity)} \left( \frac{\ln(1+\text{CAGR}(\frac{\text{EV}}{\text{EBITDA}}))}{\ln(1+(\text{CAGR}(\text{E})))} \right) + \text{IRR (Equity)} \left( \frac{\ln(1+(\text{CAGR}(\frac{\text{E}}{\text{EV}})))}{\ln(1+(\text{CAGR}(\text{E})))} \right)
 \end{aligned}$$

or, in simpler terms

$$\begin{aligned}
 \text{IRR (Equity)} &= \text{Revenue growth effect (on IRR)} + \text{EBITDA margin effect (on IRR)} \\
 &+ \text{Multiple expansion effect (on IRR)} + \text{Leverage Effect (on IRR)}
 \end{aligned}$$

Due to the difficulty of accessing intermediate cash-flows of exited portfolio companies from Private Equity firms, a simplified formula that only accounted for entry and exit figures was adopted. During the data collection phase of this study most Private Equity firms were either reluctant to reveal intermediate cash-flows for confidentiality reasons or such data had not been kept over the years. For this reason the simplified version of the value attribution formula that only considered entry and exit values data was adopted and is found in equation 2. The value attribution formula required entry year and exit year equity and debt figures. In the case of revenue and EBITDA metrics, exit year figures and one year prior to entry year data was used.

Equation 2: DuPont-enabled value decomposition formula

$$100\% = \frac{\ln\left(\frac{E_{Exit}}{Cost_{Entry}}\right)}{\ln\left(\frac{E_{Exit}}{Cost_{Entry}}\right)} + \frac{\ln\left(\frac{Rev_{Exit}}{Rev_{Entry}}\right)}{\ln\left(\frac{E_{Exit}}{Cost_{Entry}}\right)} + \frac{\ln\left(\frac{EBITDA\ margin_{Exit}}{EBITDA\ margin_{Entry}}\right)}{\ln\left(\frac{E_{Exit}}{Cost_{Entry}}\right)} + \frac{\ln\left(\frac{(EV/EBITDA)_{Exit}}{(EV/EBITDA)_{Entry}}\right)}{\ln\left(\frac{E_{Exit}}{Cost_{Entry}}\right)}$$

In order to generate an ‘addition format’ for the four value levers natural logarithms were applied. In addition, the researcher indexed both sides by dividing by the natural logarithm of the capital gain multiple to obtain the formula above (Loos, 2005).

#### 4.5 Calculation of levers

Part of the questionnaire in appendix A copied below in table 3 was used to estimate the value levers. The data entry table was configured in Microsoft excel and the value levers’ formulae were linked to it to produce the value creation lever contributions.

Table 3: Data entry table

Metric		Prior Year to Entry	Entry Year	Exit Year
Enterprise	Equity		-	-
	Debt		-	-
Revenue		-	-	-
EBITDA		-	-	-

#### 4.5.1.1 Financial Leverage

To calculate financial leverage the ratio of equity at exit and at entry was divided by the ratio of enterprise value at exit and at entry. A natural logarithm of the result was calculated. The denominator comprised the ratio of equity at exit and at entry. A natural logarithm of the denominator was calculated and the numerator was divided by the denominator to provide the financial leverage level.

$$\frac{\ln\left(\frac{E_{Exit}}{Cost_{Entry}}\right)}{\ln\left(\frac{EV_{Exit}}{EV_{Entry}}\right)}$$

#### 4.5.1.2 Revenue growth

Revenue growth contribution was formulated by calculating the natural logarithm of the division of equity at exit by that of entry and dividing it by the natural logarithm of the revenue at exit divided by revenue at entry. The formula below ensures the answer is achieved.

$$\frac{\ln\left(\frac{Rev_{Exit}}{Rev_{Entry}}\right)}{\ln\left(\frac{E_{Exit}}{Cost_{Entry}}\right)}$$

#### 4.5.1.3 EBITDA margin

To obtain EBITDA margin contribution firstly the numerator was calculated by finding the natural logarithm of the division of EBITDA margin at exit with EBITDA margin at entry. The result was divided by natural logarithm of equity at exit divided by equity at entry. The figure below shows the formula.

$$\frac{\ln\left(\frac{\text{EBITDA margin}_{\text{Exit}}}{\text{EBITDA margin}_{\text{Entry}}}\right)}{\ln\left(\frac{E_{\text{Exit}}}{\text{Cost}_{\text{Entry}}}\right)}$$

#### 4.5.1.4 EBITDA multiples

To obtain the EBITDA multiples contribution the numerator consisted of a natural logarithm of Enterprise value/EBITDA at exit divided by the same metric at entry. This result was divided by the natural logarithm of equity at exit divided by equity at entry.

$$\frac{\ln\left(\frac{(\text{EV/EBITDA})_{\text{Exit}}}{(\text{EV/EBITDA})_{\text{Entry}}}\right)}{\ln\left(\frac{E_{\text{Exit}}}{\text{Cost}_{\text{Entry}}}\right)}$$

## **4.6 Data variables**

This section shows how data variables used in testing the hypothesis were calculated:

### **4.6.1 Size**

The size of the portfolio company used in the analysis referred to the enterprise value at exit. In the case of a non-exit the size comprised of debt on the balance sheet and equity as a result of valuation conducted by the Private Equity firm. For an exited company the size of the portfolio company referred to the price paid to acquire the company from the Private Equity firm. The range of portfolio company sizes was very wide and to make the numbers manageable all the sizes were divided by 1million.

### **4.6.2 Gearing**

In this study the gearing ratio was calculated as the debt/equity ratio. In this study debt included mezzanine debt, junior debt and all senior debt. Equity included the common equity and shareholder loans. The figures at acquisition or entry were used to calculate the debt/equity ratio.

### **4.6.3 Exit year**

The exit year was determined as the year in which the portfolio company was sold or exited. In the case of a non-exit the exit year referred to 2011, the year in which valuations of non-exits were conducted.

## **4.7 Data analysis**

Results from disaggregation of each transaction's returns into revenue growth, EBITDA margin, EBITDA multiple growth and financial leverage was collated for analysis. Data analysis for this research was entirely quantitative.

### **4.7.1 Hypothesis testing and statistical inference**

The study made some inferences about the population (Private Equity industry in South Africa) on the basis of the sample data. In assessing the importance of EBITDA margin improvement and revenue growth with respect to size of transaction and gearing at entry, hypothesis testing was used to assess the identified research hypotheses. Significance levels and *p*-values were also assessed in the analysis for the purpose of testing statistical significance and the research hypothesis (Albright, Winston, & Zappe, 2009).

### **4.7.2 Regression analysis**

Regression analysis was used in testing research hypotheses 2a, 2b, 3a and 3b. The analysis confirmed whether there was a relationship between the relative

importance of revenue growth and EBITDA margin against the size of the portfolio company and gearing applied at entry.

#### **4.8 Research limitations**

- The DuPont-enabled value decomposition formula is only valid for utilisation in a single event exit that is single point of entry and exit from the business (Loos, 2005). In reality, portfolio companies occasionally have intermediate cash-flows such as dividends and recapitalisations that have significant impacts on relative importance of value creation levers. In this study such intermediate cash-flows were excluded from the calculations.
- Analysis and results were only based on Private Equity firms that were willing to participate and interested to provide the researcher with data. Firms not willing to release data could have resulted in non-response bias;
- In several cases it has been observed that EBITDA multiple growths can arise due to EBITDA margin growth and revenue growth. Such a relationship renders double counting when multiples growth is accounted for as a value driver separately.
- The sample size obtained and used was very limited. The size of 24 was likely to result in statistically insignificant results.



## CHAPTER 5 RESULTS

### 5.1 Review of sample

A total of 24 portfolio companies were collected. Of this sample total, nineteen were exited transactions while five were non-exits that were valuated to provide exit equity and debt figures at the time of data collection.

The sample was composed of twenty four portfolio companies transacted by seven different Private Equity firms based in South Africa. Data for four of the portfolio companies included in the sample were obtained from a local institutional investor who had invested with Private Equity firms. The remaining data for 20 transactions was secured directly from the Private Equity firms.

Table 4 below shows the exit transaction sizes, debt/equity ratios and exit years for portfolio companies data gathered. The table also includes the four value creation levers and their relative importance for each portfolio company. The value creation levers are namely: Revenue Growth, EBITDA margin and EBITDA Multiple. A value attribution formula was applied on data collected and the following metrics were deduced.

**Table 4: Sample Data Variables**

No	Size at exit (R m)	Exit year	Leverage lever	Revenue Growth lever	EBITDA Margin lever	EBITDA Multiple lever
1	7,259	2010	83%	90%	6%	-78%
2	56	2010	92%	74%	4%	-69%
3	101	2006	169%	3%	65%	-137%
4	5,108	2010	-58%	102%	-35%	92%
5	115	2010	7%	120%	65%	-92%
6	98	2011	54%	24%	-6%	28%
7	534	2007	1%	88%	13%	-2%
8	686	2006	17%	20%	-2%	65%
9	317	2010	19%	37%	42%	2%
10	198	2004	68%	87%	-45%	-10%
11	1,900	2011	12%	41%	-7%	54%
12	1	2007	48%	156%	3%	-107%
13	5	2008	37%	104%	80%	-121%
14	169	2010	27%	55%	34%	-16%
15	1,238*	2011	83%	-108%	479%	-354%
16	1,720*	2011	-165%	227%	-177%	215%
17	899*	2011	48%	-46%	3%	96%
18	6,300*	2011	106%	14%	-3%	-17%
19	153*	2011	179%	-205%	-164%	289%
20	135	2001	73%	9%	0%	17%
21	530	2007	84%	49%	-67%	33%
22	222	2005	35%	16%	9%	41%
23	69	2008	-118%	257%	-216%	177%
24	103	2009	124%	108%	-59%	-74%

\* Sizes represent transactions which were not yet exited as the time of data collection but were evaluated by Private Equity firms who provided the data

### 5.1.1 Adjustments to the sample

Of the original sample of thirty two observations five were excluded for incomplete or questionable data. Of the remaining observations three portfolio companies were dropped for including outlier variables. For example, one portfolio company had calculations resulting in EBITDA multiples lever of -2626%. Given the small sample

size of twenty four observations used, such anomalies could significantly distort the results.

In conducting statistical tests, independent samples, t-test and regression analysis were adopted. A statistical package known as SPSS was used to conduct these tests.

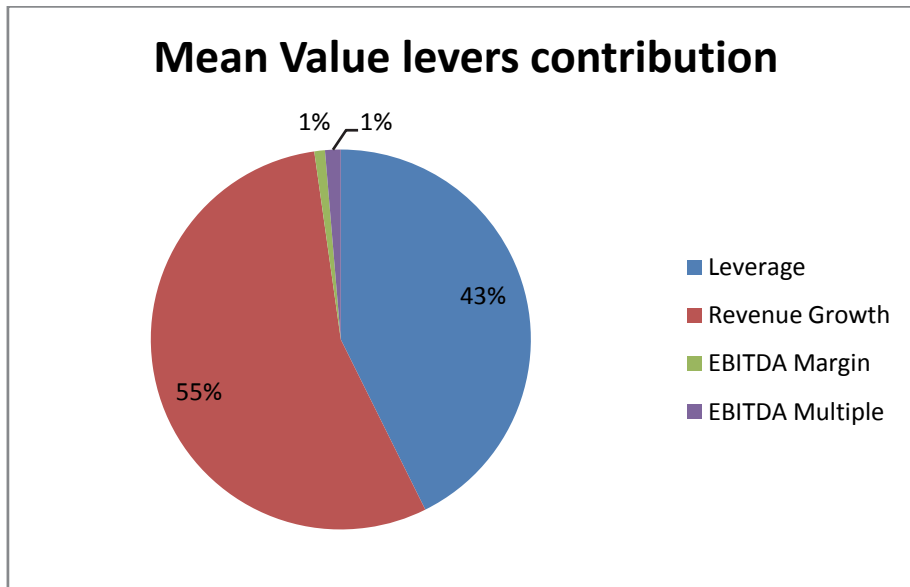
## 5.2 Research Question 1

***Using the sample as a pilot study on South Africa, what is the relative importance of the value levers (financial leverage, EBITDA margin improvements, Revenue growth and EBITDA multiples growth)?***

### 5.2.1 Descriptive Results

The Pie chart in figure 4 below indicates the average relative importance of each value creation lever for the entire sample. The revenue growth value lever had the largest contribution of 55% followed by financial leverage with 43% and EBITDA Margin and EBITDA multiple value levers each had 1%.

**Figure 4: Pie chart of mean value levers**



From the sample of twenty four (24) observations used, Table 5 below demonstrates that each value lever had a minimum value in the negative and maximum value in the positive. Of the four value levers, EBITDA multiples had the largest standard deviation of 129.4% showing great variability in the importance of this lever among portfolio companies included in the sample. On the other hand financial leverage lever was comparatively stable with the smallest standard deviation of 77.8%. The maximum statistic recorded was 479% for EBITDA margin lever. On the other hand the smallest statistic recorded was -353.6% which was an EBITDA multiples lever.

**Table 5: Descriptive statistics for the sample**

Statistics		Size (m)	Financial leverage	Revenue growth	Margin effect	Ebitda multiples
N	Valid	24	24	24	24	24
	Missing	1	1	1	1	1
	Mean	1163.27	42.66471%	55.11204%	.89225%	1.33517%
	Median	209.95	47.64726%	52.26492%	1.55026%	-.03915%
	Std. Deviation	2045.711	77.760319%	95.738629%	125.658728%	129.392970%
	Range	7258	344.033%	461.491%	694.544%	643.049%
	Minimum	1	-165.148%	-204.600%	-215.523%	-353.608%
	Maximum	7259	178.885%	256.892%	479.021%	289.441%

Data collected comprised of exits conducted between 2001 and 2011. To portray the importance and variation of each value lever over the past decade, bar charts showing annual averages for each lever between 2001 and 2011 were used. During this period no exits were made in years 2002 and 2003. As a result the bar charts effectively show data for nine years and not 11 years.

The first diagram, Figure 5 shows the relative contribution of financial leverage for twenty four portfolio companies in nine years. The bar chart shows that for the first five years, average contribution of financial leverage lever was approximately 60%. However in year 2008 it dipped to approximately -40% before rising again in 2009 to an estimated 125%.

**Figure 5: Annual averages of financial leverage lever**

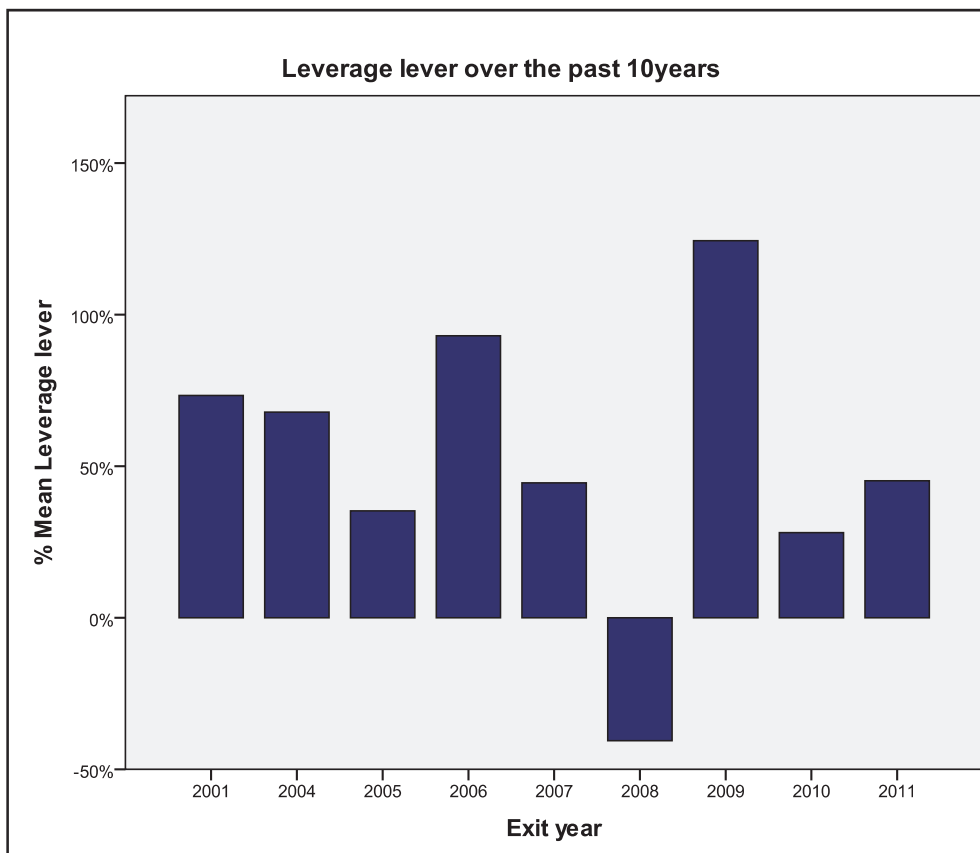


Figure 6 below illustrates annual average contributions of revenue growth lever to total value created. The bar chart shows that between 2001 and 2010 the relative importance of revenue growth lever was constantly positive with a slight negative contribution in 2011. Surprisingly, for the nine years shown, revenue growth lever peaked in 2008 which was the year the South African economy began to experience a downward movement in GDP growth as a result of the global financial crisis.

**Figure 6: Annual averages for revenue growth lever**

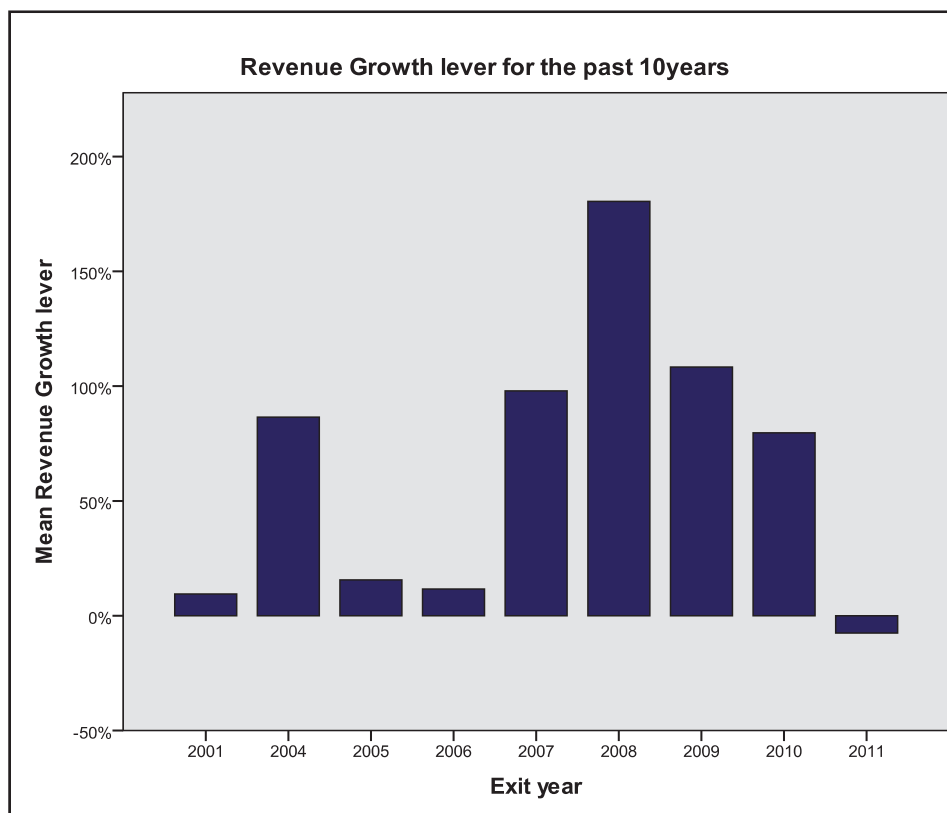
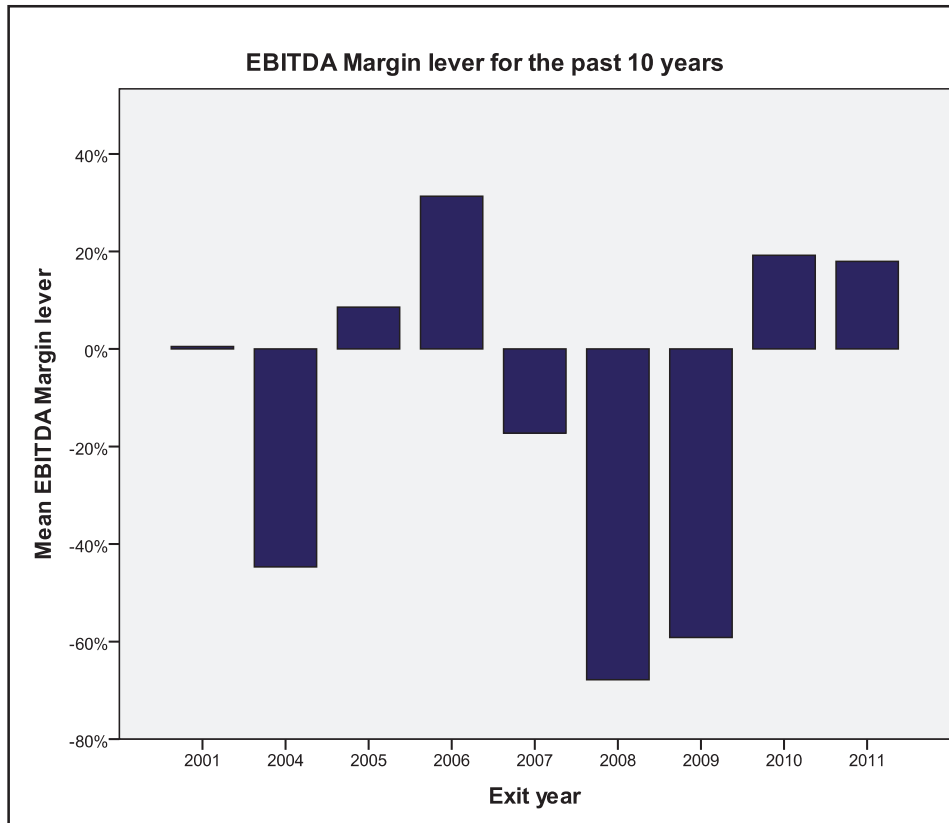


Figure 7 below depicts the relative importance of EBITDA Margin lever to value created for nine different years. The bar chart shows that EBITDA margin had negative contributions in 2004, turned positive in 2005 and 2006 before turning

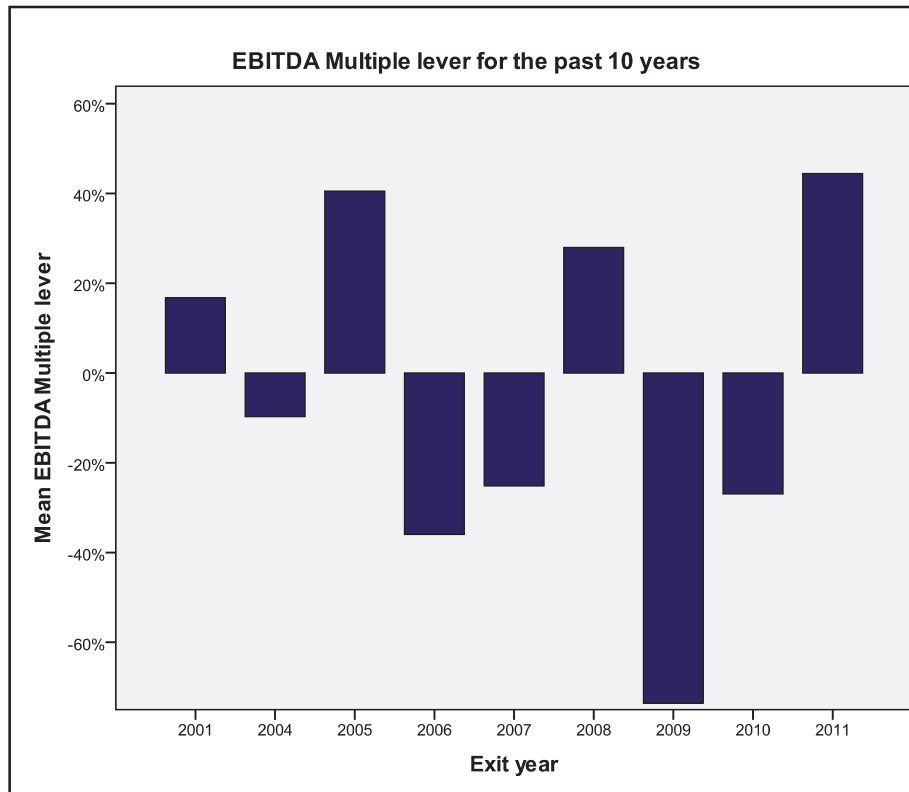
negative again for three more years until 2009. For the rest of 2010 and 2011 EBITDA margin lever contribution turned positive.

Figure 7: Annual averages for EBITDA margin lever



The last value creation lever is EBITDA multiple. Figure 8 above indicates that Portfolio companies exited in 2004, 2006, 2007, 2009, 2010 and 2011 experienced negative EBITDA multiple lever contributions. In 2009, which is the year South Africa experienced a severe recession, exits recorded approximately -70% which was the lowest annual average in the nine years.

Figure 8: Annual averages if EBITDA multiples lever



### 5.3 Hypothesis 1

*Due to commoditisation of financial engineering, debt constraints and tax regime reforms, the research hypothesis states that over the past years the financial leverage lever has relatively become less significant in value creation.*

#### 5.3.1 Descriptive Results and scatter plots

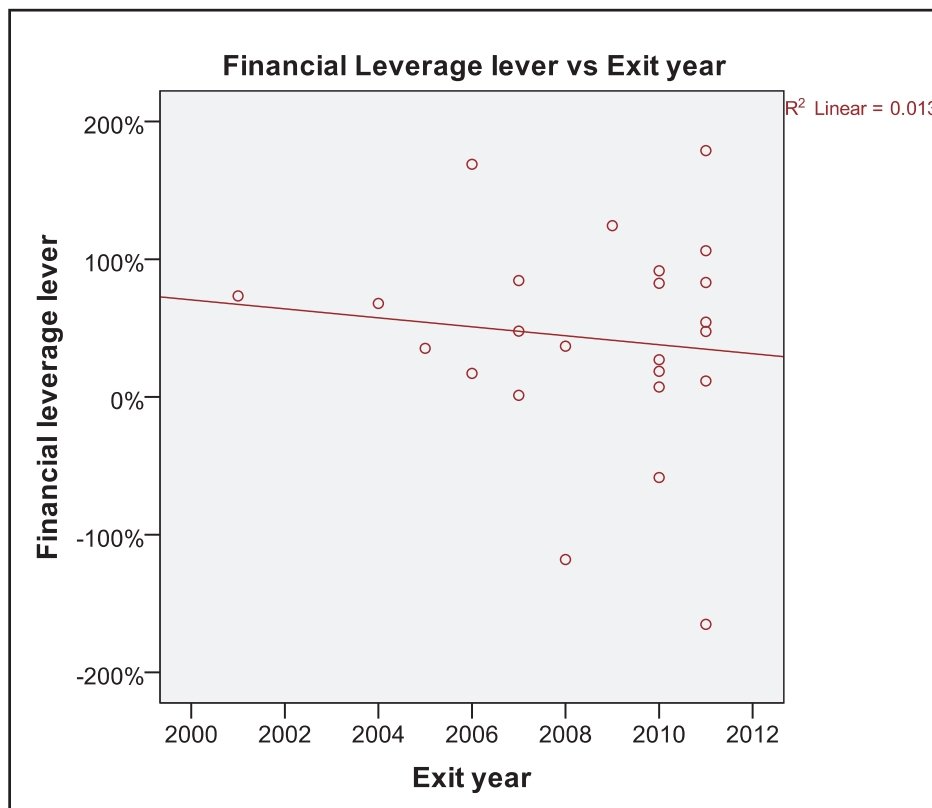
The bar chart in figure 5 above depicts the relative contribution of value lever financial leverage from 2001 until 2011. The heights of the bars in the bar charts do



not support the research hypothesis that the relative importance of financial leverage has been decreasing over time. The distribution of the bars does not show any distinct pattern.

As shown in appendix 9.2.1 in assessing the change in financial lever contribution over time the sample was divided into two subgroups: group 1 comprising exits performed before year 2008 and group 2 exits done in 2008 and beyond. The mean for exits in group 1 was 62% while group 2 had 33%. These descriptive statistics confirm the research hypothesis that relative importance of financial leverage lever has been falling over time.

Figure 9: Scatter plot: Financial leverage lever vs. Exit year



A scatter plot in figure 9 was produced to assess a possible trend in relative importance of financial leverage lever over the period, 2001 to 2011. The data points seem to be scattered with no discernable pattern. The line of best fit, alternatively known as the trend-line shows a slight negative relationship between the two variables which supports the research hypothesis. An R squared measurement was used to assess the strength of the relationship. As the measure nears 100% the independent variable (time) becomes a better predictor for the dependent variable (financial leverage lever). In this case the R squared value of 1.3% indicates that the variation in the two variables has a weak relationship.

Figure 10: Financial gearing over time

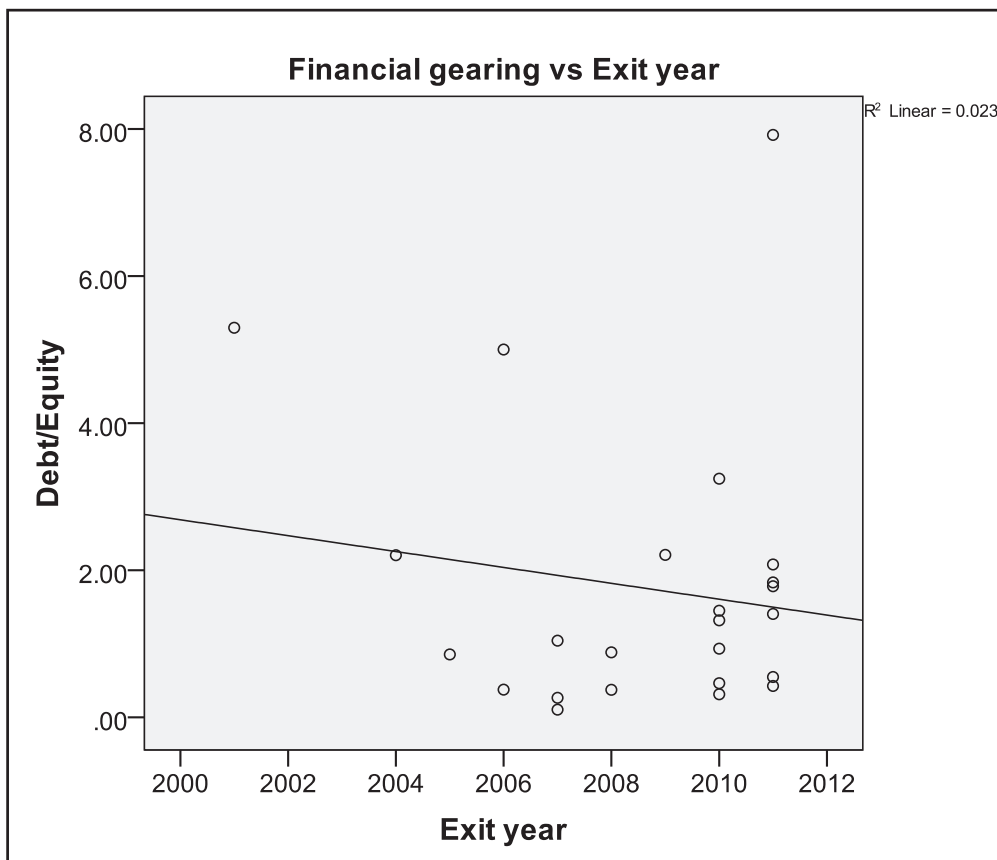


Figure 10 above is a scatter plot showing the relationship between gearing ratio (debt/equity) and time as represented by exit years. Gearing which is a measure of the proportional debt applied shows a steeper trend line than financial leverage lever. However, strength of the relationship as shown by the R squared of 2.3% confirms findings in figure 9 that dependence on debt or financial leverage lever has not significantly fallen over the past 10 years as believed. Private Equity firms are still dependent on financial leverage nearly as much as they used to be years ago.

### 5.3.2 Statistical test

Independent samples t-test was also used to test the research hypothesis. In order to test whether financial leverage lever had been decreasing in relative importance between 2001 and 2011 the sample was split into two groups. Group one (1) comprised exits carried out from 2001 to 2007 and group two consisted of exits undertaken from 2008 to 2010 and non-exits which were evaluated in year 2011. This approach was in line with other former academic studies undertaken by Achleitner et al (2008) and Achleitner et al (2010). T-test results are found in appendix 9.2.2.

The t-test for equality of means found in appendix 9.2.2 was used to test whether there was a difference between group 1 and group 2 means. In testing whether the means for the two groups are statistically different the  $p$ -value of 0.401 was compared to alpha at the 5% level. It was observed that the  $p$ -value was bigger than alpha therefore it was concluded that there is not enough evidence to support the research hypothesis hence the null hypothesis that the means were equal could not be rejected.

## 5.4 Hypothesis 2 a

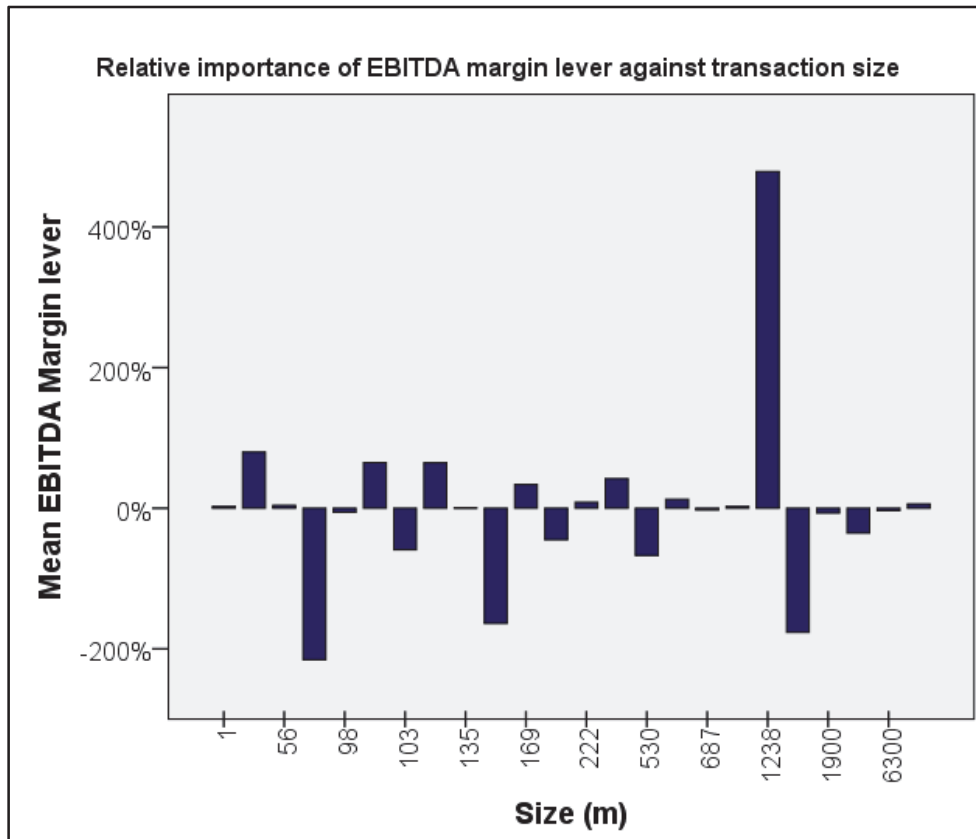
***Research hypothesis states that the proportionate contribution of value driver (EBITDA margin) to Private Equity returns is more significant on larger transactions than smaller transactions.***

### 5.4.1 Descriptive Results and scatter plots

As shown in appendix 9.3.1 the sample was divided into two sub-groups; group (1) comprising portfolio companies that were defined as small where each was less than R600 million in size and group (2) included companies that were larger than R600million. Group (1) companies numbered 17 while group (2) numbered 7. The results of the descriptive statistics were such that group (1) had an average EBITDA margin contribution of -14.4% and group (2) 38%. These results confirmed the research hypothesis.

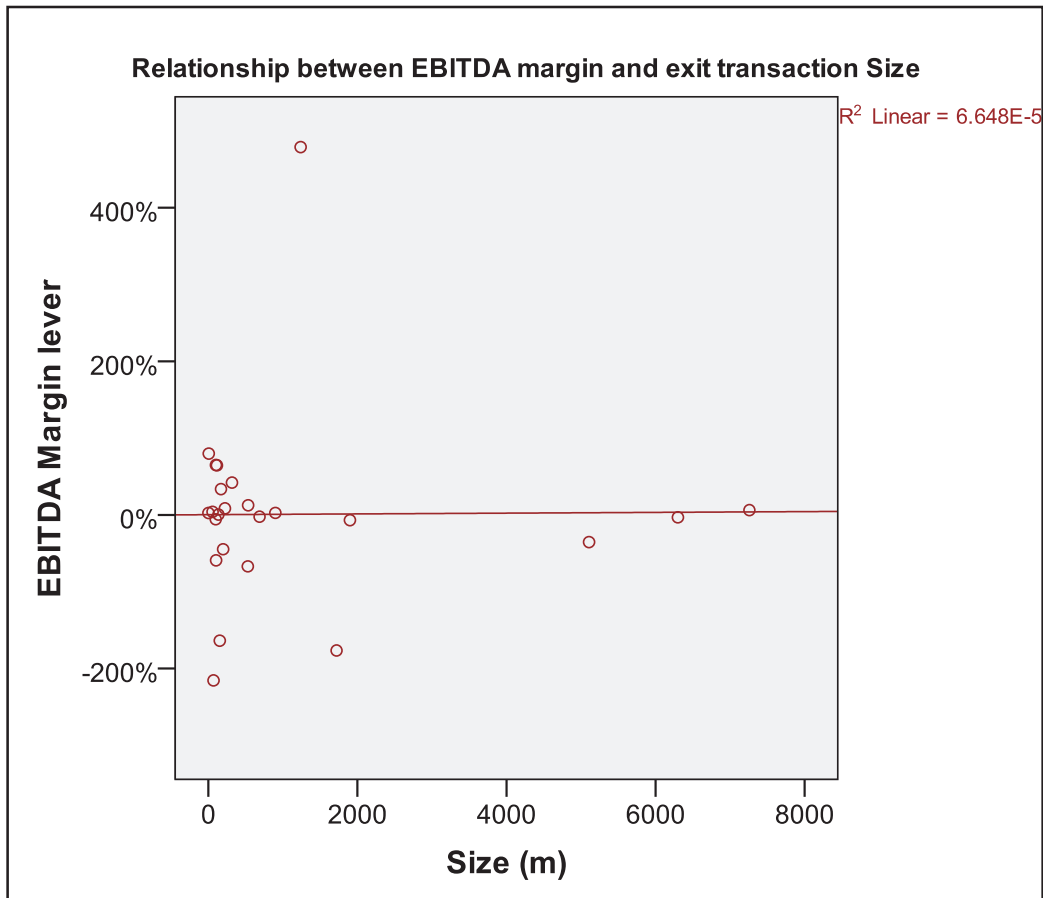
The bar chart on figure11 below displays the relative importance of EBITDA margin lever across different exit values starting with smallest exit up to the largest exit on the right. The diagram illustrates that the contribution of EBITDA margin lever to total value creation was random across different transaction sizes. The assertion that EBITDA margin lever is relatively greater in bigger exit values could not be confirmed from this diagram.

Figure 11: EBITDA Margin lever against transaction size



Evidently, as displayed on the scatter plot on figure 12, the variation in the EBITDA margin lever and the exit year portrays a very weak relationship as shown by a nearly flat trend line. The R square measurement is also negligible, showing the weak relationship.

Figure 12: Scatter plot of EBITDA margin against transaction size



## 5.4.2 Statistical tests

### 5.4.2.1 Independent samples t-test

Independent samples t-test was carried out to test the statistical significance of the relationship between the size of an exit and relative importance of an EBITDA margin lever. The sample of twenty four observations was divided into two groups. Results in Appendix 9.3.2 demonstrate that the alpha value was found to be smaller than the  $p$ -value of 0.533; therefore the null hypothesis that the means for the two groups are equal could not be rejected. The results suggested that the size of a

portfolio company was not statistically significant in determining the relative importance of the EBITDA margin lever.

#### 5.4.2.2 Regression Analysis

**Table 6: Regression analysis- descriptive statistics**

	Mean	Std. Deviation	N
EBITDA Margin lever	.89225%	125.658728%	24
Size (m)	1163.27	2045.711	24

Table 6 provides the descriptive statistics for EBITDA margin lever and size of exits. The diagram expresses that the value lever had a mean of 0.89% while the average size of transactions either exited or valued was one billion one hundred and sixty three million (R1, 163m). As shown in table 7, the R square that measures the proportion of variation in the dependent variable explained by the regression model was negligible indicating that the model had no predictive power. Beta in table 8 represents the strength of the relationship between the independent variable (size of exit enterprise value) and EBITDA margin lever. To test whether EBITDA margin lever regression line was a useful predictor for EBITDA margin, the  $p$ - value of 0.970 was compared to alpha (0.05) at 95% confidence interval. Since the  $p$ -value was larger than alpha the null hypothesis that correlation between the two variables was zero could not be rejected.

The coefficient of the independent variable (size) was 0.001 and the constant 0.310. Therefore the regression equation was:  $EBITDA\ margin = 0.001Size\ (m) + 0.310$ .

**Table 7: Model summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.008 <sup>a</sup>	.000	-.045	128.478602%

a. Predictors: (Constant), Size (m)

**Table 8: Regression analysis for EBITDA Margin lever**

Coefficients								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.310	30.329		.010	.992	-62.589	63.208
	Size (m)	.001	.013	.008	.038	.970	-.027	.028

Dependent Variable: EBITDA Margin lever

## 5.5 Hypothesis 2b

***The research hypothesis states that the proportionate contribution of value driver (revenue growth) to Private Equity returns is more significant on smaller transactions than on bigger transactions.***

### 5.5.1 Descriptive results and scatter plots

As described in hypothesis 2a, appendix 9.4.1 shows the research sample split into two sub-groups; group (1) and group (2) on the basis of size. For companies in group (1) which represented small companies, the revenue growth contribution mean was 59% while that for big companies was 45.6%. These results confirm the research hypothesis.



Figure 13 below is a bar chart showing relative importance of revenue growth lever across exit transactions starting with smallest on the left. The diagram shows that in the past 10 years revenue growth lever values have been random across different exit values. No specific pattern could be ascertained across the different portfolio company sizes.

**Figure 13: Revenue growth lever against transaction size**

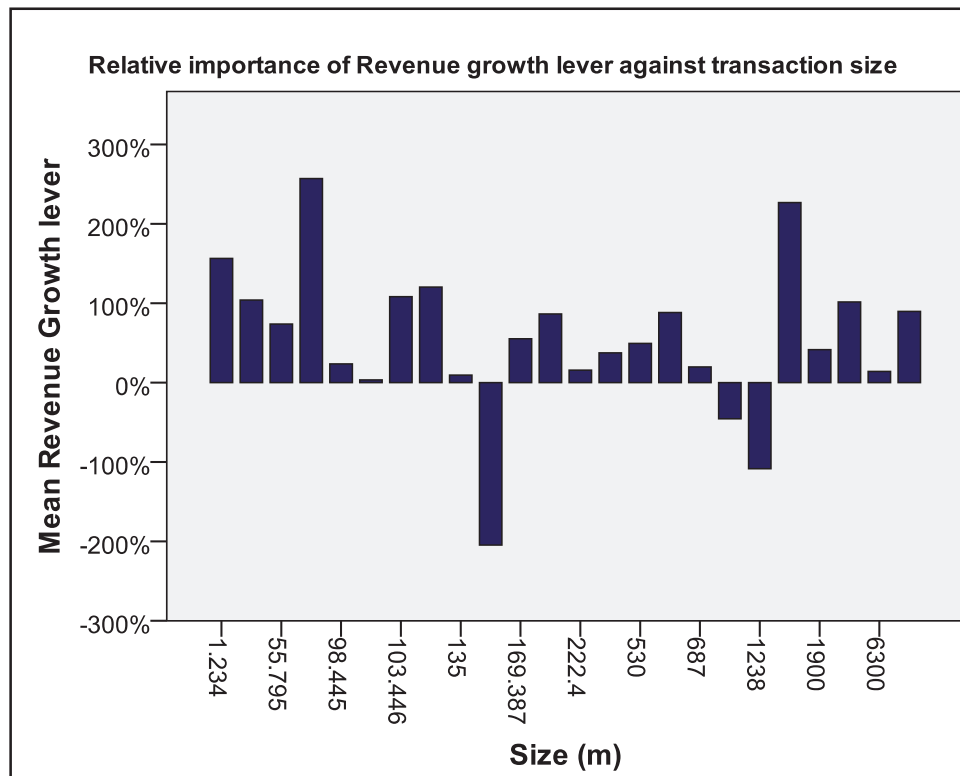
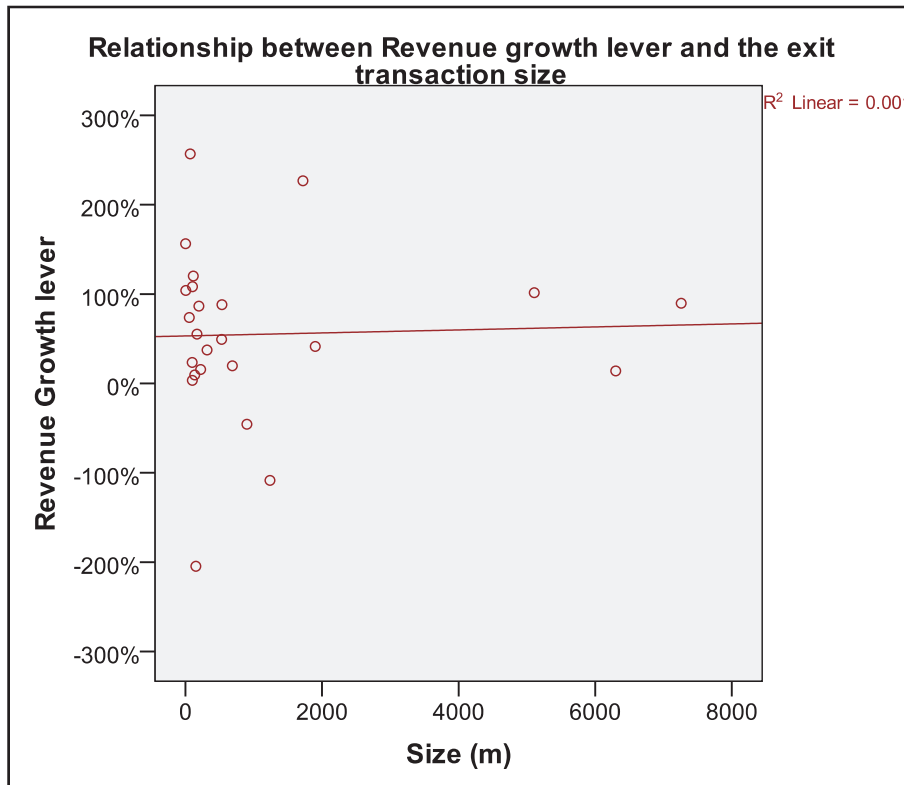


Figure 14 below provides a scatter plot showing the variation in the relationship between revenue growth lever and transaction values/sizes. The R square measurement of 0.1% indicates that the relationship between the two variables is very weak.

Figure 14: Scatter plot for Revenue growth lever



## 5.5.2 Statistical tests

### 5.5.2.1 Independent samples t-test

According to results of independent samples t-test in appendix 9.4.2 at 95% confidence the alpha value of 0.05 was found to be much smaller than the  $p$ -value of 0.763. As a result the research hypothesis was found to be statistically insignificant and therefore the null hypothesis that larger and smaller portfolio companies had equal means could not be rejected.

### 5.5.2.2 Regression Analysis

According to Table 10, the regression analysis performed for independent variable (exit value) and dependent variable (revenue growth lever) revealed that the exit enterprise value of the transaction was a poor predictor for revenue growth as shown by the small R square value of 0.1%. In testing the research hypothesis that exit enterprise value is a good predictor of revenue growth lever, the  $p$ -value of 0.868 in Table 11 was compared to alpha at 95% confidence interval. Since  $p$ -value was found to be larger than alpha, it was concluded that there is no sufficient evidence to reject the null hypothesis that the independent and dependent variables have a correlation of zero.

As shown in table 11 the coefficient of revenue growth lever was 0.002 while the constant was 53.155. Therefore the regression was presented as follows:

$$\text{Revenue growth} = 0.002\text{Size (m)} + 53.1.$$

Table 9: Descriptive statistics

Descriptive Statistics			
	Mean	Std. Deviation	N
Revenue Growth lever	55.11204%	95.738629%	24
Size (m)	1163.27	2045.711	24

Table 10: Model summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.036 <sup>a</sup>	.001	-.044	97.827025%

a. Predictors: (Constant), Size (m)

**Table 11: Regression analysis for Revenue Growth lever against deal size**

Coefficients								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	53.155	23.093		2.302	.031	5.262	101.047
	Size (m)	.002	.010	.036	.169	.868	-.019	.022

a. Dependent Variable: Revenue Growth lever

## 5.6 Hypothesis 3a

***The lower the debt/equity ratio at entry, the higher the relative importance of revenue growth value lever effect on value creation***

### 5.6.1 Descriptive results and scatter plot

As shown in appendix 9.5.1 the research sample was subdivided into two sub-groups. The first group numbering 15 comprised of low-g geared portfolio companies which had debt/equity ratios of 1.5 and less and the second group consisted of nine companies with entry gearing ratios exceeding 1.5. The mean relative importance in revenue growth lever for low geared portfolio companies was 90.7% while for high geared companies was -4.2%. These results supported the research hypothesis.

Figure 15 below is a bar chart showing the variation in revenue growth lever and gearing ratio measured as debt/equity ratio. The bar chart portrays little pattern between revenue growth lever and gearing ratios. However, on average at higher gearing levels revenue growth lever seems to fall. This observation is supported by

negative and very low revenue growth figures recorded at high gearing ratios specifically between 1.45 and 2.20. and beyond 3.24 respectively.

**Figure 15: Revenue growth vs. gearing ratio**

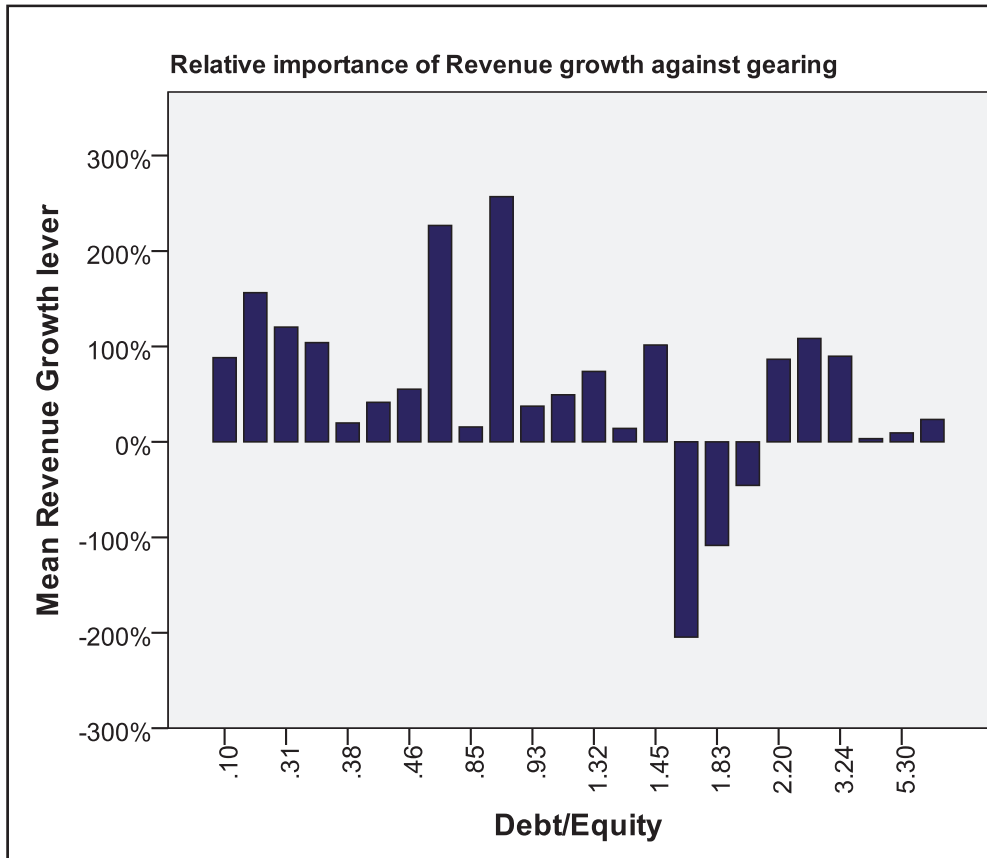
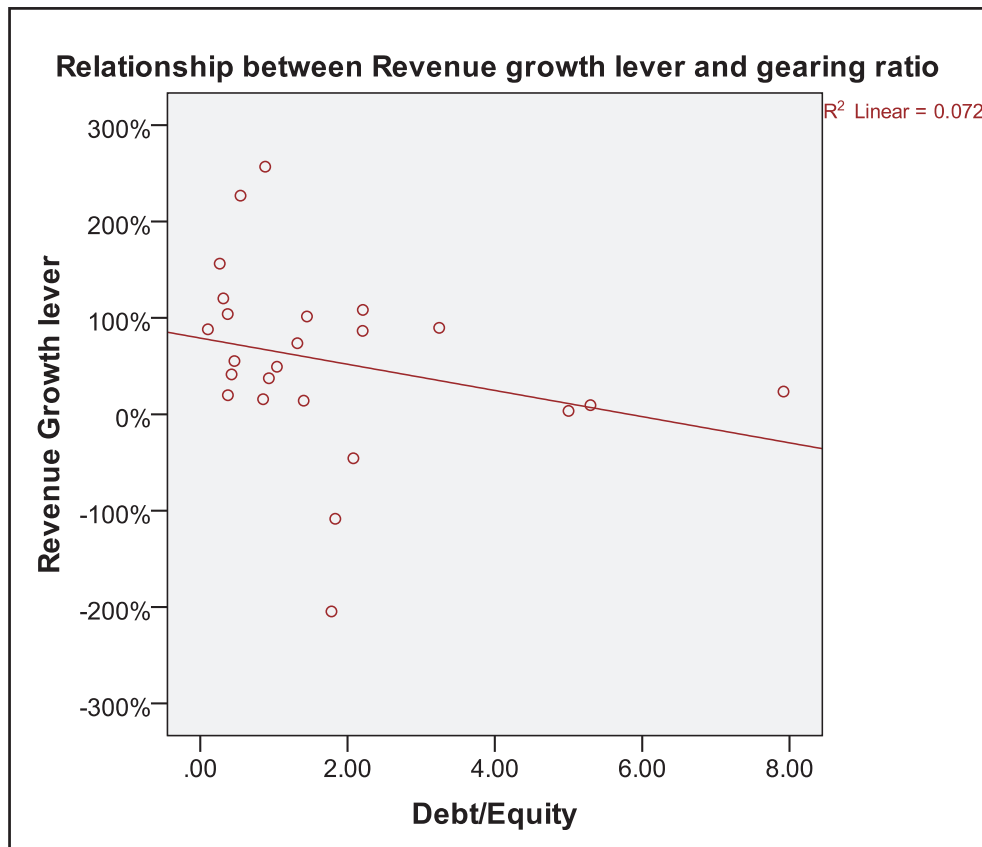


Figure 16 is a scatter plot showing the variation in the relationship between revenue growth levers and gearing ratio variables. While the trend-line supports the research hypothesis by showing a downward direction, the relationship between the two variables is quite weak as shown by an R square value of 7.2% only.

Figure 16: Scatter plot for Revenue growth lever vs. gearing



## 5.6.2 Statistical tests

### 5.6.2.1 Independent samples T-testing

Independent samples T-test was used to test whether the means for the two groups were statistically different. According to appendix 9.5.2 the t-test for equality of means at 95% confidence interval resulted in a  $p$ -value of 0.015. Compared to alpha the  $p$ -value was found to be smaller therefore the research hypothesis was considered statistically significant while the null hypothesis was rejected.

### 5.6.2.2 Regression Analysis

Regression analysis was also conducted to test the linear relationship between the relative importance of revenue growth lever and gearing at entry. The model summary in table 13 demonstrates that the linear regression model describing the explanatory strength of gearing ratio was found to be weak with an R square measurement of 7.2% only.

A test of the statistical significance of the regression line was undertaken by assessing results in table 14. The  $p$ -value of 0.203 was found to be larger than alpha (0.05). As a result the null hypothesis that the regression line was not statistically different from zero could not be rejected. This result disapproved the research hypothesis that gearing is a strong explanatory variable for revenue growth. The coefficient of gearing was -13.589 while the constant had the value of 79.073. As a result the regression equation was found to be:

$$\text{Revenue growth lever} = -13.6(D/E) + 79.1$$

Table 12: Descriptive Statistics

Descriptive Statistics			
	Mean	Std. Deviation	N
Revenue Growth lever	55.11204%	95.738629%	24
Debt/Equity	1.7632	1.89621	24

Table 13: Model summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.269 <sup>a</sup>	.072	.030	94.277856%

a. Predictors: (Constant), Debt/Equity

**Table 14: Table Regression analysis for Revenue Growth against gearing**

Coefficients								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	79.073	26.542		2.979	.007	24.028	134.117
	Debt/Equity	-13.589	10.367	-.269	-1.311	.203	-35.090	7.911

a. Dependent Variable: Revenue Growth lever

## 5.7 Hypothesis 3b

***The higher the debt/equity ratio at entry the higher the relative importance of EBITDA Margin value lever effect on value creation.***

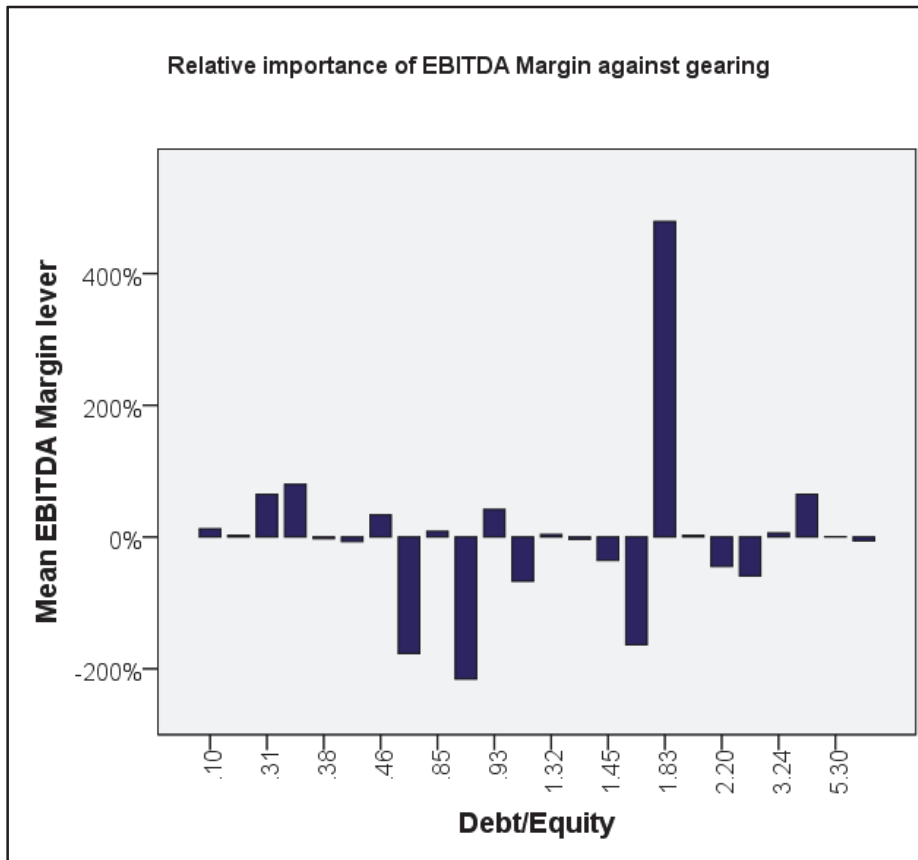
### 5.7.1 Descriptive results and scatter plots

Similar to hypothesis 3a, the research sample was split into two sub-groups, group (1) and group (2). The mean EBITDA margin lever for the first group was -17.2% while the second group had a mean of 31%. The results support the research hypothesis that highly geared companies create relatively more value through EBITDA margin than lowly geared companies.

The bar chart below in figure 17 provides distribution of EBITDA margin lever against gearing ratios increasing from left to right on the x-axis. The bar chart below portrays an irregular relationship between the two variables.

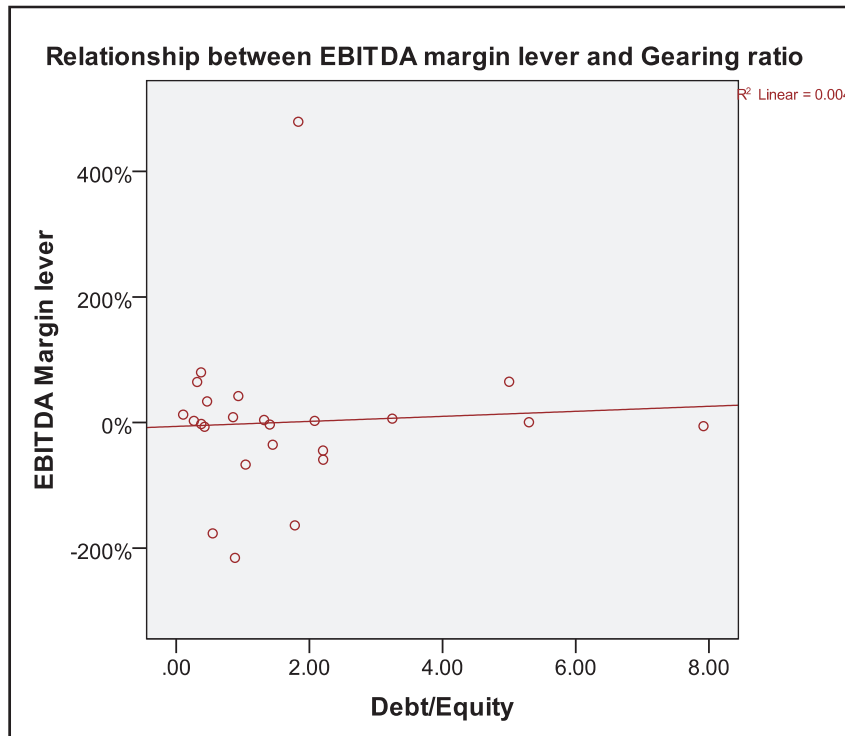


Figure 17: EBITDA margin lever vs. gearing ratio



The scatter plot in figure 18 provides a variation in the relationship of EBITDA margin value lever and gearing used at acquisition of the portfolio company. The trend line is shown as slightly up-sloping with an R square of 0.4% showing that the influence of gearing on EBITDA margin lever is very weak.

Figure 18: Scatter plot for EBITDA margin lever vs. gearing ratio



## 5.7.2 Statistical tests

### 5.7.2.1 Independent Samples T-Test

In testing the equality of means appendix 9.6.2 provides a  $p$ -value of 0.373 which is larger than alpha at 95% confidence level. Since the  $p$ -value is larger than alpha the null hypothesis that the two means are statistically equal could not be rejected. As a result the research hypothesis was regarded to be statistically insignificant.

### 5.7.3 Regression Analysis

A regression analysis was conducted to test existence of a linear relationship between EBITDA margin lever as a dependent variable and debt/equity ratio as an

independent variable. The R square value of 0.004 in Table 16 means that only 0.4% of the variation in EBITDA margin lever explained by the gearing ratio.

In testing the statistical significance of the regression model, table 17 shows a  $p$ -value of 0.779 and alpha of 0.05. Since the  $p$ -value is larger than alpha the null hypothesis that gearing is not a useful predictor for EBITDA margin could not be rejected. As a result the research hypothesis was regarded as statistically insignificant.

Results of the regression model in table 17 revealed that the gearing coefficient was 4.002 and the intercept -6.614. As a result the regression equation is therefore presented as follows: **EBITDA margin= 4.002D/E -6.164.**

**Table 15: Descriptive statistics**

Descriptive Statistics			
	Mean	Std. Deviation	N
EBITDA Margin lever	.89225%	125.658728%	24
Debt/Equity	1.7632	1.89621	24

**Table 16: Model Summary**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.060 <sup>a</sup>	.004	-.042	128.248365%

a. Predictors: (Constant), Debt/Equity

**Table 17: Regression analysis for EBITDA Margin and gearing ratio**

Coefficients							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound

1	(Constant)	-6.164	36.106		-.171	.866	-81.042	68.714
	Debt/Equity	4.002	14.103	.060	.284	.779	-25.245	33.249

a. Dependent Variable: EBITDA Margin lever

## 5.8 Summary

Table below shows a summary of the statistical tests and the descriptive statistics produced above.

**Table 18: Summary of tests**

Research question and hypothesis	Descriptive statistics results	Statistical test	
		<i>Independent samples t-test</i>	<i>Regression Test</i>
Research question			
Research hypothesis 1	Confirmed	Insignificant	
Research hypothesis 2a	Confirmed	Insignificant	Insignificant
Research hypothesis 2b	Confirmed	Insignificant	Insignificant
Research hypothesis 3a	Confirmed	Significant	Insignificant
Research hypothesis 3b	Confirmed	Insignificant	Insignificant

## CHAPTER 6 DISCUSSION OF RESULTS

The purpose of this chapter is to interpret research results presented in the previous chapter in reference to the literature review in chapter 3 and research objectives set in chapter 2. The intent of the study was to explain Private Equity portfolio company performance at a transaction level through value attribution.

In interpreting the results it was important to note that since the sample was very small the researcher was likely to fail to obtain statistical significance even though the truth about the population, if it were known, would be of practical significance.

Albright et al. 2009

### 6.1 Research Question 1

***Using the sample as a pilot study on South Africa, what is the relative importance of the value levers (Financial leverage, EBITDA margin improvements, Revenue growth and EBITDA multiple growth).***

A sample of 24 exited or valuated transactions was used as a pilot study on South African Private Equity industry. Evaluating the relative importance of value drivers, the pie chart in Figure 4 reveals that the relative importance of revenue growth lever is 55%, financial leverage lever 43%, EBITDA margin 1% and EBITDA multiple 1%.

In interpreting these values it is important to note that the respective percentage of a value lever only indicates its relative importance with respect to the rest of the levers.

For the purpose of this analysis total value creation per Portfolio Company is standardized to 100% (Pindur, 2007).

### 6.1.1 Revenue growth lever

In comparison to international studies conducted before, revenue growth's relative importance in this study was considerably higher. Studies reviewed in chapter 3 showed that revenue growth's relative importance in Private Equity value creation averaged 35% which is 20% less than the result obtained in this study. The bar chart in figure 6 shows the relative importance of revenue growth lever between year 2001 and 2011. The chart reveals that after averaging approximately 20% in years 2001, 2004, 2005 and 2006 revenue growth lever went up to an approximate average of 120% between 2007 and 2010. Years 2007 to 2010 coincided with the global financial crisis which saw South Africa and many other countries sliding into a recession. The crisis affected many businesses resulting in loss of jobs and fall in consumption and investing. It is therefore counter-intuitive that companies exited between 2007 and 2010 registered the highest value creation attributable to revenue growth lever. If the above finding reflects the industry, it is probable that revenue growth was not necessarily high in absolute terms during those years, instead the other three levers might have performed so poor during this period that revenue growth's relative importance was up.

South Africa is still an emerging market where market growth is still a key driver of value. So it is not surprising that Private Equity firms would target growth as a value creation strategy. Expectedly, compared to studies done in Western Europe and North America, relative importance of revenue growth lever in South Africa is larger. Western economies such as the UK and the USA have grown at an average 1% to 2.5% per annum over the past ten years (Trading Economics, 2011). As a result

revenue growth rates for most portfolio companies in these countries have been limited by the low economic growth rates. In the case of South Africa—an emerging market where gross domestic growth rate has averaged 4% in the last 10 years—revenue growth plays an important role in value creation. Therefore, the mean relative importance of revenue growth lever of 55% would be viewed to be in line with the high economic growth rates experienced in South Africa.

### **6.1.2 EBITDA multiples**

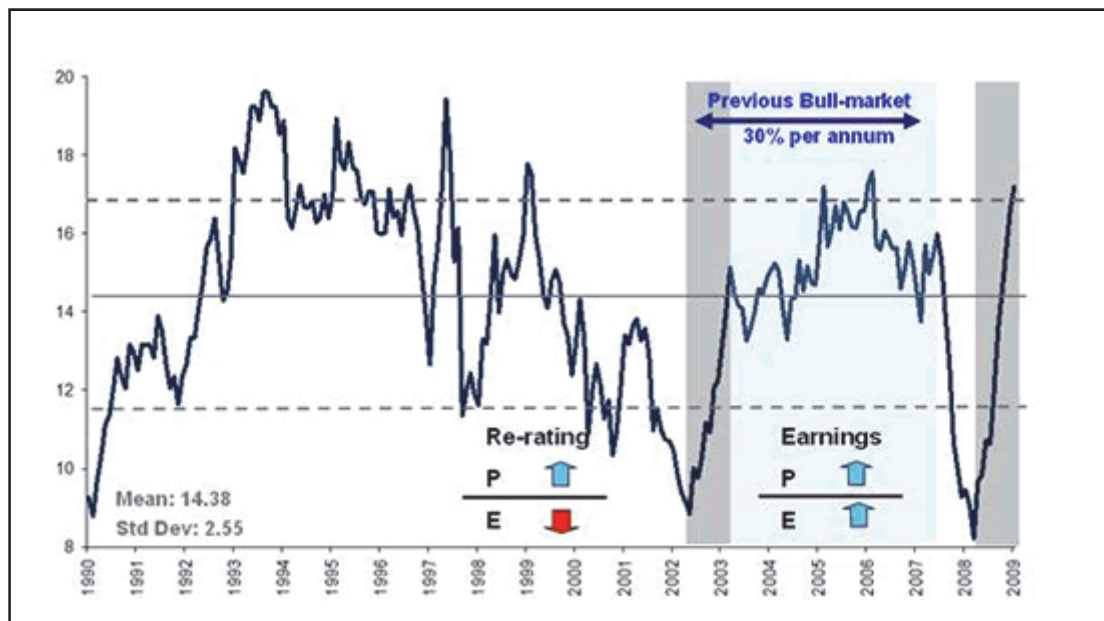
EBITDA multiples lever had an average relative importance of 1% over the period between 2001 and 2011. This figure is very small compared to the 18% observed in international studies Loos, 2005; Guo et al. 2010; Achleitner et al.2008; Heel et al.2005. It is worth noting that on average EBITDA multiple levers performed negatively during the financial crisis. This is in contrast to the performance of the revenue growth lever which was at its highest during the global financial crisis. This confirms the argument that the prospect of an impending recession affects valuation of businesses earlier than it affects the actual operations of businesses.

The bar chart in Figure 8 illustrates that transactions exited in 2007, 2009 and 2010 had negative EBITDA multiple levers. This suggests that some of the deals might have been sold at EBITDA multiple lower than they were acquired at. It is probable that during 2007 to 2009 the global business outlook was very negative prompting many potential business acquirers to put plans to purchase companies on hold. Due to bleak outlook valuations for companies fell during that time. On the other hand, most of the companies were still reporting positive operational performance which was residual of the previous months of the credit boom. This combination of

relatively high earnings and low valuations resulted in very low price earnings ratio and EBITDA multiples.

Figure 19 below confirms Price Earnings (PE) ratio falling from a high of 15.5% in 2007 to a low of 8% in 2008. Since the majority of Private Equity firms invest on behalf of institutional investors such as pension funds, exit dates are usually contractual and need to be adhered to. Accordingly, portfolio companies that were scheduled to be exited between 2007 and 2010 were in most cases exited at lower EBITDA multiples due to the depressed market. This led to EBITDA multiple levers dipping to negative levels in years 2007, 2009 and 2010.

Figure 19: SA Equities: Trailing PE Ratio. Source PGS.



During the previous bull market between 2002 and 2007 characterised by a debt boom demand for deals outweighed the supply as most Private Equity firms could

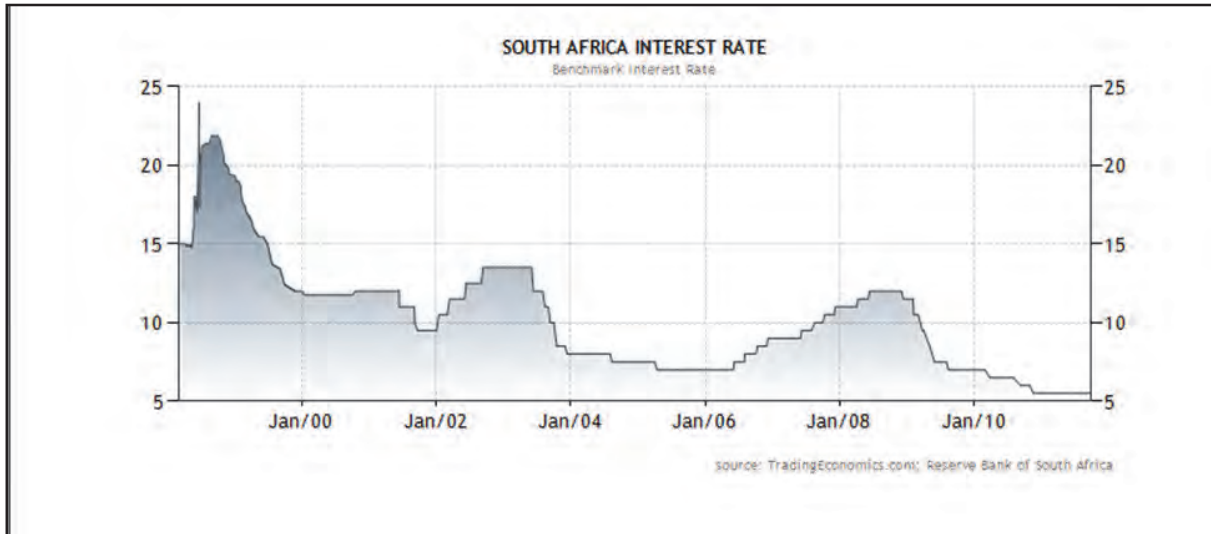


access capital. This phenomenon might have resulted in steep competition for deals resulting in overpaying as multiples were triggered up by demand. As the debt boom turned into a bust in mid-2007 portfolio companies due for exit might have eventually been sold at lower multiples resulting in negative EBITDA multiples in 2009 and 2010. Highly geared companies had high entry multiples. In such cases PE firms had potentially overpaid.

### **6.1.3 Financial leverage lever**

The relative importance of financial leverage averaged 43% in this study and was 10% higher than the average contribution observed from empirical studies conducted in North America and Western Europe. Comparable international research include a study conducted by Achleitner et al.2008 in Western and Central Europe that concluded that financial leverage contributed 28% to total value creation. Guo et al. (2010) conducted a similar study in United States of America and came up with similar results showing a lesser financial leverage contribution of 20%. This result refutes the common belief that South African Private Equity firms depend less on debt than their counterparts in Western Europe and North America.

Figure 20: South Africa repo rate. Source Trading Economics, 2011



The heavy reliance on financial leverage publicized in this study is attributable to the low interest regime that prevailed between 2004 and beginning of 2008 as shown in Figure 15. During this period the repo rate averaged 7% and liquidity was at its highest, allowing high gearing ratios for target companies. It is conceivable that since the sample used in this research was confined to exits that occurred in the last 10 years, the influence of this low interest period might have had significant impact on relative importance of the financial leverage lever.

In addition to the importance of the low interest environment in facilitating for high gearing, the maturity of the industry determined the level of debt used. Unlike Western Europe and North American Private Equity markets which are regarded as maturing and looking for returns from levers beyond leverage, the South African industry is still growing and financial leverage remains one of the most important sources of value creation.

#### 6.1.4 EBITDA margin improvements

Compared to an average of 14% observed in international studies, this research study found a 1% relative importance in EBITDA margin. As presented in figure 7, exits executed between 2007 and 2009 registered the lowest EBITDA margin level.

Many Private Equity controlled portfolio companies sacrifice margins initially as they seek to increase market share and increase revenue. In South Africa, small companies are perceived as more risky than large ones. Hence the smaller the company the more risky it is perceived to have, and the lower the lower its valuation multiples. Private Equity firms, therefore focus more on increasing the size of the portfolio company in order to improve its risk profile thereby enhancing valuations and stability of the company. As a result in the South African context margin improvements are regarded secondary to increasing revenue.

It is difficult for many Private Equity firms to increase margins significantly at sustainable levels as this threatens the competitiveness of the company. In addition, to maintain certain levels of stability and competitiveness companies need to incur certain levels of costs to perform their functions. Accordingly, in the interests of remaining competitive portfolio companies limit the cutting down of costs and focus on enhancing the size of the company.

## 6.2 Hypothesis 1

***Due to commoditisation of financial engineering, debt constraints and tax regime reforms, the research hypothesis states that over the past years the***

***financial leverage lever has relatively become less significant in value creation.***

Recent literature has asserted that the application of debt and its importance as a value driver is waning (Hemptinne & Hoflack, 2009). Specific reasons cited for this change include the maturity of the Private Equity industry, tax reforms that have reduced tax breaks and general credit tightness in financial markets limiting the availability of debt.

As noted in chapter 5, descriptive statistics in appendix 9.2.1 reveal that exits performed before 2008 had a mean of 62% for financial leverage while those exited in 2008 and beyond has a mean of 33%. These results confirm the research hypothesis and also agree with international literature that claims that the Private Equity industry has been applying less and less debt over the last two decades.

A scatter plot in figure 9 shows a slight negative relationship with a coefficient of determination (R squared) of value 1.3%. This result refutes the research hypothesis and claims made in international literature that usage of debt has been decreasing in the last two decades. A possible reason for such an unsatisfactory answer is the existence of outliers which might have affected the results on the scatter plot. Due to the small number of transactions provided by Private Equity firms the researcher resorted to including observations with outlier values in order to maintain a reasonable sample size. Financial leverage outliers included cases such as deal number three which had a 169% contribution and deal number 19 with 179%, both found on table 4.

Figure 10 which is a scatter plot showing a relationship between debt/equity against exit years presents a steeper slope than that for financial leverage lever against time.

This contrast raises the possibility that during this period companies had been using less and less gearing but extracting more value from that decreasing debt.

Independent samples t-test results also refuted the research hypothesis that the financial leverage lever has been falling in importance in the last decade. Statistical tests such as independent samples t-test are known to work well when the sample is large enough. In this study a sample size of 24 which was used is considered very small and would produce insignificant results. With a larger sample the researcher expects to have obtained satisfactory results.

### **6.2.1 Sample influences**

The unexpected large contribution of financial leverage of 43% to value creation is likely to have been influenced by the sample's bias for large portfolio companies. Table 5 provides descriptive data which shows that the mean size of the sample was R1, 163,270,000 and the median R210, 000,000. SAVCA & KPMG (2010) report reveal that the mean proceeds per disposal in Private Equity was R479 million in 2008 and R27.1 million in 2009. It is therefore apparent that the sample was biased towards larger companies which are known to apply more debt than smaller companies. Most of these deals were later stage, replacement capital and management buyout deals which tend to have high proportions of financial leverage. As a result of these influences the large relative importance of financial leverage in this study is acceptable.

### 6.2.2 Impact of interest rates

The effect of low interest rates on borrowing stands out as a plausible explanation of why the importance of financial leverage lever has not decreased over time. Generally, higher interest rates do affect gearing ratios since higher rates mean larger repayments to lenders. On average the holding period of a portfolio company is five years. In addition to affecting debt repayments during the holding period, interest rates have an impact on the gearing applied at acquisition of a target company. As a result higher interest rates at entry and during the holding period determine the relative size of financial leverage as a value creation lever. As demonstrated in figure 20 transactions exited during 2008 to 2010 were acquired and held during a low interest regime which prevailed between 2003 and 2007. Accordingly, financial leverage lever for exits that occurred between 2007 and 2010 would have been higher compared to preceding years. Therefore it can be argued that without the low interest period which created liquidity during that time, the financial leverage lever could have portrayed a decreasing trajectory over the past ten years.

Similar observations were made in Europe in a study which analysed 206 Private Equity exits completed between 1991 and 2005 (Achleitner et al. 2010). Results showed that exits made in 2003, 2004 and 2005 registered higher financial leverage lever as a result of higher liquidity between 2000 and 2003 in Europe.

However in Europe and North American markets the popularity of the Private Equity industry and the high returns realised historically by the industry led to mushrooming of numerous buy out firms which led to stiff competition for deals. As competition heightened, gearing ceased to be a source of competitive edge and therefore Private

Equity firms began to seek abnormal returns from operational improvements (Hemptonne & Hoflack, 2009). It can argued that such a stage of development has not yet been reached in South Africa hence financial leverage is still very important.

### 6.3 Hypothesis 2a

***Research hypothesis states that the proportionate contribution of value driver (EBITDA margin) to Private Equity returns is more significant on larger transactions than smaller transactions.***

#### 6.3.1 Descriptive statistics

Academic research in the literature review section has maintained that Private Equity firms with larger funds do target sizeable companies with room for enhancement in efficiencies. There is a belief that on average a larger company possess more inefficiencies than a smaller company, hence the opportunity to trim operations.

As stated in chapter 5 descriptive statistics confirm that group (2) which consists of large companies produces a higher average EBITDA margin lever than group (1) comprising smaller companies. By assessing the means of both groups the study concludes that on average a large company provides proportionately more value through operational efficiencies than a small one.

As shown in appendix 9.3.2 small companies had a mean EBITDA margin lever of - 14.4% while large companies had a mean of 38%. These figures were a confirmation of an earlier study by Achleitner et al. (2008) who conducted a research that showed

that 10% of operational improvements in small companies was attributable to margin improvements. On the other hand, in large deals 37% of operational improvements were traceable to margin improvements.

### 6.3.2 Statistical tests

Results produced by independent samples t-test were at odds with the research hypothesis. The Independent samples tests in appendix 9.2.2 demonstrated that there was not enough evidence to reject the null hypothesis that larger transactions exited for more than six hundred million rands had a larger mean EBITDA margin lever than smaller transactions exited for less than six hundred million rands.

Regression analysis conducted also concluded that exit transaction size was not a good predictor for EBITDA margin lever. This was demonstrated by an R square of a negligible value. In general, as confirmed in chapter 5 through significance testing, the research hypothesis was found to be statistically insignificant. However the regression equation of **EBITDA margin= 0.001\*Size +0.310** supported the research hypothesis. The regression equation was interpreted as follows: a one million increase in the size of the exit value of a transaction would result in EBITDA margin lever increasing by 0.001%. Despite the unit increase in EBITDA margin being marginal, the above equation confirms that an increase in the size of a company increases its chances of enhancing the relative importance of operational efficiencies in value creation.



### 6.3.3 Rationale for statistical test results

As discussed in the last section under hypothesis 1, the size of a sample affects statistical significance of a study. While descriptive statistics and the regression equation indicated support for the research hypothesis, the small size of the sample is likely to have affected statistical tests conducted under independent samples t-test and regression analysis.

Companies in the sample were classified as large or small based on absolute size despite the specific sector they belonged to. For example, the size of a company that might be described as large in advertising and marketing sector might be regarded as small in a manufacturing sector. This suggests that there might have been companies which could have been taken as large in their respective industries but had been classified as small according to absolute size.

Due to the possible broad differences in value attributions across different sectors of the economy which have different market sizes and value creation strategies, the attempted statistical tests may be rendered less practical since the effects monitored within each of the various industries are blended in such a way that statistical trends are equalised (Loos, 2005).

## 6.4 Hypothesis 2b

***The research hypothesis states that the proportionate contribution of value driver (revenue growth) to Private Equity portfolio company returns is more significant on smaller transactions than on bigger transactions.***

#### **6.4.1 Analysis of descriptive statistics**

As stated in section 5.5.1, descriptive statistics confirmed the research hypothesis that the relative contribution of revenue growth lever to value creation was more significant in small companies compared to large ones. This result confirmed results obtained in international academic studies undertaken. The average revenue growth for small transactions in group 1 was 59% while it was 45.6% for large transactions in group 2.

These findings are in line with Achleitner et al. (2008) study of 241 transactions completed between 1989 and 2006 in Europe. The authors observed that of the operational improvements or EBITDA growth realised in small deals, 86% was derived from revenue growth. On the other hand, large deals' revenue growth contribution to EBITDA growth was 71%. In a later study for 206 transactions exited between 1991 and 2005, Achleitner et al. (2010) concluded that out of the EBITDA growth realised, small companies had a mean of 71% while large companies had an average revenue growth contribution of 50%.

#### **6.4.2 Theoretical underpinnings in the South African context**

The above results for the current research are supported by the notion that it is difficult to drive efficiencies in small businesses which on average have lean operations because of size. Intuitively growth of small companies will come from business development and not cutting costs.

In South Africa small companies are generally perceived to be risky than their large counterparts. As a result, in order to lessen that perceived risk Private Equity firms focus on enhancing revenue of small portfolio companies with the view of growing the size of the business in order to obtain higher multiples at exit. It is therefore logical to argue that Private Equity firms exert more effort to grow smaller companies than they do with larger ones. Therefore, it follows that small portfolio companies are expected to derive relatively more value from revenue growth than large companies.

Another rationale noted is that at exit, larger companies attract more potential buyers than smaller companies do. For example the Johannesburg Stock Exchange generally considers for listing companies which are larger than R1billion in value. As a result a Private Equity firm considering exciting its portfolio company via the stock exchange would endeavour to reach or surpass this threshold. However, if a company is large enough to be listed the urge to boost its size is less intense therefore large companies in the sample which had an average of R1.16billion would have stopped to focus on revenue growth as the key value creation driver.

### **6.4.3 Analysis of statistical tests**

Results of statistical tests conducted did not support hypothesis 2b. Independent samples t-test results in table 9.3.2 revealed that the null hypothesis that smaller companies and larger companies had equal revenue growth means could not be rejected. Similar to independent samples T-test results, the regression analysis test results were also at odds with the research hypothesis.

The regression equation derived from the independent variable and constant coefficients also refuted the theory that the smaller a company becomes the more it extracts relatively more value from revenue growth. The equation (**Revenue growth = 0.002Size (m) +55.1**) suggested that for every million increase in the size of a portfolio company the revenue growth lever also increased by 0.002%. Instead of decreasing in value the above equation shows that the larger a company is, the more important revenue growth lever becomes. Hence the regression equation does not support the research hypothesis.

Similar to the explanation provided under hypothesis 2a, the grouping together of all portfolio companies without regard for sectoral differences could have led to statistical tests concluding that the research hypothesis is statistically insignificant.

## 6.5 Hypothesis 3a

***The lower the debt/equity ratio at entry, the higher the relative importance of revenue growth value lever effect on value creation***

### 6.5.1 Analysis of descriptive statistics

The bar chart in figure 15 reveals a general pattern of falling revenue growth lever with increase in gearing ratios. This pattern supports the above research hypothesis. However, there were exceptional cases where transactions entered into at high gearing levels of between 2.20 and 3.24 displayed uncharacteristically larger revenue growth levels. Upon closer examination it was discovered that two of the

three firms within this range were very small transactions which as a result of their size had an inclination to assume revenue growth as a key value creation strategy.

Despite a very small R square measurement, the scatter plot in figure 18 confirmed a negative trend line showing the variation of revenue growth lever with gearing ratios. The smallness of the R square measurement (7.2%) was supposedly as a result of the existence of outliers noticeable on the scatter plot.

As mentioned in section 5.6.1 the research sample was subdivided into two sub-groups, one comprising low-gearred portfolio companies and the other high-gearred ones. The mean relative importance in revenue growth lever for low geared portfolio companies was 90.7% while for high geared companies was -4.2%. These results supported the research hypothesis that the lower the gearing ratio at entry the relatively more revenue growth lever would be realised by a portfolio company. In addition, this study also confirmed findings by Pindur (2007) that excessive debt financing of Private Equity portfolio companies had the effect of hampering their revenue growth.

### **6.5.2 Analysis of statistical tests**

Independent samples t- test results were also in line with earlier academic studies and the propounded theory. The null hypothesis was rejected and the research hypothesis that gearing at entry had negative effects on revenue growth was found to be statistically significant. The result of this test confirmed the belief that when companies are heavily geared the focus of the management is directed towards avoiding bankruptcy by improving efficiency to free more cash-flow for repayment of

debt and interest. As a result little attention is given to revenue growth strategies such as promotions, acquisitions, product development and research which take up most of company cash flows.

Regression analysis performed showed the null hypothesis that gearing was a poor predictor for revenue growth lever could not be rejected. Similar to other cases the researcher attributed the unsatisfactory results to the limitedness of the sample size. With a much bigger sample, results of regression statistical test of the research hypothesis could have been significant.

The regression equation of **Revenue growth lever = -13.6D/E + 79.1** could be interpreted that for every unit increase in gearing ratio, revenue growth lever would fall by 13.6%. The slope of the equation confirmed the relationship between revenue growth lever and gearing that was propounded by other academics. In a study of a sample of 20 observations, Pindur's (2007) findings were that excessive gearing impedes revenue growth. Phrased differently, he concluded that faster growing companies are generally financed with relatively more equity financing instruments than debt. A regression model based on Pindur's (2007) study produced a regression equation that concluded that a 1% increase in gearing sacrificed a growth in revenue by a magnitude of 0.385%.

## 6.6 Hypothesis 3b

***The higher the debt/equity ratio at entry the higher the relative importance of EBITDA Margin value lever in value creation.***

### **6.6.1 Analysis of descriptive statistics**

As depicted in section 5.7.1, the sample was divided into two groups, the first one comprising low-g geared portfolio companies and the other one high-g geared ones. Descriptive statistics produced from the study revealed that the mean of the lowly-g geared companies was -17.2% while for the high-g geared companies was 31%. These results were in line with the research hypothesis and international studies undertaken before that argued that larger LBOs incentivise managers to downsize and trim most non-core operations and discourage them to acquire additional business units with a view to improve margins (Wiersema & Liebeskind, 1995).

### **6.6.2 Analysis of statistical tests**

Unlike the descriptive statistics which confirmed earlier studies, statistical tests results were at odds with the research hypothesis. When tested the independent samples t-test results showed that the research hypothesis was statistically insignificant. As shown in section 5.7.3 results of the regression analysis also declared the research hypothesis statistically insignificant.

Results of these two tests are likely to have been affected by the size of the sample. A small size of 24 observations is considered too small to give statistically significant results. With a very small sample, existence of outliers could have easily affected the results.

On the other hand the regression equation;  $EBITDA\ margin = 4.002D/E - 6.164$  was found to be in line with some of the academic studies included in the literature review. Interpretation of the equation implied that for a unit increase in the gearing

ratio, EBITDA margin lever increased by 4%. This study was in line with Pindur's (2007) seminal work which revealed that for every percentage increase in gearing applied there was a 0.059 increase in EBITDA margin improvement.

### **6.6.3 Theoretical underpinnings in the South African context**

The general belief that when a company has low gearing its managers are not subjected to the obligation of honouring any repayments hence are free to pursue growth strategies is true for South Africa. Conversely, portfolio companies that are heavily geared face the pressure of servicing interest payments to avoid being pushed into bankruptcy by lenders. To free up enough cash-flow in order to service interest payments and debt repayments such portfolio companies focus more on enhancing efficiencies in procurement and working capital management.

In South Africa Private Equity firms have been accused of recklessly applying high gearing in order to enhance returns for shareholders. In order to free up cash flow to service their financial obligations Private Equity firms have been known to put pressure on portfolio company management to shed employment figures and strip off assets. Given the pressure that debt exerts on portfolio companies such claims seem valid.



## CHAPTER 7 CONCLUSION

At the onset of this report the aim of this study was described as provision of an understanding on value creation in South African Private Equity industry. Below is a summary of the findings of this study, recommendations to various stakeholders and suggestions with regard to future research.

### 7.1.1 Importance of value creation levers

International academic literature indicated that for the past decade and a half operational improvements in the form of revenue growth and margin improvements have gradually been replacing financial leverage as the key value creation lever Bengtsson et al.2008; Guo et al 2010; Liechtenstein and Meerkatt, 2010; Opler, 1992.

Results produced for the research question showed that financial leverage and revenue growth played important roles in generating value in portfolio companies. Financial leverage which was 43% was inconsistent with results from previous studies. However, given that the sample was confined to exits undertaken in the last decade where South Africa experienced a debt boom which likely resulted in soaring of gearing levels hence resulting in high financial leverage levels. This spike in debt availability is believed to have contributed to the t-tests results disapproving the research hypothesis that financial leverage is falling in importance.

Consistent with high economic growth rates in emerging markets, revenue growth levers for this study had a mean of 55% which was 20% larger than the international average. Studies used as benchmarks were undertaken in Western economies

which in the past decade were averaging less than 2.5% in economic growth rate hence presenting comparatively low revenue growth opportunities for portfolio companies.

EBITDA margin relative importance mean was 1% compared to 14% found internationally. This result vindicated the local Private Equity industry which has been reputed for attaining efficiency gains through stripping assets and ruthlessly reducing employment numbers. Instead the average revenue growth lever contribution of 55% to value creation strengthens SAVCA's findings that on average Private Equity industry grew employment by 110% per annum between 2006 and 2009 (SAVCA, 2010).

EBITDA multiple growth lever had a 1% contribution which was in line with the general understanding that since year 2008 the market has been struggling to reach the pre 2008 levels of optimism. As a result several private equity firms who bought at the height of the market pre-2007 found themselves disposing their portfolio companies at lower multiples owing to depressed market sentiment.

### **7.1.2 Portfolio company size and value creation**

Research hypothesis 2a formulated after the theory that larger portfolio companies stand to realise higher EBITDA margin than their smaller sized counterparts was supported by the descriptive statistics. The alternative theory that smaller portfolio companies are likely realise larger growth in revenue than larger companies was also confirmed by the descriptive statistics. However, statistical tests which include independent samples t-test and regression analysis disapproved the research

hypothesis. Given that a small sample size is one possible cause of statistical insignificance, a larger sample size could have resulted in statistically significant results. The smallness of the sample size of 24 portfolio companies might have limited a true reflection of the general nature of the industry. Furthermore, the sample was limited to transactions exited in the last decade hence confining the study to value creation in this era.

### **7.1.3 Impact of gearing on value creation levers**

Descriptive statistics produced in this study proved that a gearing level impacts revenue growth and EBITDA margin levers in predictable ways. The notion that a high-g geared portfolio company is likely to face pressure to free up cash-flows to make interest and debt repayments, hence it would pursue efficiency measures was supported by the results. Conversely, a low-g geared company would have little financial obligations to lenders. Therefore, in general managers for the low-g geared portfolio company have greater liberty to pursue growth strategies that might demand cash flows today but promise larger revenue rewards. These descriptive statistics were supported by regression equations.

However, both the independent samples t-test and regression test found the research hypotheses statistically insignificant. It is the view of the researcher that with a sizeable sample statistical results could have been satisfactory.

## **7.2 Recommendations**

### **7.2.1 Business**

Results of this research provide Private Equity firms with useful insights on value creation in their portfolio companies. As the Private Equity industry matures with time, Private Equity firms will do well by defining what their strengths. Firms with competencies in improving performance of investment through revenue growth would find smaller companies suitable for their portfolio. On the other hand, efficiency improvement based Private Equity firms would find it beneficial to invest in larger companies where scope for cutting on costs is comparatively huge. Private Equity firms inclined to considerable application of debt which are better known as financial investors would find efficiency improvements achievable than revenue growth.

### **7.2.2 Institutional investors/limited partners**

The research study shows that there are four value creation levers namely revenue growth, EBITDA margin, EBITDA multiples growth, and financial leverage. Descriptive statistics also reveal that the size of portfolio companies and the amount of debt applied at entry have impacted on relative importance of the above value creation levers. In selecting general partners or Private Equity firms with investment ethos that support their goals, institutional investors may need to make use of value attribution methodologies. Value attribution would be an invaluable tool to inform institutional investors how to allocate their funds in a market where there more than

thirty general partners with different investment philosophies ranging from financial investors to operational interventionist.

### **7.2.3 Government**

The debate on whether to increase regulation on Private Equity industry on the basis that it uses unsustainable amounts of debt and that it does not promote growth in economies is partly answered in this study. The contrast between EBITDA margin levers which had an average of 1% and revenue growth 55% refutes the argument that Private Equity industry is all about cost cutting and no growth. The recommendation this research would offer to government and regulators is to promote engagement with all Private Equity stakeholders with the view to develop policies and regulations that uphold the stability of the financial sector and at the same time enhance economic growth through growth in businesses. Certain unilaterally decided debt restraining policies are likely to hamper growth in Private Equity businesses thereby negatively affecting the economy's growth as well.

### **7.3 Recommendations for future research**

As discussed in the analysis section grouping together portfolio companies from diverse sectors has the effect of concealing useful sectoral differences. The researcher recommends future studies that focus on value attributions along respective sectors. Analysis along sectors will only be achievable when large data sub-samples are gathered. When granted with sufficient data, researchers should

consider adopting a comprehensive value attribution formula which accounts for intermediate cash-flows.

In order to make an objective and balanced analysis of value creation for the Private Equity industry the following should be considered for future research. It would be useful to compare value attribution in Private Equity against publicly listed companies. Gearing ratios, revenue growth and margin improvements are some of the variables that would help benchmark the industry's performance.

In chapter 4 the researcher noted the absence of intermediary cash flows such as divestures, dividends, acquisitions and revenue and EBITDA figures as a limitation to this study. With access to detailed portfolio company data, researchers will be able to produce comprehensive value attribution calculations that will give more realistic results. This study's results on financial leverage dependence were tainted by a series of debt boom and bust in the last decade. It would be insightful if the researcher could analyse the Private Equity trajectory for the past two decades. This would reveal realistic trends in the usage of debt and dependence on financial leverage levers.

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## CHAPTER 8 APPENDICES

### 8.1 Questionnaire

**QUESTIONNAIRE**  
**MBA Research Topic :-** An analysis of value creation in Private Equity portfolios

**1. GENERAL INFORMATION**

Data Requirement	Required=R	Responses
	Optional=O	
Name of the Private Equity Firm	R	
Contact Details	R	
Contact Person	R	
Name of Portfolio company	O	
Exit Year	R	

**2. PORTFOLIO COMPANY PERFORMANCE DATA**

Metric		Prior Year to Entry	Entry Year	Exit Year
Enterprise	Equity		-	-
	Debt		-	-
Revenue		-	-	-
EBITDA		-	-	-

### 8.2 Hypothesis 1- T-test

#### 8.2.1 Group statistics

Group Statistics					
	Exit year (2008)	N	Mean	Std. Deviation	Std. Error Mean
Leverage lever	1	8	61.98985%	51.731613%	18.289887%
	2	16	33.00214%	87.885796%	21.971449%

## 8.2.2 Independent samples test

Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Leverage lever	Equal variances assumed	1.429	.245	.401	28.987711%	33.868%	-41.251689%	99.227110%
	Equal variances not assumed			.322	28.987711%	28.587%	-30.431717%	88.407138%

## 8.3 Hypothesis 2a- T-test

### 8.3.1 Group statistics

Size classification (600m)		N	Mean	Std. Deviation	Std. Error Mean
EBITDA/ Margin lever	1	17	-14.38519%	78.139485%	18.951609%
	2	7	37.99460%	204.888713%	77.440654%

### 8.3.2 Independent samples test

Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
EBITDA/ Margin lever	Equal variances assumed	2.875	.104	.365	-52.3797%	56.60921%	-1.69701E2%	65.02052%
	Equal variances not assumed			.533	-52.3797%	79.72589%	-2.42488E2%	137.67923%



## 8.4 Hypothesis 2b

### 8.4.1 Group statistics

Size classification (600m)		N	Mean	Std. Deviation	Std. Error Mean
Revenue Growth lever	1	17	59.02025%	93.185883%	22.600896%
	2	7	45.62067%	108.771435%	41.111738%

### 8.4.2 Independent samples test

Independent Samples Test	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
Revenue Growth lever	.388	.540	.305	22	.763	13.399584%	43.8685%	-77.57%	104.377%	
			.286	9.838	.781	13.399584%	46.9146%	-91.36%	118.165%	

## 8.5 Hypothesis 3a

### 8.5.1 Group statistics

Group Statistics					
D/E (1.50)		N	Mean	Std. Deviation	Std. Error Mean
Revenue Growth lever	1	15	90.69997%	74.011170%	19.109602%
	2	9	-4.20118%	102.144615%	34.048205%

## 8.5.2 Independent samples test

Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Revenue Growth lever	Equal variances assumed	.892	.355	.015	94.901146%	35.974775%	20.294029%	169.508263%
	Equal variances not assumed			.030	94.901146%	39.044297%	10.610998%	179.191294%

## 8.6 Hypothesis 3b

### 8.6.1 Group statistics

Group Statistics						
		D/E (1.50)	N	Mean	Std. Deviation	Std. Error Mean
EBITDA Margin lever	1		15	-17.24202%	81.359045%	21.006815%
	2		9	31.11603%	179.355960%	59.785320%

### 8.6.2 Independent samples test

Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
EBITDA Margin lever	Equal variances assumed	1.579	.222	.373	-48.358049%	53.183016%	-1.586529E2%	61.936775%
	Equal variances not assumed			.463	-48.358049%	63.368531%	-1.895326E2%	92.816463%