Do large South African acquisitions result in post-acquisition improvements in cash flow returns?

by

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Declaration

I, Jaco Brink, hereby declare that the work in this dissertation is my own work and that to the best of my knowledge it contains no materials previously published or written by another person, or substantial proportions of material which have been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgment is made in this dissertation. Furthermore, any contribution made to the research by others is explicitly acknowledged in this dissertation. I also declare that the intellectual content of this dissertation is the product of my own work, except to the extent acknowledged.

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Abstract

The purpose of this study is to evaluate whether South African acquisitions result in success, with success measured as post-acquisition improvements in cash flow returns. The reason for this approach is the view that a firm's intrinsic value is coupled to its long-term cash-generating ability.

Post-acquisition change in cash flow returns for large acquisitions made by JSE-listed firms over the period 1995 – 2009 were analysed. Cash flow returns were measured as free cash flow to the firm over capital employed. This measurement of cash flow return is neutral to the firm's financing decision and capital structure, thus facilitating a comparison between different firms. Changes in annual cash flow returns were measured over the period covering five years preceding and five years following completion of acquisitions. The cash flow returns of the acquiring firms were compared to benchmark returns of firms in the same sector which did not undertake major acquisitions.

The study found in 22 of 24 tests that the benchmarked post-acquisition cash flow returns and EBITDA returns were not significantly different in relation to the benchmarked pre-acquisition returns. However, in two tests which adjusted for operating leases and used total returns over the pre-acquisition and post-acquisition periods, it was found that the difference in returns were significant.

The sample of eleven firms is relatively small and any inferences about South African acquisitions in general should therefore be approached with care. The divergence in results between the individual firms within the sample, as well as the outlined sensitivities of observed results lend further support for this cautionary approach.

Despite the limited number of acquisitions that occurred over the period, this study should contribute towards a better understanding of the overall value proposition of large South African acquisitions, as well as provide impetus for related future research.

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Chapter 1: Introduction

1.1 Background

In defining the term Mergers and Acquisitions Schertzinger (2008) distinguishes between mergers and acquisitions, with mergers defined as an amalgamation or joining of two or more firms into an existing firm or to form a new firm, and acquisitions as obtaining ownership and control by one firm, in whole or in part, of another firm or business entity. From this definition it follows that regardless of the corporate vehicles and structures used to achieve such consolidation of firms, mergers and acquisitions enable firms to grow in a way that differs from other (organic) methods of growth such as market share gains obtained through increased sales- and marketing efforts. In a modern economy where shareholders demand nothing less than continuous and sustained growth in corporate profits it stands to reason that corporate managements will inevitably turn to mergers and acquisitions as a source of supplementary growth on top of organic growth. It is therefore no surprise that mergers and acquisitions in pursuit of corporate growth is a prominent part of modern corporate finance strategy.

One might be forgiven for assuming that mergers and acquisitions should more often than not result in success given its prominence and prevalence within modern corporate finance theory and practice. This study will attempt to address such an assumption by means of an analysis of empirical data in order to confirm or dispel the accuracy of the assumption with a reasonable level of assurance. More specifically this study will consider, within the constraints of the population selected and the methodology applied, whether large South African acquisitions are actually resulting in success. In Chapters One and Two the term mergers and acquisitions will be construed to be a generalised term in line with the definition as outlined, referring to all activities in pursuit of consolidation of firms as envisaged. In Chapter Three a more specific definition of mergers and acquisitions in the context of the research methodology applied for this study will be outlined, and this narrowly defined definition will be applied throughout the rest of the study. "Success" is a broad term with different meanings to different stakeholders and will therefore also be narrowly defined in the context of this study.

It is deemed appropriate to lead up to the formulation of the primary research question to be addressed in this study with two preliminary considerations, being firstly an analysis of the occurrence and extent of mergers and acquisitions over time, and secondly a consideration of what is driving mergers and acquisitions.

A brief examination of these introductory considerations should provide sufficient background and context for the primary research question and its relevance.

1.2. Analysis of the occurrence and extent of mergers and acquisitions over time

Graph 1.2. provides data on global announced mergers and acquisitions deal value over the period 1980 to 2013, and is indicative of a long-term growth trend in global mergers and acquisitions activity.

Graph 1.2.: Global announced M&A deal value 1980 - 2013
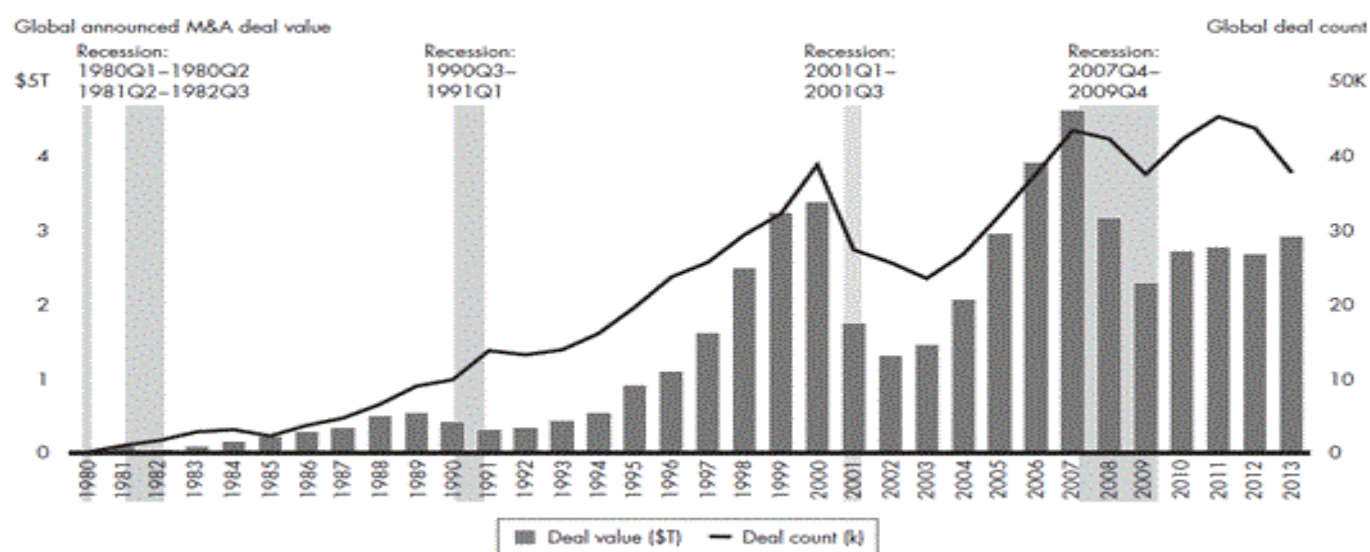
Source: Thomson Financial (until 2000); Dealogic (from 2000)

When measured by number of announced deals, there is a distinct upward trend in mergers and acquisitions activity levels over the period 1980 – 2013 on a global scale. In a 2007 study Kummer et al found a similar upward trend for United States (US) mergers and acquisitions activity (deemed a suitable proxy for global mergers and acquisitions trends for periods pre-dating more comprehensive data on a global scale) for the period 1887 – 1980.

An analysis by Thomson Reuters (Mergers and Acquisitions Review, Full Year 2014) of mergers and acquisitions for 2014 and by Mckinsey & Company for 2015 (M&A 2015: New highs, and a new tone) provides further context to the extent of mergers and acquisitions. Announced global mergers and acquisitions deals for 2014 amounted to US$ 3.5 trillion.

The value of global announced mergers and acquisitions deals increased by approximately 37% to US$4.8 trillion in 2015, resulting in a new high for global mergers and acquisitions activity.

When considering that the value associated with global deals is approximately thirteen times more than South Africa's entire GDP (US$ 366 billion as per the World Bank), the extent of global mergers and acquisitions activity can certainly be considered significant from a South African perspective. Even when considered in a global context, it is significant in extent, with the value of 2014 announced global mergers and acquisitions deals representing approximately 20% of US GDP and 5% of global GDP. Out of all these deals there were as much as 95 in total with values greater than US$ 5 billion. The advisory fees from completed transactions amounted to US$ 26.7 billion in 2014.

Announced mergers and acquisitions deals value for Sub-Saharan Africa represents approximately 1% of the global total. When considered against a backdrop of the Sub-Saharan African economy representing approximately 2% of world GDP (World Bank 2014 World Development Indicators updated 16 December 2014 & Wolfram Alpha GDP data), it would seem that the region is still lagging more developed markets in terms of mergers and acquisitions value relative to economic output. The reasons for this divergence fall outside the scope of this study, but will most probably include factors such as geopolitical instability, governance concerns and less-developed capital markets and financial institutions across the region. Significant strides in addressing these inhibiting factors have been made over recent times, and as developed market investors turn their focus to developing markets in search of growth more improvements are likely. In light of this, mergers and acquisitions although perhaps less relevant than in other markets when measured as percentage of total economic output, are nevertheless still relevant in a Sub-Saharan African (including South African) context and not just in a global context.

From observed historic waves and trends in mergers and acquisitions (Martynova and Renneboog, 2008) it can be surmised that in spite of the observed historic and expected future fluctuations in activity levels, an undisputed trend of long-term growth in mergers and acquisitions activity across time emerges and will most likely continue. It is also evident that vast amounts of resources are allocated towards mergers and acquisitions and that it is highly significant in extent when considered in the context of overall economic output.

A next logical consideration would surely be what is driving these increased and significant levels of mergers and acquisitions?

1.3. What is driving mergers and acquisitions?

Some of the drivers behind mergers and acquisitions with particular modern relevance include:

- Corporate executives often view mergers and acquisitions as a means of growing earnings when more conventional avenues for growth such as an increased market share acquired through marketing initiatives and new product development are deemed too risky, time-consuming or costly;

- Industry consolidations (especially in industries where economies of scale drive the ability to compete in market), where tie-ups between key players often serve as a catalyst for more tie-ups by competitors in an effort to remain competitive;

- Firms active in industries characterized by rapid technological advancements and disruptions (e.g. social media and biotechnology) often acquire targets with the aim of gaining access to proprietary- or revolutionary technology and skills;

- Firms acquire targets to gain access to lucrative and valuable intangible assets such as brands, customer loyalty and distribution channels;

- Access to downstream natural resources or supply chains integral to a firm's earnings generating ability is often the driver behind mergers and acquisitions;

- In an age of globalization where mature firms domiciled in slower-growing developed markets seek rapid entry into faster-growing developing markets, mergers and acquisitions are often the preferred route for achieving such cross-border market penetrations;

- Recent high-profile mergers and acquisitions deals involving mostly US firms acquiring targets in jurisdictions with more favourable tax regimes have exposed so-called tax inversion as a major driver for mergers and acquisitions in some jurisdictions;

- In a South African and developing market context, firms are often exposed to the fluctuation of a volatile developing market currency against developed market currencies of trading partners. Some firms are turning to mergers and acquisitions as a means to diversify its earnings base to include sizeable earnings in other currencies than that of its country of domicile, to effectively hedge against the negative impacts of currency volatility;

- Corporate executives supporting the notion that diversification of a corporate portfolio will be return-enhancing use mergers and acquisitions as a means of diversifying corporate earnings streams;

- Divestment aimed at optimising corporate portfolios represents the opposite end of the mergers and acquisitions spectrum from diversification;

- Activist shareholders in developed markets such as the US have in recent times become more pronounced in their critique of corporate managements overseeing balance sheets with perceived excess cash reserves, and have often demanded that excess cash be returned to shareholders. In some cases management might opt to rather utilise this excess cash towards mergers and acquisitions activity than returning it to shareholders (Annema, Bansal and West, 2015);

- Management hubris towards the end of observed takeover waves sometimes point toward mergers and acquisitions grounded in ill-advised behaviour rather than sound commercial principles (Martynova and Renneboog, 2008); and

- Given the significant extent of annual mergers and acquisitions advisory fees as outlined earlier, advisory firms will surely play some part in stimulating and sustaining deal flow.

Consideration of these drivers behind mergers and acquisitions certainly lends support to the notion that a strong argument could be made in theoretical support of mergers and acquisitions. Stated differently, most of the drivers as outlined should at the very least provide sound theoretical substance for mergers and acquisitions, before considering any practical constraints and challenges in argument against mergers and acquisitions. It is accepted that there are most certainly constraints and challenges in argument against mergers and acquisitions, and that merit is afforded to those advocating such constraints and challenges by observations of mergers and acquisition failure.

Having established that mergers and acquisitions are significant in extent and have increased over time, and is supported by fairly sound theoretical underlying drivers, the focus of the study can now shift to determining ultimately how successful mergers and acquisitions are.

1.4. Are mergers and acquisitions resulting in success?

Given the significant resources directed toward mergers and acquisitions on an increasing scale over time, it would be expected that mergers and acquisitions are associated with a high probability of success.

One might also be forgiven for expecting mergers and acquisitions success rates to have increased over time as past lessons learnt are applied towards improved mergers and acquisitions execution.

Such an assumption is cast into doubt by an assertion by Alton, Christensen, Rising and Waldeck (2011) that companies annually spend $2 trillion on mergers and acquisitions and yet there is still an overall failure rate of between 70% and 90%. Even though this assertion is very broad without providing detail and context about the specific data analysed and exactly what constitutes mergers and acquisitions failure, it provides support for questioning whether mergers and acquisitions are resulting in success.

This study will aim to address long-term merger and acquisitions success rates as opposed to short term measures of success. Having said that, due consideration will also be given to prior studies on the short term success rates for mergers and acquisitions in order to provide overall context.

The definition of success will differ amongst different stakeholders within the ambit of mergers and acquisitions activity. For the purpose of this study the relevant stakeholders will be deemed to be only shareholders. Other stakeholders who will be impacted by the success or failure of mergers and acquisitions include management, employees, suppliers of goods and services, suppliers of non-equity funding and governing authorities. Seeing as shareholders ultimately must approve any mergers and acquisitions deals and for the most part stand to gain or lose the most from the eventual outcome, success will be defined from their perspective, without any further consideration as to how success will be construed by other stakeholders.

For shareholders mergers and acquisitions success is most often measured with reference to equity returns (combination of share price movements, dividends and share buy-backs). For equity returns the question as to an appropriate evaluation period arises, depending on a shareholder's investment time horizon. Distinction between shareholders can also be made depending on which side of a deal (i.e. acquisition- or target firm shareholder) a shareholder is on.

Christofferson, McNish and Sias (2004) observed that on average acquiring firms pay target firm shareholders all of the value generated by a merger or acquisition in the form of premiums ranging on average between 10% and 35% of the target firm's preannouncement market value.

Such an observation points to the fact that different parties to mergers and acquisitions transactions (i.e. acquiring firm shareholders and target firm shareholders) might have very different views of success, and as such it would be necessary to distinguish between acquiring firms and target firms when evaluating success.

A question that needs to be considered is whether gains for target firm shareholders should be deemed as proof of success in the case of acquisitions driven by acquiring firms' managements and boards. Managements and corporate boards are the custodians of shareholders' capital, and they are ultimately responsible for ensuring optimal returns on this capital. In light of this responsibility any acquisitions should be aimed at maximising return on capital for existing shareholders. Surely there is no responsibility towards the shareholders of target firms other than to act in an ethical and responsible manner when conducting negotiations and conclusion of an acquisition transaction. It is therefore the view in this study that any positive returns for target firm shareholders are merely incidental (or perhaps even to the detriment of acquiring firm shareholders) and should not be construed as success in the case of acquisitions. Stated differently, managements and boards of acquiring firms should pursue mergers and acquisitions transactions in an effort to maximise returns for their own existing shareholders and such success should only be measured with reference to returns for these acquiring firm shareholders.

Numerous prior studies into mergers and acquisitions success focus on short term (equity) returns. Most of these studies conclude that target firm shareholders earn positive short term returns from mergers and acquisitions, with returns for acquiring firm shareholders being return neutral at best (Martynova and Renneboog, 2008). Most studies on long-term equity returns indicate negative returns for both acquiring and target firm shareholders.

Equity returns are ultimately dependent on a firm's operating performance over time. Sustained positive operating performance will determine the extent to which a firm is able to generate the cash flows necessary to reinvest for future growth and to fund dividend payments and share buybacks. These cash flows should ultimately have an impact on the market's perceived intrinsic valuation of a firm and its resultant market capitalisation, although it might take time for the market to accurately reflect the impact of cash flows in intrinsic value. Such a view is supported by Malkiel (2003) in a study on the efficient market hypothesis when he states that "As long as stock markets exist, the collective judgment of investors will sometimes make mistakes. Pricing irregularities and even predictable patterns in stock returns can appear over time and even persist for short periods.

Moreover, the market cannot be perfectly efficient, or there would be no incentive for professionals to uncover the information that gets so quickly reflected in market prices."

Healy, Palepy and Ruback (1992) observed that short-term equity returns (measured around the announcement of mergers and acquisitions transactions) often merely reflect the market's initial verdict as to whether an announced transaction constitutes an efficient allocation of capital which will generate sufficient long-term returns on capital employed, as opposed to sustained, long-term changes in observed operating performance following a transaction which will provide more concrete evidence as to the efficient allocation of capital or not.

The market's estimation of the intrinsic value of a firm at any given time might be clouded by several factors, including market inefficiencies and a general downturn in equity market valuations based on the residing macro environment at the time. These could result in significant disparities between a firm's true long-term intrinsic value and the perceived intrinsic value afforded to it by the market at any given time, as was most probably envisaged by Benjamin Graham when he said that "It is a great mistake to imagine that intrinsic value is as definite and as determinable as the market price" (Security Analysis, 1940). For this reason the measurement of equity returns (both short term and long term) as a gauge of mergers and acquisitions success might not provide a true reflection of the level of success.

During periods of general decline in equity markets, share price performance is impacted adversely by factors other than just a firm's cash-generating ability. Stated differently, a firm with healthy cash-generating abilities might be viewed in the same negative light as less healthy firms by the market during market downturns, with such a negative perception resulting in a market valuation which is less than the firm's true intrinsic value. In the same way the market might be affording a firm a value in excess of its true intrinsic value due to market exuberance. Using equity returns during such periods of downturn or exuberance to determine mergers and acquisitions success might result in inaccurate conclusions.

1.5. Research question

This study will be grounded in the premise that a firm's intrinsic value is coupled to its long-term free cash flow-generating ability, and that the market should over the long term ultimately catch on to a superior free cash flow-generating ability and intrinsic value and reward it with a superior market valuation.

A firm's cash-generating ability is coupled to its operating performance. Assuming efficient capital management, a sustained superior operating performance will ultimately result in a sustained superior cash-generating ability.

The primary research question to be addressed in this study will be whether large South African acquisitions result in long-term success for acquiring firm shareholders. Long-term success will be measured as changes in post-acquisition operating performance, with specific reference to cash flow performance. Relative performance in relation to sectorial performance will be measured rather than absolute performance. Success will be considered solely from the perspective of acquiring firm shareholders, and not inclusive of target firm shareholders.

Christofferson, McNish and Sias (2004) observed that on average acquiring firms overestimate the synergies that would result from mergers and acquisitions. This observation provides relevance and context to the question of whether post-acquisition cash flow performance improves. Improvements in post-acquisition cash flow performance would be in contrast to such an observation that synergies are overestimated, whereas a decrease in post-acquisition cash flow performance would support such an observation.

Free cash flow to firm, calculated as a return on capital employed, will be used as measure of operating cash flow performance. Free cash flow to firm will be calculated as:

	Cash flow from operating activities
+	Finance charges
-	Investment income
-	Capital expenditure
=	Free cash flow to firm

This calculation of free cash flow is similar to Damodaran's (2006) definition of free cash flow to firm being the cash flows before debt payments and after the reinvestment needs of a firm. The use of free cash flow to firm as opposed to pure operating cash flow is deemed appropriate, seeing as this measure of cash flow is neutral to the firm's financing decision and capital structure. This enables a comparison between different firms with different capital structures.

Another reason why free cash flow to firm is deemed the most appropriate measure to use is that it includes cash flows relating to capital expenditure, whereas operating cash flow does not. Capital expenditure impacts the fixed asset capital base used by non-financial firms to generate cash flows (i.e. returns) and could materially impact on the current and future cash-generating ability of a firm. Failure to consider the extent of capital expenditure could therefore result in inaccurate conclusions when comparing the cash flow returns of different firms. Additional relevance is given to the consideration of capital expenditure by the fact that often one of the motivations for acquisitions is synergies from rationalising similar or overlapping fixed asset footprints to ensure a higher and thus more profitable capacity utilisation.

Capital employed will be calculated as:

	Total assets (excluding cash reserves)
-	Non-interest bearing liabilities
=	Capital employed

Given the stated intent to address the long-term success rates of South African acquisitions (as opposed to short-term success) the success of acquisitions will be measured with reference to the change in free cash flow return on capital employed for the five years following completion of an acquisition, from the free cash flow return on capital employed for the five years preceding completion of an acquisition.

Some limitations are presented by the chosen approach and should be considered and addressed. The first of these limitations is that the free cash flow returns generated by acquiring firms will be impacted by external macro factors as well as by the acquisitions made by these firms. In order to address the primary research question for this study, it is necessary to isolate the impact of the contribution of acquisitions to the post-acquisition free cash flow returns of acquiring firms from the impact of external macro factors on these returns. In order to achieve this isolation the free cash flow returns of acquiring firms will be adjusted with benchmark free cash flow returns in order to arrive at benchmark-adjusted free cash flow returns, which should to a large extent isolate the contribution of acquisitions to the post-acquisition free cash flow returns. Benchmark selection could have a material impact on overall results, and for this reason due consideration will be given to benchmark selection and to whether results and conclusions change materially when using different benchmark selections.

A second limitation is presented by the chosen way to calculate capital employed by using the accounting book values of assets (as opposed to perhaps the market value of equity and net debt). The use of different accounting methods as allowed for by accounting standards, or a difference in interpretation of these standards by different firms could potentially distort comparison between the fixed assets of different firms. Differences in the general state and age of the fixed assets of different firms could also present challenges when comparing different firms. The use of operating leases as a method of effective off-balance sheet financing is another challenge when comparing the fixed assets of different firms. In order to address these limitations, adjustments to the data used for calculating free cash flow returns will be made for relative levels of capital expenditure and the use of operating leases.

The rest of this paper will be structured in the following manner:

- In Chapter Two a literature review of past research with relevance to this study will be considered. The results of the literature review will lend context and relevance to the research question and the research methodology applied.
- Chapter Three will address the research methodology to be applied. Consideration will be given to the merits of different potential methodologies before explaining the reasons for selecting the specific research methodology to be applied.
- Chapter Four will be dedicated to an explanation and layout of the data used.
- In Chapter Five the results of the data dissemination and analysis will be discussed.
- A conclusion and summary of findings will be discussed in Chapter Six.

Chapter 2: Literature Review

2.1. Introduction

A review of prior studies on mergers and acquisitions will be structured in line with the approach as outlined in Chapter One, where two preliminary considerations will first be addressed before moving on to the primary research question. A brief examination of these two introductory questions, namely an analysis of the occurrence and extent of mergers and acquisitions over time and the drivers behind mergers and acquisitions, should provide sufficient background and context for the primary research question and its relevance.

2.2. Analysis of the occurrence and extent of mergers and acquisitions over time

Faulkner, Joseph and Teerikangas (2012) define merger and acquisition waves as periods of intense merger and acquisition activity, with "intense" alluding to an initial dramatic increase in the number of executed deals relative to the prior period, with a subsequent decrease in activity to pre-wave levels.

Martynova and Renneboog (2008) analysed predominately US and UK corporate acquisitions over the period 1890 – 2007 and identified six distinctive takeover waves over this period. They found that although each wave was quite different to the next in terms of its underlying motives and outcomes, some clear similarities across all of these waves emerge:

- All waves were preceded by significant industrial or technological shocks, of which prime examples were technological and financial innovations, the oil supply crisis of the 1970's, large-scale deregulation and globalization;
- All waves occurred during periods of economic recovery following periods of severely subdued overall market conditions;
- These periods of economic recovery were without fail characterized by periods of accelerated credit expansion and surging equity markets; and
- The end of all of these waves culminated with a severe collapse in equity markets.

From the study of these waves a clear correlation between the occurrence of mergers and acquisitions and the economic cycle emerges. The relevance of this is that external macro factors will clearly impact on the post-acquisition free cash flow returns of acquiring firms in a significant manner.

For this reason the contribution of acquisitions to the post-acquisition free cash flow returns of acquiring firms will have to be isolated from the contribution of external macro factors in an effective manner in order to ensure the integrity of the results and conclusions of this study.

From the observed historic waves and trends in mergers and acquisitions activity levels it can be surmised that in spite of the observed historic and expected future fluctuations in activity levels, an undisputed trend of long term growth in mergers and acquisitions activity across time emerges and will most likely continue. This observation provides overall relevance to this study. Given the expected significant allocation of resources towards mergers and acquisitions into the future, it is deemed a relevant area of research.

2.3. What is driving mergers and acquisitions?

As observed by Martynova and Renneboog (2008) there are certain macro-economic factors (industrial or technological shocks, periods of economic recovery, accelerated credit expansion and surging equity markets) resulting in fertile ground for mergers and acquisitions. These factors act as enablers for an environment conducive to a significant level of mergers and acquisitions activity, in which underlying drivers support the prevalence of mergers and acquisitions.

Activist shareholders in developed markets such as the US have in recent times become more pronounced in their critique of corporate managements overseeing balance sheets with perceived excess cash reserves, and have often demanded that such excess cash reserves be returned to shareholders. In some cases managements might opt to rather utilise these excess cash reserves toward mergers and acquisitions activity than returning it to shareholders, as is suggested by an analysis of large deal announcements in the US for 2014 (Annema, Bansal and West, 2015). Excess cash among the top 1,000 U.S. companies approached $1.5 trillion by the end of 2013. It was found that half of these excess cash reserves resided in the healthcare and technology, media and telecommunications sectors, which were also the sectors that dominated large deal announcements during 2014.

Martynova and Renneboog (2008) observed herding behaviour amongst managers towards the end of acquisition waves, and suggested that mergers and acquisitions during these periods are often driven by non-rational and self-interested managerial decision-making, which ultimately results in deals that are grounded in ill-advised behaviour rather than sound commercial principles.

2.4. Are mergers and acquisitions resulting in success?

Given fluctuations in economic activity and output levels over different decades as well as the growing importance of emerging markets in the context of global economic output, the literature review relating to mergers and acquisitions success rates will be structured in a chronological order and in a manner so as to include studies relating to both developed and emerging markets. Studies with an exclusive South African focus and relevance will be discussed separately from those relating to international markets.

Prior studies on the success rates for mergers and acquisitions focus on equity returns, operating performance changes or both. As outlined in Chapter One, this study will focus on mergers and acquisitions success rates with a specific reference to operating performance. For this reason the literature review relating to mergers and acquisitions success rates will focus predominantly on operating performance. Some consideration will however firstly be given to studies on equity returns, seeing as this should provide further context and relevance to the research question addressed in this study.

2.5. Equity returns

Martynova and Renneboog (2008) analysed sixty-five studies covering mergers and acquisitions transactions over all the observed mergers and acquisitions waves as previously outlined in an effort to determine the quantum of shareholder returns (equity returns) around the announcement of deals (short term). The analysis is limited to the extent that it excludes deals that were announced but not completed, as well as financial-institution and cross-border deals, and by the fact that the studies included focussed predominately on US and UK mergers and acquisitions activity.

Given the significance of these markets in an overall global context the study is deemed useful to infer about mergers and acquisitions success rates from a shareholder perspective in spite of the stated limitations. Shareholder returns are measured with reference to abnormal equity returns, which in turn are defined as the differences between realised returns and appropriate benchmark returns. It was found that the short-term abnormal equity returns (as measured over varying periods ranging from one to forty days around the announcement of deals) for target firm shareholders are positive and have been increasing over takeover waves.

In contrast to the fortunes of target firm shareholders, it was found that short term equity returns for acquiring firm shareholders are statistically insignificant (i.e. close to zero) and do not differ across takeover waves.

Combining target firm and acquiring firm equity returns to arrive at total equity returns then logically results in net positive short term abnormal equity returns.

Building on the analysis of studies on the short term equity returns emanating from mergers and acquisitions, Martynova and Rennneboog (2008) considered fourty-two studies into longer term equity returns (examining varying periods of up to five years after the completion of transactions) , and ultimately concluded that the literature points to negative long term returns, while acknowledging that the results of these studies might be tainted by an inability to isolate the impact of mergers and acquisitions on returns from other factors as more time had lapsed since the merger and acquisitions events. The studies analysed by Martynova and Renneboog focussed predominately on mergers and acquisitions activity in the US and UK over all the observed takeover waves and considered studies up to and including 2007.

Bassen, Schiereck and Wuben (2010) studied the short term equity returns for acquiring firm shareholders with a specific reference to acquisitions of US firms by German firms over the period 1990 to 2004. Equity returns were measured as cumulative abnormal returns (CARs) over an event period covering twenty days before and twenty days after the announcement of acquisitions. CARs were calculated as the difference between the actual equity returns (inclusive of dividends) and expected returns determined with reference to an equally weighted market portfolio. They found positive returns for acquiring firm shareholders over the days immediately preceding and following the announcement of acquisitions, but found that for the event window covering the twenty days before and the twenty days after announcement of acquisitions the returns for acquiring firm shareholders were negative.

In a study of mergers and acquisitions involving European Union member countries, Craninckx and Huyghebaert (2011) analysed mergers and acquisitions involving the enlarged European Union (EU27) member countries completed over the period 1997 to 2006. The primary objective of the study was to analyse insufficient equity returns and decreases in operating performance as proxies for failure of mergers and acquisitions. Financial firms were excluded from the sample due to different financial standards applicable to financial firms than to non-financial firms. Fundamental differences in these financial standards could present challenges to comparing the financial results of financial firms with those of non-financial firms. Acquiring firms had to obtain more than 50% of the share capital of the target firms to be included in the sample.

Equity returns were measured as CARs in the same manner as applied by Bassen et al (2010) over an event period covering two days after the announcement of an acquisition and up to two years following the completion of the acquisition. It was found that for more than 50% of the acquisitions CARs were negative over the event period covering two years after the completion of the acquisition.

Datta, Kodwani and Viney (2013) analysed acquisitions by listed European utilities sector constituent firms over the period 1990 to 2006. The utilities sector was defined as inclusive of electricity, gas, water and telecommunications. An acquirer had to acquire more than 50% of the share capital of the target firm for inclusion in the sample. Both short term and long term equity returns were measured. Equity returns were measured as cumulative abnormal returns (CARs) over an event period ranging from five days before to three years after the announcement of acquisitions. CARs were calculated as the difference between actual equity returns (inclusive of dividends) and expected returns determined with reference to an equally weighted market portfolio. Datta et al (2013) found that short term CARs (over event periods covering the five days before and after the announcement of acquisitions) were mostly negative and not statistically significant for acquiring firm shareholders, in contrast to target firm shareholders who realised mostly positive and statistically significant CARs. It was found that long term CARs (over event periods covering five days before and three years after the announcement of acquisitions) were negative for both acquiring and target firm shareholders, although not statistically significant.

2.6. Operating performance

In a seminal study of changes to operating performance following mergers and acquisitions Healy, Palepy and Ruback (1992) advocated for and conducted such a study in light of the perceived inability of share price performance studies to determine whether mergers and acquisitions result in real economic gains. They analysed the fifty largest mergers involving US industrial firms between January 1979 and June 1994.

Pre-tax operating cash flow returns on assets were used as a measurement of post-merger changes in operating performance, with assets defined in the context of the study as the sum of the market value of common equity and the book values of net debt and preference share capital. Earnings before interest, tax, depreciation and amortisation (EBITDA) was used as a measure of pre-tax operating cash flow.

Healy et al (1992) argued in favour of the use of a cash flow measure based on the belief that cash flows represent the actual benefits generated by assets, as opposed to earnings based measures which might differ materially from cash flows. Such an approach is theoretically sound, although it should be noted that EBITDA has some limitations as a cash flow measure, seeing as changes in working capital and capital expenditure are not included in EBITDA. The exclusion of tax paid in the calculation of EBITDA is perhaps also reason for concern. Investors would surely be interested in after-tax returns when evaluating cash flows.

The pre-merger operating cash flows (measured as EBITDA) for acquirer and target firms being parties to a transaction were aggregated on a pro forma basis and used as a base for measuring post-merger changes in operating cash flows. The pre-merger operating cash flows were measured for the five years preceding the merger, with post-merger operating cash flows measured for the five years following the merger (excluding the year in which the merger occurred in order to exclude non-recurring merger related expenses which might distort post-merger earnings if not adjusted for).

In order to control for the fact that a portion of any post-transaction change in operating cash flow performance would in all likelihood be the result of factors other than those relating directly to the transaction (such as macro-economic variables or a continuation of firm-specific pre-merger performance) an industry-adjusted operating cash flow return was used as the primary benchmark for evaluating the post-merger performance. This industry-adjusted operating cash flow return was calculated by subtracting from each sample firm operating cash flow return the median industry operating cash flow return. The operating cash flow returns of sample firms were excluded from the relevant industry benchmarks of which they were constituents.

Healy et al (1992) calculated the return for each year as EBITDA for the particular year divided by asset value as defined at the beginning of the year. All changes in share values which occurred during the five days preceding the announcement of the transaction and ending five days after the target firm was delisted from trading on public exchanges were excluded from the asset values used in the return measurement. This adjustment was based on the premise that share price movements following merger announcements represent the capitalised value of expected post-merger performance improvements, and that inclusion of such capitalised values in the asset base would result in understating improvements in cash flow performance as measured.

Healy et al (1992) compared the median returns for the pre-transaction period to the median returns for the post-transaction period in order to determine the post-transaction change in returns. Significant improvements in post-transaction returns were observed. The use of median returns as opposed to total returns by Healy et al (1992) should be considered. Arguments in favour of and against the use of median values could be made, depending on the user of the information. The median return over a five year period might be a better indication of volatility and associated risk than total return for some investors. Some investors will be more interested in volatility and risk, compared to other investors who might be more concerned with total returns. As an extension of the EBITDA return measurement, Healy et al (1992) decomposed the return into cash flow margin and asset turnover. It was found that the observed improvements in post-merger returns were driven to a large extent by improved asset turnover rather than improved cash flow margins. Given the fact that the sample studied consisted only of industrial firms, it must be assumed that the asset bases of these firms consisted in large part of tangible assets (i.e. plant and equipment) utilised towards the production of goods and services. Improved asset turnover in the aftermath of these transactions could then probably suggest that a common denominator between these transactions could have been synergies derived from the rationalisation and more efficient utilisation of similar asset bases.

In a follow-up study Healy et al (1997) revisited the original study and sample from the 1992 paper, and subsequently concluded that the additional post-merger operating cash flow attributable to acquiring firm shareholders was merely enough to recover the premium paid for the target firm, implying that anticipated operating cash flow improvements were factored into the price paid and in doing so diminishing the future returns for acquiring shareholders. This finding is similar to that of numerous studies that observed that target firm shareholders typically stand to gain most from mergers and acquisitions transactions, with acquiring firm shareholders having less success.

Linn and Switzer (2001) applied the same methodology as Healy et al (1992) did to a sample of US merger transactions concluded over the period 1967 – 1987 to measure the changes in post-merger operating cash flow performance. They also used earnings before interest, tax, depreciation and amortisation (EBITDA) as cash flow measure. They argued for the use of EBITDA as a return measure as opposed to an earnings based return measure such as net income because of the fact that earnings measures (i.e. net income) might be influenced by the method of financing of a merger or acquisition (cash / debt / equity), whereas EBITDA is neutral to the choice of financing. This neutrality to the choice of financing ensures comparability across firms with different capital structures.

The focus of their study differed from that of Healy et al (1992) in that it was aimed at determining whether observed changes in post-merger cash flow performance differed depending on the method of payment used by the acquiring firm (cash only vs. share offer). Linn and Switzer (2001) concluded that for the sample of transactions studied there were positive improvements in post-merger cash flow performance which were significantly different from zero. When dividing the sample based on the method of payment (cash offers compared to share offers), it was found that for cash only offers the improvements were significantly higher than for share offers. Although not within the scope of this study, it is interesting to note the perceived reason for cash offers outperforming share offers. Linn and Switzer (2001) held forward the view that the outperformance of share offers by cash offers is consistent with the view that if acquiring firms use cash to deter competing bids for a target firm when they possess favourable non-public information regarding potential synergies, those synergies would be larger than would otherwise be the case, and the likelihood of the use of a cash offer over a share offer increases.

Ghosh (2001) raised the question of potential pre-merger performance bias detracting from the merits of previous studies indicating improvements in post-merger operating performance. Ghosh (2001) proposed that often acquiring firms are larger than industry peers and that they undertake acquisitions following periods of superior performance relative to industry peers, thereby setting themselves up for a continued degree of outperformance relative to industry peers during periods following merger transactions.

In an effort to control for such a perceived bias, Ghosh (2001) first replicated the methodology applied by Healy et al (1992) on a sample of US merger transactions concluded over the period 1981 – 1995 to measure the changes in post-merger operating performance. Operating performance was calculated as earnings before interest, tax, depreciation and amortisation (EBITDA) over assets. Assets were calculated as the market value of equity plus the book value of preference share capital and debt net of cash. For the sample studied Ghosh (2001) reached the same conclusion as Healy et al (1992) that there were improvements in post-merger operating performance that were significantly different from zero.

Subsequently Ghosh (2001) changed the methodology to use as benchmark matched firms, rather than industry peers. For every merger transaction in the sample pairs of matched firms were identified based on relative size and performance. Matched firms were selected from firms within the respective industries of the acquiring and target firms with total asset values between 25% and 200% of those of the acquiring and target firms.

Firms within this selection with operating cash flows closest to that of the acquiring and target firms one year prior to the merger transaction were selected as the matched firms, and pro-forma pre- and post-merger operating cash flow returns were constructed for these firms. When using the matched firms as benchmark Ghosh (2001) concluded that there was no evidence of significant improvements in post-merger operating performance, supporting the view that results from prior studies would be biased if on average merging firms outperformed industry peers in the years preceding merger transactions.

Ghosh (2001) went on to point out another potential weakness in the methodology applied by Healy et al (1992) and others. With reference to a study by Agrawal and Mandeljer (1992) it was stated that observed market evidence indicates systematic equity market value declines for acquiring firms over three to five years following merger transactions. If such an observation was to hold, it would mean that post-merger operating cash flow performance as measured by Healy et al (1992) and similar studies could potentially improve without any improvement in operating cash flow, merely due to a decrease in the denominator used in the performance measurement equation. The denominator used by these studies is calculated as the market value of equity plus the book value of preference share capital and debt net of cash. If the market value of equity was to decrease with no change in the book value of preference share capital and debt net of cash, the resultant decrease in the denominator with no change in the numerator would result in an increased return measure. For the sake of comparability with the results of Healy et al (1992), Gosh (2001) did however not control or adjust for this observed phenomenon.

Powell and Stark (2005) studied a sample of acquisitions made by UK industrial firms over the period 1985 – 1993 in an effort to determine whether cash flow returns for firms involved in takeovers improved post-takeover. Powell and Stark (2005) shared Gosh's (2001) view regarding potential bias due to pre-merger outperformance by acquiring firms.

Powell and Stark (2005) applied two different measures of cash flow , with the first measure being earnings before interest, tax, depreciation and amortisation (EBITDA) adjusted for changes in working capital (referred to as a "pure" cash flow measure) and the second being simply EBITDA (i.e. without adjusting for changes in working capital).These cash flow measures were used as numerators in conjunction with several different denominators to measure operating performance, being the market value of equity plus the book value of preference share capital and debt net of cash (referred to as total market value), adjusted total market value (adjusted for market reaction to takeover), book value of assets and sales.

Industry-adjusted and industry, size and pre-performance adjusted benchmarks were used as relative measures of improvement in operating performance as measured.

Two benchmarks were used by Powell and Stark (2005). The first benchmark used was the industry median operating performance. For the second benchmark firms matched on industry, size and pre-operating performance characteristics were used. A firm size filter of between 25% and 200% of target and acquirer firm size measured one year prior to the acquisition was applied. From this list of potential matched firms, firms with the closest operating performance to the target and the acquirer, measured one year prior to takeover, were selected as appropriate benchmarks (similar approach to Ghosh (2001)).

Powell and Stark (2005) ultimately concluded that the different benchmarks and operating performance measures applied in the study on the whole supported the conclusion that UK acquisitions during the period 1985 – 1993 resulted in modest improvements in operating performance.

Yen and Paul (2007) applied a very similar methodology to those already outlined. They studied a sample of acquisitions completed over the period 1997 – 2001 by acquiring firms domiciled in English-origin countries (excluding the United States). An operating performance measure of earnings before interest, tax, depreciation and amortisation (EBITDA) over market value of assets was employed, with the post-acquisition change in operating performance measured as the change in operating performance for the acquiring firm for the three years following an acquisition from the pro forma aggregated operating performance of the acquiring and target firms for the three years preceding the acquisition. They observed post-acquisition improvements in operating performance that were significantly different from zero.

Hassam, Patro and Tuckman (2007) also applied a very similar methodology to those already outlined, but with a specific reference to mergers and acquisitions transactions involving firms in the United States pharmaceutical industry. They studied a sample of transactions completed over the period 1981 – 2004. Operating performance was measured in a similar fashion to Yen et al (2007) and other similar studies as already outlined, with similar adjustments for industry returns to arrive at an industry-adjusted return measure. The returns were measured for the five years preceding and the five years following completion of the mergers and acquisitions transactions.

Hassam et al (2007) made a clear distinction between transactions classified as mergers and transactions classified as acquisitions in their measurement of post-transaction changes in operating performance. Specific reference is not made to the exact definitions applied to classify a transaction as either a merger or acquisition. They observed significant increases in post-acquisition operating performance for acquisitions, in contrast to no significant change in operating performance for mergers.

In a study into the post-acquisition performance of US utilities firms acquiring US listed firms Dube, Francis-Gladney, Langdon and Romero (2007) analysed acquisitions over the period 1996 to 2002. Only transactions where acquirers did not make more than one acquisition over a consecutive three year period were included in the sample, with the stated reason for this being to avoid any cross sectional correlations. Operating performance was measured as earnings before interest, tax, depreciation and amortisation (EBITDA) over net sales. Using net sales as the denominator in the return measurement has its limitations, seeing as this measure of operating performance will not include the capital employed in order to generate a cash return, and as such cannot be an accurate reflection of the extent and relative quality of cash returns earned. Dube et al (2007) admits as much in acknowledging that the use of operating assets as denominator in the operating performance measurement would have been a more appropriate approach, but a purported difficulty in obtaining the true value of underlying assets was held forward as the reason for rather using net sales as the denominator. The mean industry operating performance (with reference to a chosen benchmark) was deducted from firm operating performance to arrive at an industry-adjusted operating performance. Post-transaction change in operating performance was measured as the mean quarterly operating performance over the two years following completion of the transaction less the mean quarterly operating performance over the two years preceding the transaction.   No significant post-transaction changes in operating performance were observed.

Lau, Proimos and Wright (2008) studied post-acquisition changes in operating performance for a sample of Australian transactions completed over the period 1999 – 2004. They measured post-acquisition change in operating performance as the change in operating cash flow over total assets for the acquiring firm over the three years following completion of the transaction from the pro forma aggregated returns for the firms involved for the two years preceding the transaction. They observed post-acquisition improvements in operating cash flow returns.

Martynova and Renneboog (2008) analysed 26 prior studies covering predominately US and UK mergers and acquisitions transactions over all of the observed acquisition waves.

These studies observed changes in operating performance over periods of up to five years after mergers and acquisitions transactions. They found that the studies reporting a decline in operating performance employed earnings based measures, as opposed to studies indicating improved operating performance employing cash flow performance measures. Out of the 26 studies, 14 found that there were post-merger declines in operating performance, 7 found insignificant changes and 5 found significant increases in operating performance.

Different earnings based measures and cash flow measures used in these studies include:

Earnings based measures	Cash flow measures
Return on equity	Cash flow over assets
Return on assets	Cash flow over book value
Total assets growth rate	Cash flow over market value
Asset turnover	Expected cash flow
Return on sales	Operating cash flow returns
Sales growth rate	Cash flow margin
Employment growth rate	
Market share	
EBITDA margin	
Employees to sales	
Earnings per share	

In a study focussed on banks, Ismail, Davidson and Frank (2009) studied the post-merger performance of European banks in order to determine whether any post-merger improvement in operating performance occurred. Their sample included transactions from the banking industries in the EU, Switzerland and Norway that were completed over the period 1992 to 1997. To be included in the sample transactions had to be between acquiring and target banks that were publicly listed banks, and where the acquirer obtained 50% or more of the share capital of the target bank. The selection criteria was refined further by stipulating that to qualify for inclusion neither the acquirer nor the target banks should have been involved in any mergers and acquisitions transactions during the two years preceding the acquisition, and also that the acquiring banks should not have concluded any other acquisitions during the three years following the acquisition.

The reason for such a narrow selection criteria was to prevent data contamination by analysing data which might include results from more than one acquisition which were at different stages of the post-acquisition integration cycle.

Operating performance was measured by expressing pre-tax operating cash flow as a return on the market value of assets. Earnings before interest, tax, depreciation and amortisation (EBITDA) was used as a proxy for pre-tax operating cash flow, with the market value of assets calculated as the sum of the market value of equity, the book value of preference share capital and the book value of debt less cash. Post-merger change in operating performance was measured as the change in EBITDA return for the acquiring banks over the three years following the acquisition from the pro-forma aggregated EBITDA return for the acquiring and target banks over the two years preceding the acquisition. These returns were adjusted with the average industry returns over the periods measured in order to arrive at an industry-adjusted return measure. It was found that no significant post-merger changes in operating performance occurred.

Becalli and Frantz (2009) also studied the post-merger performance of European banks. The most important difference to the study performed by Ismail et al (2009) relates to a wider geographical inclusion of sample banks and less stringent selection criteria. In contrast to Ismail et al (2009), Becalli and Frantz included transactions in their sample where only the acquiring banks had to be European banks, with target banks allowed to be domiciled anywhere in the world. Transactions completed during the period 1995 – 2005 were included. None of the other narrowly-defined selection criteria as employed by Ismail et al (2009) were employed.

Operating performance was measured as cash flow from operations expressed as a return on the market value of equity. Change in post-merger operating performance was measured as the change in operating performance for the five years following the completion of the transaction (excluding the year during which the transaction was completed) from the pro-forma aggregated operating performance for the six years preceding the transaction. In similar fashion to Ismail et al (2009) operating performance was adjusted for the average industry performance to arrive at an industry-adjusted return measure. In contrast to the findings of Ismail et al (2009) which indicated no significant change in post-merger operating performance, a slight deterioration in post-merger operating performance was observed.

Papadakis and Thanos (2010) analysed the post-acquisition performance of acquiring Greek firms which completed domestic acquisitions over the period 1997 – 2003. Mergers were excluded from the analysis.

Only acquisitions where more than 50% of the share capital of the target firms was obtained were included in the analysis.

They applied an accounting measure of return on assets to measure the change in operating performance. This use of an earnings base measure is in contrast with several other studies which used cash flow measures. This needs to be considered when comparing the results with those of other similar studies. In similar fashion to other studies Papadakis and Thanos (2010) also adjusted the observed operating performance as measured with the average industry operating performance in order to arrive at an industry-adjusted operating performance measure. In another similarity to several other related studies they aggregated the pre-acquisition operating performance of the acquiring and target firms on a pro-forma basis. They chose to measure the change in post-acquisition operating performance as the change for the two years following completion of the acquisition from the two years preceding the acquisition. The year during which the acquisition was completed was excluded from the two year period following completion of the acquisition. The reason for the two year review period was the premise that two years are a sufficient period for completion of the post-acquisition integration of the target. This might very well be the case, but given volatile macro factors impacting on the performance of firms, two years might not be a sufficient time frame to evaluate the long term operating performance of a firm. Papadakis and Thanos (2010) found no improvement in post-acquisition operating performance.

Craninckx and Huyghebaert (2011) studied mergers and acquisitions involving the enlarged European Union (EU27) member countries completed over the period 1997 to 2006. The primary objective of the study was to analyse insufficient equity returns and decreases in operating performance as proxies for failure of mergers and acquisitions. Financial firms were excluded from the sample due to different financial standards applicable to financial firms than to non-financial firms. Fundamental differences in these financial standards could present challenges to comparing the financial results of financial firms with those of non-financial firms. Acquiring firms had to obtain more than 50% of the share capital of the target firms to be included in the sample. Operating performance was measured as earnings before interest, tax, depreciation and amortisation (EBITDA) over assets, with assets calculated as the sum of the market value of equity and the book value of preference share capital and debt net of cash. The post-acquisition change in operating performance was measured as the change for the two years following the completion of the acquisition from the operating performance for the year preceding the completion of the acquisition. It was found that for 30% to 40% of acquisitions in the sample the acquisitions resulted in decreased operating performance.

Given the stated primary objective of the study to analyse post-acquisition decreases in operating performance as proxy for mergers and acquisitions failure, no further analysis and descriptive statistics relating to the acquisitions resulting in post-acquisition increases in operating performance were provided in the study.

Jain, Rani and Yadav (2013) performed a study on post-acquisition changes in the operating performance of Indian acquiring companies. What distinguishes this study from most of those outlined previously is that changes in operating performance were measured solely with reference to acquiring firms, i.e. no regard was given to the operating performance of target firms prior to the acquisitions. For most similar studies as already outlined, post-merger change in operating performance was calculated as the change in operating performance (as measured in each study) for the combined entity over a specified period of time following the completion of the mergers and acquisition transaction from the pro forma aggregated operating performance of the acquiring firm and target firm over a specified period of time preceding completion of the transaction. Jain et al (2013) measured pre-acquisition returns for the year preceding completion of the acquisition, and depending on the availability of data, post-acquisition returns over periods ranging from one year to five years following the completion of an acquisition. Using only a single year as the baseline for measuring post-acquisition change in performance is seen as a potential limitation to the conclusions inferred from the study, given that the single year used might have been an outlier year compared to other years based on external factors. For this reason it is deemed more appropriate to use more than one year as base line measurement of operating performance.

Jain et al (2013) measured operating performance as earnings before interest, tax, depreciation and amortisation (EBITDA) over total assets. Specific reference is not made to the exact measurement of assets (i.e. book values or market values and specific definition of assets). In a significant contrast to most similar studies as already outlined, Jain et al (2013) did not adjust measured returns with average industry returns. This is seen as a limitation to the conclusions inferred from the study given the difficulty in isolating the contribution of acquisitions to post-acquisition changes in operating performance from external factors impacting on all firms in a specific industry. They observed improvements in post-acquisition returns that were significantly different from zero. In light of the limitations as stated caution should however be applied when comparing the results of this study with those of similar studies.

Andre, Chou and Yen (2013) studied the impact of mergers and acquisitions transactions involving firms included in the MSCI Emerging Market Index on the operating performance of these firms. They studied a sample of mergers and acquisitions transactions completed over the period 1998 – 2006. Financial firms were excluded from the sample because of specific accounting and regulatory requirements relating to financial firms. Significant differences between the accounting and regulatory requirements of financial and non-financial firms could distort comparisons of financial data between financial and non-financial firms, which in turn could detract from the integrity of conclusions inferred from the data analysis. Andre et al (2013) found no significant changes in post-acquisition operating performance.

Fu, Lin and Officer (2013) performed a study to determine whether acquisitions funded by the overvalued equity of acquiring firms created value for the acquiring firm shareholders. They studied a sample of US domestic acquisitions over the period 1985 – 2006. A significant difference from other studies already outlined is that acquiring firms had to own 100% of the share capital of target firms after completion of the acquisition for inclusion in the sample. Operating performance was measured as earnings before interest, tax, depreciation and amortisation (EBITDA) over assets, with assets calculated as the sum of the market value of equity and the book value of preference share capital and debt net of cash. In the same manner as in other similar studies already outlined the median industry operating performance was deducted from acquiring firm operating performance in order to arrive at an industry-adjusted operating performance. Post-acquisition change in operating performance was measured as the change in industry-adjusted operating performance for the five years following completion of the acquisition from the industry-adjusted operating performance for the three years preceding the acquisition. For the three year period preceding completion of the acquisition the operating results for the acquiring and target firms were aggregated on a pro forma basis weighted by assets. A post-acquisition decline in operating performance was observed for acquirers with overvalued equity, in contrast with no decline for acquirers which were not deemed to have overvalued equity.

Cao, Rao-Nicolson and Salaber (2016) also focussed on emerging markets in an analysis of mergers and acquisitions transactions completed by ASEAN (Association of Southeast Asian Nations) domiciled firms over the period 2001 – 2012. They measured operating performance as earnings before interest, tax, depreciation and amortisation (EBITDA) over the book value of total assets. Operating performance was adjusted in similar fashion to the method applied by Healy et al (1992) to arrive at industry-adjusted operating performance, and was measured over the three years preceding and the three years following completion of a mergers and acquisitions transaction.

The operating performance of the acquiring and target firms for the three years preceding the completion of the mergers and acquisitions transaction were aggregated in similar fashion to the method applied by Healy et al (1992) to obtain a pro forma aggregated operating performance. In contrast to Healy et al (1992) Cao et al (2016) observed a significant post-merger deterioration in operating performance.

2.7. South African studies

In a study with the primary objective of examining the long-term equity returns for acquiring firms following acquisitions by Johannesburg Stock Exchange (JSE) listed firms, Negash and Wimberley (2004) studied acquisitions over the period 1989 to 1998 by firms listed in the industrial sector of the JSE. They only included acquisitions in their sample where the target firm's market capitalisation at the time of the announcement of the acquisition amounted to 20% or more of the market capitalisation of the acquiring firm. The reason for this threshold was an assumption that this would ensure inclusion of only acquisitions where the relative size of the acquisition in relation to the acquirer would ensure that the acquisition would have a significant impact on the post-acquisition performance of the acquiring firm. A second requirement for inclusion in the sample was that the acquiring firm had to obtain at least 20% of the issued share capital of the target firm. This threshold was based on the assumption that an equity share of 20% or more would enable the acquiring firm to exert significant influence over the target firm following the acquisition, and in doing so would also enable the acquiring firm to influence the post-acquisition performance.

Negash and Wimberley (2004) measured post-acquisition equity returns in monthly intervals over the three years following an acquisition. The monthly abnormal return for each firm included in the sample was calculated as the difference between the actual return and a benchmark portfolio return. The average monthly abnormal return for the sample was calculated as the average of the individual firms' average monthly abnormal returns. A negative cumulative average abnormal return was observed three years after completion of acquisitions.

Smit & Ward (2007) applied very much the same methodology as Healy et al (1992) on a South African sample of mergers and acquisitions transactions. Their sample consisted of transactions concluded between 2001 and 2003 where the acquiring firms were listed on the JSE and the acquisition values amounted to more than 20% of the acquiring firm's market capitalisation prior to the transaction.

Their methodology differed slightly from that of Healy et al (1992) in that they used book value of assets as denominator in the operating cash flow return measurement as opposed to the sum of the market value of equity and the book value of debt and preference share capital used by Healy et al (1992). Another difference to the methodology applied by Healy et al (1992) was that Smit & Ward (2007) measured cash flow performance for the two years preceding and the two years following the transactions in the sample, as opposed to Healy et al (1992) that measured the cash flow returns over periods of five years preceding and following the transactions in their sample.

Smit & Ward found a statistically insignificant decrease in EBITDA return following the completion of an acquisition. The study by Smit and Ward (2007) is the only published South African study on post-acquisition operating performance that could be found. This single South African study, together with the fact that the study covers a limited time period (2001 – 2003) should provide further relevance to the contents and conclusions of this study.

2.8. Summary

Studies into the extent of mergers and acquisitions over time indicate distinct observed waves over time, with a prevailing long-term growth trend. All observed waves are characterised by key enabling factors which create fertile ground for heightened levels of mergers and acquisitions activity.

Studies into the success of mergers and acquisitions are divided into the analysis of equity returns and analysis of changes in operating performance following the conclusion of mergers and acquisitions transactions. When studying short term equity returns target firm shareholders emerge as those who tend to gain most from mergers and acquisitions transactions with positive returns, as opposed to acquiring firm shareholders who seem to be in a return neutral position at best. Most studies on long-term equity returns indicate negative returns for both acquiring and target firm shareholders.

Studies into changes in operating performance following mergers and acquisitions transactions contain more ambiguous results. Depending on the method of measurement applied, results vary from improved to declining operating performances. For the studies reviewed a slight majority of the studies found improvements in operating performance.

For the only published South African study on operating performance (Smit and Ward, 2007), a statistically insignificant deterioration in operating performance following completion of a mergers and acquisitions transaction was observed.

This ambiguity in results for studies on operating performance serves as caution to apply care when comparing the results between different studies. Any material differences in the methodology applied could possibly result in materially different results and interpretations, and as such care should be applied in considering any such differences.

Chapter 3: Research Methodology

3.1. Introduction

The stated research question to be addressed by this study is whether large South African acquisitions result in long-term post-acquisition improvements in free cash flow returns for acquiring firm shareholders. Free cash flow returns for acquiring firms included within the selected sample will be adjusted for appropriate benchmark returns in order to arrive at benchmark-adjusted free cash flow returns.

Based on the research question, the null hypothesis to reject would therefore be:

H_0:   Post-acquisition changes in benchmark-adjusted free cash flow returns for the sample of acquiring firms are not significantly larger than zero.

Conversely, the alternative hypothesis would be:

H_a: Post-acquisition changes in benchmark-adjusted free cash flow returns for the sample of acquiring firms are significantly larger than zero

The methodology and selection criteria in support of the research question will be outlined in the rest of this chapter. This methodology will be constructed in such a manner as to ultimately support the rejection of the null hypothesis, or to indicate an inability to reject the null hypothesis. The methodology will be expanded to also analyse changes in EBITDA returns.

3.2. Acquisitions

Acquisitions within the context of this study and for determining the sample selection criteria will be determined in line with the applicable accounting standards governing the preparation of consolidated financial statements for South African groups. The reason for this approach is that the underlying elements used for the measurement of free cash flow return will be obtained from the consolidated annual financial statements for the firms included within the sample. Consistent accounting treatment will ensure comparability between the firms within the sample.

In essence it is required that for acquisitions included within the sample the cash flows emanating from target firms acquired and to which acquiring firms are entitled must be reflected in the consolidated financial statements of the acquiring firms after completion of the acquisitions.

This implies a requirement for the inclusion of cash flow results or the ability to clearly distinguish cash flow results from earnings results and with such inclusion being in proportion to the size of the acquiring firm's economic interest in the target firm after completion of the transaction.

For reasons still to be outlined the sample will be selected from transactions concluded over the period 1995 – 2009. Two different sets of accounting standards governed the preparation of financial statements by South African firms over this period.

Since 1 January 2005 all companies listed on the Johannesburg Stock Exchange (JSE) had to prepare annual financial statements in accordance with International Financial Reporting Standards (IFRS). Prior to the adoption of IFRS companies had to comply with South African Statements of Generally Accepted Accounting Practice (SA GAAP). The core principles of the applicable IFRS standards to be outlined are very much aligned to the applicable SA GAAP standards which it superseded. Given that the acquiring firms to be included within the sample are all JSE listed entities which previously had to comply with SA GAAP and subsequently with IFRS as part of the JSE listing requirements, the accounting treatment of acquisitions over the selection period should be standardised.

For this reason it is deemed sufficient to only outline the accounting principles as prescribed by the applicable IFRS standards.

The relevant IFRS standards governing the preparation of consolidated financial statements are:

1. IFRS 3 – Business Combinations
2. IFRS 10 – Consolidated Financial Statements
3. IAS 28 – Investments in Associates and Joint Ventures

Business combinations as described in IFRS 3 – Business Combinations refer to situations where an acquiring firm obtains outright control over a target firm. In the case of investments in associates or joint ventures an acquiring firm obtains significant influence or joint control over a target firm. There are fundamental differences in the methods of accounting for these two types of investments in the consolidated financial statements of the acquiring firms.

In the case of business combinations consolidated financial statements must be prepared applying the acquisition method, which effectively implies combining all the financial statement elements of the acquiring firm and the target firm on a like-for-like basis into a single set of consolidated financial statements. In order to be classified as a business combination, the acquiring firm must gain control over the target firm.

IFRS 10 states that control occurs when the acquiring firm is exposed, or has rights, to the variable returns from its involvement with the target firm and has the ability to affect those returns through its power over the target firm. Control can be obtained through voting rights linked to share capital ownership or through contractual agreements. A general accepted rule of thumb applied in practice is that an economic interest of more than 50% would normally construe control. Stated differently, an economic interest of more than 50%, although not the only acceptable indicator of control, should ensure control and thus application of acquisition method accounting.

Application of the acquisition method results in a like-for-like consolidation of all financial statement elements into a single set of consolidated financial statements. When considering the consolidated income statement this would imply that the consolidated net profit after tax would include 100% of the net profit after tax of the acquiring firm and 100% of the net profit after tax of the target firm. In order to only reflect the acquiring firm's economic interest in the target firm's net profit after tax (i.e. if the acquiring firm obtains more than 50% but less than 100% of the issued share capital of the target firm), the portion of net profit after tax not attributable to the acquiring firm is indicated as a minority interest in the income statement to arrive at the portion of profit actually attributable to the acquiring firm.

This method of accounting results in the target firm's underlying income statement elements (i.e. revenue, cost of goods sold, cash operating expenses, depreciation, finance charges, etc.) being reflected individually within the consolidated income statement of the acquiring firm.

The individual underlying elements reflect 100% of the target firm's results, with the adjustment for the portion not attributable to the acquiring firm (i.e. minority interest) only being made in aggregate at the bottom of the consolidated income statement. The same applies for the consolidated balance sheet, where underlying elements (assets, equity and liabilities) for the target firm reflect 100% of the values as reflected in the stand-alone financial statements of the target firm, with an aggregate adjustment made for the portion not attributable to the acquiring firm (i.e. minority interest). The minority interest portion is included within equity.

This method of accounting does present some challenges for the intended measurement of free cash flow return. These challenges will be addressed later in this chapter.

The acquisition method of accounting differs from the accounting treatment for investments in associates or joint ventures, where the acquiring firm's proportionate share of the target firm's profit or loss is disclosed separately as a single line item in the income statement.

The same principle applies for the balance sheet, i.e. the underlying assets, liabilities and elements of equity of the target firm are not included individually in the consolidated balance sheet.

For reasons to be outlined later in this chapter, free cash flow will be measured as free cash flow to firm, with free cash flow to firm calculated as:

	Cash flow from operating activities
+	Finance charges
-	Investment income
-	Capital expenditure
=	Free cash flow to firm

From the explanation of the acquisition method and the method for accounting for investments in associates or joint ventures, it follows that for acquisition method accounting it would be possible to obtain these items of free cash flow to firm from the consolidated financial statements of the acquiring firm, seeing as the underlying income statement and balance sheet elements for the target firm are consolidated with those of the acquiring firm on a like-for-like basis.

For investments in associates or joint ventures it would not be possible to obtain these underlying items of free cash flow to firm from the consolidated financial statements of the acquiring firm. The acquiring firm's portion of the net profit of the target firm is disclosed as a single line item in the consolidated income statement of the acquiring firm.

This single line item is an after tax amount which also includes depreciation and finance charges. Hence it would not be possible to obtain a "pure" consolidated free cash flow to firm amount. Stated simply, the consolidated free cash flow to firm amount will include the profit attributable from the investment in the associate or joint venture, which would include depreciation, finance charges and tax. The same principle would apply for the consolidated balance sheet, where the changes in net working capital and capital expenditure would exclude those of the target firm being classified as an associate.

In order to overcome this challenge the underlying elements of free cash flow to firm and capital employed for the target firm to be used in the calculation of free cash flow return will have to be obtained from the target firm's standalone financial statements. Given the fact that for acquisitions by South African listed firms the target firms are predominately private entities, access to these standalone financial statements will be limited.

Given this challenge, acquisitions in the context of the research methodology and selection criteria will be determined as instances where an acquiring firm obtains more than 50% of the issued share capital of a target firm, thus ensuring a comparison of financial statements that were all prepared in accordance with acquisition accounting. This chosen methodology of a required acquisition of more than 50% of the share capital of the target firm has been applied in similar studies, such as Papadakis and Thanos (2010) and Craininckx and Huyghebaert (2011).

As already alluded to a challenge is however presented by the divergence between the stated requirement for inclusion within the consolidated financial statements of the acquiring firm the cash flow results of the target firm only in proportion to the size of the acquiring firm's economic interest in the target firm and the method of accounting as prescribed by the acquisition method. The fact that 100% of the target firm's underlying income statement and balance sheet elements are consolidated on a like-for-like basis with the minority interest only disclosed as an aggregate amount (i.e. not also on a like-for-like basis), makes it impossible to isolate the acquiring firm's proportionate share of the target firm's underlying elements of free cash flow to firm and capital employed when using the consolidated financial statements. Stated simply, when calculating free cash flow to firm, 100% of the target firm's free cash flow to firm underlying elements would be included in the calculation. The same would apply for the calculation of capital employed.

Depending on the way in which capital employed is determined, the fact that 100% of the target firm's underlying elements of free cash flow to firm will be included in the amounts obtained from the acquirer's consolidated financial statements could present a challenge. The denominator (capital employed) would also have to include 100% of the target firm's underlying capital base in order to ensure consistency. This matter will be addressed in more detail later in this chapter.

3.3. Long term operating performance

As stated in Chapter One, the focus of this study is on long term operating performance changes in the aftermath of acquisitions by South African firms, as opposed to short term measurements. Determining the appropriate duration of long term is a subjective matter and will differ depending on various different perspectives.

Firms' operating performance will always be influenced by the state of the economy to some degree. Not even the most "defensive" of firms will be totally insulated from the challenges to operating profitability posed by periods of economic downturn.

Similarly to this view most firms with sound business models and which are managed with the proper degree of managerial and fiscal responsibility will prosper during periods of economic growth. For this reason the duration of an observation period needs to include all phases of a business cycle in order to be deemed long term.

In the decades following World War II and ending in 2007 expansions in the South African economy have averaged a period of 25.6 months with periods of recession averaging 20.4 months (Akinboade and Maluna, 2009). This adds up to a total period of approximately four years for a business cycle (on average). The average is deemed a suitable proxy for an observation period deemed to be long term, and for this reason long term will be defined as five years for the purpose of this study.

Operating performance of the acquiring firms will be measured for a period of five years preceding the completion of the acquisition and five years following the completion of the acquisition. The five years following the completion of the acquisition will exclude the year during which the acquisition was completed. One reason for this exclusion is that results during the year in which the acquisition is completed might be distorted by once-off transaction costs as well as integration costs. A second reason is that depending on when the acquisition is concluded, the consolidated results for the year during which the transaction is completed might not include consolidated results for a full twelve month period.

The five year periods preceding and following the completion of an acquisition, as well as the exclusion from the period following completion of the acquisition the year during which the transaction was completed is similar to the method applied in prior studies such as Healy et al (1992), Linn and Switzer (2001) and Ghosh (2001). A distinct difference between the methodology applied in these previous studies and in this study is the calculation of operating performance over the respective five year periods. In these previous studies the respective operating performances for the periods preceding and following mergers and acquisitions transactions were determined as the median values of the individual years over the respective five year periods. In this study operating performance will be measured as the total free cash flow return over the respective five year periods, as opposed to the median free cash flow return for the individual years over each observed five year period.

As already outlined in Chapter Two the reason for this approach is the view that the median return over a five year period will be an indication of volatility and the associated risk rather than total return. Given the interest in long-term performance of this study, total return is deemed more appropriate.

The median free cash flow return for the individual years will however also be used as a secondary approach to determine whether the results change with the use of median values. This will serve to test the sensitivity of results to the chosen methodology, as well as to ensure comparability with similar studies.

3.4. Improvements in operating performance

Most of the similar studies outlined in Chapter Two used earnings before interest, tax, depreciation and amortisation (EBITDA) as a measure of operating cash flow. These include Healy et al (1992), Linn and Switzer (2001), Ghosh (2001) and Smit and Ward (2007). In this study free cash flow to firm will be used as measure of operating performance, and will be calculated as:

	Cash flow from operating activities
+	Finance charges
-	Investment income
-	Taxation paid
-	Capital expenditure
=	Free cash flow to firm

This method of calculation for free cash flow to firm is necessitated by the manner in which cash flows are presented in the financial statements for acquiring firms included within the sample in the INET BFA database. Cash flow from operating activities as obtained from the INET BFA financials database is calculated as operating profit adjusted for depreciation and other non-cash flow items, changes in net working capital, and also includes investment income. Finance charges and taxation are not included within the INET BFA calculation of cash flow from operating activities.

The reason why free cash flow to firm is preferred over EBITDA is the fact that EBITDA does not include capital expenditure and changes in working capital, and these could be significant cash flow components, which if ignored might result in inaccurate conclusions regarding a firm's sustainable cash-generating ability. Powell and Stark (2005) used EBITDA adjusted for changes in working capital to measure operating performance. They did however not include capital expenditure.

The use of EBITDA as a measure of the change in operating performance will also be used as a secondary approach to determine whether the results change with the use of EBITDA rather than free cash flow to firm. This will serve to test the sensitivity of the results to the chosen methodology, as well as to ensure comparability with similar studies.

The inclusion of capital expenditure in the free cash flow to firm calculation needs to be considered in more detail. Capital expenditure consists of replacement - and expansion capital expenditure. Replacement capital expenditure refers to expenditure required to maintain the existing fixed asset base utilised to derive a firm's earnings.

In contrast to this, expansion capital expenditure refers to expenditure aimed at increasing and not only maintaining the capacity of a firm's fixed asset base to generate earnings. Replacement capital expenditure is expected to be a permanent and recurring expenditure, whereas expansion capital expenditure tends to be more cyclical in nature and often tends to be a drag on returns whilst a firm is growing into the additional capacity.

Comparing the free cash flow to firm measurements of firms with different capital expenditure cycles could be misleading and could potentially result in inaccurate conclusions regarding the returns generated by the firms. A simplistic illustrative example to explain this point is deemed useful.

Assume two firms with exactly the same values for cash flow from operating activities and capital employed in year 1. The only discernible difference between the firms is the extent and composition of the capital expenditure amounts:

	Firm A	**Firm B**
Cash flow from operating activities	R100	R100
Capital expenditure:		
Replacement	R10	R10
Expansion	R5	-
Free cash flow to firm (FCFF)	R85	R90
Capital employed	R1,000	R1,000
FCFF / Capital employed	8.50%	9.00%

Depreciation and the resultant impact on capital employed are ignored in this example for the sake of simplicity.

Let's assume that the expansion capital expenditure of Firm A relates to new installed capacity which will only be fully utilised over the following years and that there will be a profitable market for the additional output. Let's also assume that both firms are operating at full output capacity prior to the capital expenditure.

At some point over the years following year 1 Firm A should have a greater output capacity than Firm B, resulting in a superior free cash flow to firm return ratio as measured in this example. This should already be evident in the current year by analysing and comparing the composition of the capital expenditure amounts.

By failing to "normalise" the free cash flow to firm calculation in year 1 for the expansion capital expenditure of Firm A, users of the information will conclude that Firm B has a superior return performance. While this is true for year 1, Firm A might have a superior return outlook beyond year 1 given its higher capacity for future output. The expansion capital expenditure in year 1 is a drag on year 1 returns, but might very well enhance future returns. By only considering year 1 and not ensuing years, this would result in users of the information not being able to discern that Firm A perhaps has a superior return potential to Firm B. Conversely short term returns for Firm B might be boosted by too low levels of capital expenditure, which means that its superior return ratio relative to Firm A might not be sustainable.

For this reason, free cash flow to firm amounts used in this study will be evaluated in the context of the relative capital expenditure levels. Given the permanent and recurring nature of replacement capital expenditure, any material deviation in the capital expenditure to revenue ratio will be deemed as an indication of possible significant levels of expansion capital expenditure, and will be evaluated in more detail. Details in this regard will be provided in Chapter Five.

Given the method of calculation, free cash flow to firm measures the cash flows available for distribution to the firm's providers of capital, being both shareholders and providers of debt funding. This makes free cash flow to firm neutral to the financing decision and the firm's capital structure, which makes it suitable for comparison between firms with different capital structures.

In order to measure relative performance between firms of different sizes it would be inappropriate to compare absolute free cash flow amounts.

Free cash flow relative to the resources employed in order to generate these cash flows is required in order to compare relative operating performance between firms of different sizes.

A larger firm with larger absolute free cash flow to firm than a smaller firm is not necessarily an indication of a superior free cash flow performance relative to the smaller firm. If the smaller firm generates higher cash flows relative to the resources employed to do so than the larger firm, this would in fact imply that although smaller in absolute terms, the smaller firm's free cash flow performance is superior to that of the larger firm in relative terms.

From the accounting equation (Equity = Assets Less Liabilities) it follows that capital employed can be expressed as either:

1. The sum of equity and debt or
2. Assets less non-interest bearing liabilities

Equity =   Assets less Liabilities

Equity =   Assets less (Debt + Non-interest bearing
              Liabilities)

Equity =   Assets less Debt less Non-interest bearing
              Liabilities

Equity plus Debt =   Assets less Non-interest bearing Liabilities

Free cash flow to firm relative to capital employed will be used as a relative measure of operating performance (free cash flow return), and will enable a comparison of operating performance between firms of different sizes. This method of scaling cash flows to determine a return on resources employed is a similar approach to previous studies including Healy et al (1992), Linn and Switzer (2001), Ghosh (2001) and Smit and Ward (2007). These studies might have used different measures as numerators and denominators in the calculation of returns, but the principle of scaling cash flows to determine a relative return measurement is similar.

Debt will be assumed to refer to net debt after deduction of any cash reserves.

Given that there are two possible ways in which to calculate capital employed to be used as denominator in the free cash flow return calculation, a decision is required as to the most appropriate calculation method. In order to reach a decision the advantages and limitations of both methods will first be considered.

3.5. Capital employed calculated as assets (excluding cash reserves) less non-interest bearing liabilities

When using assets less non-interest bearing liabilities to calculate capital employed, the accounting book values for assets and liabilities as per the annual financial statements will have to be used. Some challenges could arise from using accounting book values for assets as a result of differences in the accounting methods and principles applied between different firms. These differences could potentially distort a comparison of performance measures between different firms.

Accounting book value for assets could be materially influenced by a firm's accounting policies relating to:

- The estimated useful lives and residual values for different asset classes;
- Depreciation methods applied (e.g. straight-line method vs. accelerated depreciation method);
- Reporting at historic book value vs. fair / market value;
- Internally generated intangible assets (expensed) vs. acquired intangible assets (capitalised).

A potential significant distortion that could arise when comparing the book values of assets for different firms could be where there are significant differences in the age and general condition of the firms' asset bases. A firm with an old asset base that has not been properly maintained could over the short term generate returns on par with that of a firm with a newer asset base that is properly maintained, but could run into trouble over the long term as the worn-down state of its asset base requires more investment. Stated in a different manner, a firm with an old and worn-down asset base will have a low asset base value in its balance sheet, which will be far removed from the current replacement value for that asset base. Should it be the case that the existing asset base in its current state would not be able to generate current levels of earnings on a sustainable basis, users of the financial statements would want to be aware of this when evaluating return on assets, seeing as such a return ratio would probably not be sustainable if sufficient levels of capital expenditure are not included in cash flows.

Another matter which is deemed to have the potential to cause distortions that could detract from the integrity of the conclusions reached if not adjusted for relates to the method of financing of assets.

There will be a significant difference between the reported asset bases of two firms where the one firm outright owns the assets used in the generation of earnings and the other firm leases the assets used in the generation of earnings. This is due to the difference in accounting treatment of owning assets compared to leasing it. When owning assets a firm must capitalise these assets and include it on its balance sheet. In contrast to this treatment, for leased assets where the lease is classified as an operating lease, the lease payments are expensed, with no amounts included on the balance sheet.

In the example of a retailer that leases the premises from which it conducts its business on a long-term basis, it is clear that in essence the premises represent the asset base used in the generation of earnings. The long-term leases effectively represent a manner of "off-balance sheet" financing. In order to compare the return on assets for this retailer with that of another retailer that owns its premises, the long-term lease agreements should be treated as a form of financing, with resultant asset and liability amounts included in its balance sheet.

In summary, two major constraints to using book values of assets for comparing return ratios for different firms are:

1. Differences in age and general state of the asset bases, and the relative investment levels into these asset bases.
2. Ownership of assets vs. long term operating leases.

3.6. Capital employed calculated as the value of equity and debt

The market capitalisation values to be used for equity should be approached with care, seeing as market capitalisation is susceptible to the vagaries of market behaviour.

As outlined in Chapter One, share price movements around the time of the announcement of mergers and acquisitions transactions often represent the capitalised value of the market's expectation of post-transaction performance improvements (Healy et al, 1992). Failure to adjust for such capitalised values of expectation in the manner that Healy et al (1992) did would result in a temporary overstatement of the denominator used in the calculation of cash flow returns.

The reason for this temporary overstatement would be due to the initial inclusion of an expected value as opposed to actual improvements in the results being factored into the share price by the market upon eventual realisation of these improved results. An overstated denominator would inaccurately deflate the calculated cash flow return.

Global economic- and other macro factors could also temporarily depress or inflate the market valuations of firms to levels removed from the true intrinsic values of these firms. Apart from these challenges to using market capitalisation in the calculation of capital employed, another challenge is presented by the way in which the consolidated financial statements of the acquiring firm is prepared after the completion of an acquisition as alluded to earlier.

For acquisitions accounted for in terms of the acquisition method the fact that 100% of the target firm's underlying income statement and balance sheet items are consolidated on a like-for-like basis with the minority interest only disclosed as an aggregate amount (i.e. not also on like-for-like basis) and included within equity, makes it impossible to isolate the acquiring firm's proportionate share of the target firm's underlying elements of free cash flow to firm as defined when using the consolidated financial statements.

What this means is that when using the consolidated financial statements of an acquiring firm after the completion of an acquisition, the underlying elements of free cash flow to firm as obtained from the consolidated financials will consist of the acquirer's stand-alone underlying free cash flow to firm elements as well as 100% of the target firm's underlying elements of free cash flow to firm. In contrast to this the market capitalisation of the acquiring firm should only reflect the acquiring firm's economic interest in the target firm. Calculating free cash flow return by using free cash flow to firm as obtained from the consolidated financial statements and the market capitalisation of the acquiring firm would result in an overstatement of free cash flow return, seeing as the numerator would include 100% of the underlying free cash flow to firm elements of the target firm while the denominator will most probably only reflect the portion of the target firm's perceived market value which the acquiring firm owns.

It is clear that both alternatives for calculating capital employed present challenges. In the case of using the book value of assets less non-interest bearing liabilities the biggest challenges are presented by potential differences in the age and general state of the asset bases, as well as the preferred method of financing for assets (outright ownership vs. long-term operating leases).

When using the market value of equity, challenges are presented by the potential disparities between a firm's intrinsic value and the market capitalisation as determined by volatile markets, as well as the market's initial reaction to acquisition announcements.

A third challenge is presented by the manner in which the consolidated financials for acquiring firms are prepared.

Given the fact that access to the stand-alone financial statements for target firms would in most cases not be available, this is a potentially insurmountable challenge. One way in which to overcome such a challenge, would be to employ the methodology used by Healy et al (1992) where the operating cash flow returns prior to and after the completion of mergers and acquisitions transactions are calculated by using pro forma consolidated results for the acquiring firm and target firm prior to the transaction, and the consolidated group financials after completion of the transaction.

By employing this method, both the numerator and denominator before and after completion of the transaction would include 100% of the underlying elements of the target firm. In order to employ this method sufficient financial data prior to completion of the transaction would have to be available for the target firms. In South Africa with its relatively small population of listed entities, the majority of target firms acquired are private companies for which financial data are not freely available, making this method not feasible for this study.

Such a method, even if possible, would also be in contrast to the stated intent of this study to evaluate the post-acquisition change in operating performance from the perspective of acquiring firms only.

Based on the above, the use of book value of assets and liabilities is deemed as the optimal method for this study. The challenges presented by potential differences in the age and general state of asset bases and the relative levels of investment into these asset bases, as well as preferred methods for financing of asset bases (outright ownership vs. long-term operating leases) can be addressed by adjusting the data used for observed anomalies. Such adjustments will be addressed in detail in Chapters Four and Five and should ensure comparability between different firms within the sample. When using book value of assets and non-interest bearing liabilities as opposed to market value of equity, the manner in which consolidated financials are prepared does not present a challenge. The fact that 100% of the target firm's underlying elements of free cash flow to firm as well as assets and liabilities are included within the consolidated financials means that the calculated free cash flow return will not be overstated. Even though the acquiring firm might not have a 100% economic interest in the target firm, the fact that 100% of the target firm's underlying elements are included within both the numerator and denominator results in an accurate return ratio.

A significant challenge in measuring long-term improvement in free cash flow return is isolating the impact of mergers and acquisitions events from other factors (such as the macro environment) impacting on cash flow performance.

By defining success as outperforming an appropriate benchmark, the challenge of the impact of macro factors on free cash flow performance should in theory be overcome. In order to determine performance relative to an appropriate benchmark, the free cash flow return for the appropriate benchmark will be deducted from the free cash flow return of the sample firms to arrive at a benchmark-adjusted free cash flow return. The benchmark-adjusted return will be calculated for both the pre-acquisition and post-acquisition periods. An increase in the benchmark-adjusted return from the pre-acquisition period to the post-acquisition period will be construed as success.

This method of adjusting measured performance for acquiring firms with benchmark performance is in line with the methodology applied in previous studies including Healy et al (1992), Linn and Switzer (2001), Ghosh (2001) and Smit and Ward (2007).

As already outlined this study is grounded in a study of returns for acquisition firm shareholders, as opposed to returns for both acquisition- and target firm shareholders. For this reason in this study the change in operating performance will be measured only with reference to the acquiring firm. For this reason the change in operating performance will be calculated as the free cash flow return of the acquiring firm before the transaction and the post-transaction free cash flow return of the acquiring firm, which would include the results of the target firm. This approach of only analysing acquiring firm returns is similar to those followed by Jain et al (2013) and Fu et al (2013).

3.7. Period of selection

Prior to the elections held in April 1994 South Africa was to a large extent an inclusive economy with limited access to international capital- and financial markets. The transition from minority rule to a democratically elected government accepted by the international community led to the liberalisation of South African capital and financial markets. During March 1995 the South African government lifted all controls on non-resident investors, granting them free and full access to the JSE Securities Exchange and the South African Bond Exchange. This liberalisation resulted in a significant increase in the levels of foreign investment in local financial assets, with net purchases of equity by foreign investors in the years immediately following the liberalisation increasing from R0.19 billion in 1994 to R40.60 billion in 1999 (Pardee et al, 2007).

These structural changes of South African capital- and financial markets had a profound impact, and as such comparison of mergers and acquisitions transactions completed before and after the liberalisation would surely raise some complexities. For this reason the sample selected for this study will only include transactions completed during or after 1995.

As already outlined changes in operating performance over the five years following the transaction will be observed. For reasons also already outlined the year during which the transaction occurred will be excluded from the five years following the transaction. This effectively requires a period of six years to have lapsed in order for a transaction to be included in the sample. At the time of writing of this study the 2014 fiscal year was the latest fiscal year for which financial results for all JSE-listed companies were available.

When considering the requirement for six years since completion of the acquisition and working back from 2014, 2009 is the last year during which acquisitions would have had to been completed in order to be included in the sample.

Transactions completed during the period 1995 – 2009 will therefore be considered for inclusion in the sample.

3.8.   Exclusion of acquisitions involving acquirers for which more than one acquisition occurred during any consecutive five year period

In the event where more than one acquisition was undertaken during different years covering a consecutive five year period, it might be challenging to infer accurately about the contribution of these acquisitions to post-acquisition operating performance. It would be expected that post-acquisition integration of target firms could in some instances cause a drag on returns in the years immediately following an acquisition. Analysing returns which include results from acquired targets which are at different stages of post-acquisition integration into the structure of the acquiring firm could result in distortions. For this reason, acquiring firms with more than one acquisition over a consecutive five year period will only be included in the sample if these acquisitions were completed during the same year. This approach is similar to those followed in previous studies including Healy et al (1992) and Smit and Ward (2007).

3.9. Size of target firm relative to acquiring firm

The size of the target firm relative to the acquiring firm will ultimately determine whether the acquisition will have an observable impact on the operating performance of the acquiring firm or not. In the event where the target firm's contribution to consolidated earnings after completion of the transaction is relatively small, it might prove challenging to conclude on the impact of the transaction on operating performance.

For this reason transactions will only be included in the sample if the deal value (i.e. consideration paid for acquiring the shares in the target firm) amounts to 20% or more of the total asset value of the acquiring firm on the effective date.

In the event where more than one acquisition was done during the same year, inclusion within the sample would require that the combined deal value for the acquisitions amount to 20% or more of the asset value of the acquiring firm at the effective date.

In determining this threshold for selection deal value is used as a proxy for the estimated contribution of the target firm to group earnings after completion of the transaction. The 20% threshold is derived from the JSE listing requirement which requires of all JSE listed companies to provide a trading statement as soon as reasonable certainty exists that the financial results of a firm will differ with more than 20% from the most recently published financial results. A similar approach was applied by Smit and Ward (2007).

3.10. Exclusion of acquisitions involving banks and other financial services firms

The manner in which banks and other financial services firms generate cash flows are fundamentally different from that of non-financial firms. Stated in very simplistic terms, banks generate a significant portion of its cash flows by collecting deposits from parties with excess funds and lending it to parties with funding deficits (Botha et al., 2012) compared to non-financial firms which predominantly generate cash flows from earning a profit margin on goods or services provided.

Given the clear fundamental differences in the manner in which cash flows for banks and other financial services firms are generated compared to non-financial firms, the differences in capital structures, regulatory requirements and applicable financial standards, overall results and conclusions relating to free cash flow returns would be distorted if financial and non-financial firms were to be combined. For these reasons acquisitions involving banks and other financial services firms will be excluded from the sample in this study. This approach is similar to those applied by Craninckx and Huyghebaert (2011) and Andre et al (2013).

Chapter 4: Data

This chapter will be dedicated to an explanation and layout of the data analysed.

4.1. Selection of sample

The selection criteria as outlined in Chapter Three were applied in selecting the sample of acquiring firms.

Thomson Reuters' Deal Screener database was used to filter for acquisitions adhering to the stated selection criteria. The reason for using this source is the comprehensive database of acquisitions and all relevant information relating to the acquisitions that is provided by Thomson Reuters. A sample of eleven acquiring firms adhering to the selection criteria was obtained in this manner. Most of the acquiring firms in the sample are constituents of the JSE Top 40 Index, in contrast to the target firms which are mostly unlisted private firms. Given the stated requirements for the acquiring firms to obtain more than 50 % of the share capital of target firms and for the deal value to amount to 20% or more of the asset value of the acquiring firm's asset value, the lack of large public firms within the list of target firms is probably to be expected. It is also a reflection of the fact that the JSE is a highly concentrated exchange dominated by relatively few large firms compared to larger developed market exchanges.

The details for the acquiring firms included in the sample are set out in the table in Table 4.1.

Table 4.1: Acquiring firms included in the sample

ACQUIRING FIRM	TARGET FIRM	EFFECTIVE DATE	PERCENT OF SHARES ACQUIRED
Aspen Healthcare Holdings Limited	South African Druggists Limited	1999/04/23	100.00%
Bidvest Group Limited	Rennies Group Limited	1999/01/20	100.00%
Harmony Gold Mining Company Limited	African Rainbow Minerals Gold Limited	2003/09/22	100.00%
Hudaco Industries Limited	Transportation Motor Spares	1995/12/21	100.00%
Iliad Africa Limited	Corpgro Industrial & Building Supplies(Proprietary) Limited	2003/09/30	100.00%
MTN Group Limited	Investcom LLC	2006/09/14	99.50%
Sappi Limited	KNP Leykam Holding SA (Koninklijke KNP BT)	1997/09/19	91.50%
Sasol Limited	Condea Chemie GmbH (RWE-DEA AG/RWE AG)	2001/02/28	100.00%
Silverbridge Holdings Limited	Ones N Zeros Professional Services	2008/07/03	51.00%
Tiger Brands Limited	Adcock Ingram Holdings Limited	1999/12/17	54.04%
Trans Hex Group Limited	Gem Diamond Mining Corporation	2000/05/11	100.00%

4.2. Benchmarks

Given the method used to determine post-acquisition change in returns for acquiring firms by adjusting both pre-acquisition and post-acquisition returns with appropriate benchmark returns, particular significance is afforded to the selected benchmarks.

Any distortions within the chosen benchmarks could potentially detract from the merits of conclusions reached based on the benchmark-adjusted returns. An example of such a distortion would be where a benchmark grouping is dominated by a single firm with reference to size. In such an example the benchmark-adjusted return for the acquiring firm would effectively be exposed to the returns for said single firm and any anomalies within the returns for said single firm. Another example would be where the acquiring firm itself is the dominant firm in its benchmark grouping with reference to size, again resulting in potential challenges to the merits of any conclusions reached.

The INET BFA database classifies all firms within sectors and subsectors. Each sector consists of numerous subsectors, and subsectors could also consist of numerous levels. The relevant INET BFA sectors and subsectors to which firms are allocated by INET BFA were used as benchmarks for the acquiring firms in this study. In an effort to address the concerns listed with reference to different benchmarks three different benchmark selections were applied for each acquiring firm included within the sample, in order to identify possible significant differences in conclusions reached based on the use of different benchmarks:

1. Level I: The lowest subsector level to which an acquiring firm is allocated in the INET BFA database was used as benchmark, provided that for both the pre-acquisition and post-acquisition five year periods aggregate capital employed for the benchmark constituent firms (i.e. excluding the acquiring firm) were larger than zero, i.e. to ensure that the acquiring firms were not the only constituents of a particular subsector for any of the years. In instances where the acquiring firms were the only constituents of a particular subsector for any year included within the pre-acquisition and post-acquisition five year periods the next level of subsector or sector as per the INET BFA database was used as the benchmark.

2. Level II: The subsector level or sector immediately above the one applied in Level I was used as the benchmark, with the same provision relating to capital employed for the constituent firms for all years as outlined for Level I.

3. Level III: The sector to which an acquiring firm is allocated in the INET BFA database was used as the benchmark, again with the same provision relating to capital employed for the constituent firms for all years as outlined for Level I.

For Levels I,II and III the pro-forma aggregate results for the benchmark constituent firms exclude results for the acquiring firms. In Table 4.2 the sectors and subsectors used as benchmarks for each of Level I, II and III are listed.

From the table it can be seen how for some firms the benchmark groupings change across the different levels, depending on the number of constituent firms other than the acquiring firms included in the relevant INET BFA sectors and subsectors. For others the benchmark groupings are the same across all three levels of benchmark selection due to constraints relating to the number and size of constituent firms relative to the acquiring firms as outlined.

Table 4.2: INET BFA sectors and subsectors used as benchmarks

ACQUIRING FIRM	LEVEL I	LEVEL II	LEVEL III
Aspen Healthcare Holdings Limited	Healthcare	Healthcare	Healthcare
Bidvest Group Limited	Industrials > Industrial Goods & Services > General Industrials > Diversified Industrials	Industrials > Industrial Goods & Services > General Industrials	Industrials
Harmony Gold Mining Company Limited	Basic Materials > Basic Resources > Mining > Gold Mining	Basic Materials > Basic Resources > Mining > Gold Mining	Basic Materials > Basic Resources > Mining > Gold Mining
Hudaco Industries Limited	Industrials	Industrials	Industrials
Iliad Africa Limited	Consumer Services > Retail > General Retailers > Home Improvement Retailers	Consumer Services > Retail > General Retailers	Consumer Services
MTN Group Limited	Telecommunications	Telecommunications	Telecommunications
Sappi Limited	Basic Materials > Basic Resources > Forestry & Paper	Basic Materials	Basic Materials
Sasol Limited	Basic Materials > Chemicals	Basic Materials > Chemicals	Basic Materials > Chemicals
Silverbridge Holdings Limited	Technology	Technology	Technology
Tiger Brands Limited	Consumer Goods > Food & Beverages > Food Producers > Food Products	Consumer Goods > Food & Beverages > Food Producers	Consumer Goods
Trans Hex Group Limited	Basic Materials > Basic Resources > Gold Mining	Basic Materials > Basic Resources > Gold Mining	Basic Materials > Basic Resources > Gold Mining

4.3. Financial Data

As set out in Chapter Three financial data for the acquiring firms are required for the five years preceding the financial year during which the acquisition was completed, as well as for the five years following the financial year during which the acquisition was completed. The annual financial statements for all firms included within the sample for the relevant years were obtained from the INET BFA database. Given the fact that financial statements for all firms included within the INET BFA database are standardised, it is possible to use and compare the financial statements for all the acquiring firms as obtained from this database.

The financial year-ends as well as the years included within the respective pre-acquisition and post-acquisition periods for all sample firms are listed in Table 4.3.

Table 4.3: Financial year-end and years included within pre-acquisition and post-acquisition periods

ACQUIRING FIRM	YEAR-END	EFFECTIVE DATE	PRE-ACQUISITION PERIOD	POST-ACQUISITION PERIOD
Aspen Healthcare Holdings Limited	June	1999/04/23	1994 - 1998	2000 - 2004
Bidvest Group Limited	June	1999/01/20	1994 - 1998	2000 - 2004
Harmony Gold Mining Company Limited	June	2003/09/22	1999 - 2003	2005 - 2009
Hudaco Industries Limited	November	1995/12/21	1990 - 1994	1996 - 2000
Iliad Africa Limited	December	2003/09/30	1998 - 2002	2004 - 2008
MTN Group Limited	December	2006/09/14	2001 - 2005	2007 - 2011
Sappi Limited	September	1997/09/19	1992 - 1996	1998 - 2002
Sasol Limited	June	2001/02/28	1996 - 2000	2002 - 2006
Silverbridge Holdings Limited	June	2008/07/03	2004 - 2008	2010 - 2014
Tiger Brands Limited	September	1999/12/17	1995 - 1999	2001 - 2005
Trans Hex Group Limited	March	2000/05/11	1996 - 2000	2002 - 2006

4.4. Measurement of change in post-acquisition performance

As outlined in Chapter Three, an improvement in the benchmark-adjusted return after completion of an acquisition will be construed as success. Return is measured as Free cash flow to firm / Total capital employed, which is calculated in the following manner:

Free cash flow to firm:

       Cash flow from operating activities

-       Investment income

-       Taxation paid

-       Capital expenditure

=   Free cash flow to firm

Cash flow from operating activities as obtained from the INET BFA financials database is calculated as operating profit adjusted for depreciation and other non-cash flow items, changes in net working capital, and also includes investment income. Finance charges and taxation are not included within the INET BFA calculation of cash flow from operating activities.

In order to arrive at the free cash flow to firm calculation as outlined in Chapter Three, the cash flow from operating activities as obtained from the INET BFA database is therefore adjusted as outlined above.

Capital employed:

       Total assets (excluding cash reserves)

-       Non-interest bearing liabilities

=   Capital employed

The results as obtained from the annual financial statements of the acquiring firms included within the sample were used for calculating the free cash flow returns.

For each acquiring firm included within the sample the total free cash flow return for the respective five year periods preceding and following an acquisition (excluding the year during which acquisition was completed) was calculated.

In the same manner, the aggregate free cash flow returns for the corresponding five year periods preceding and following the acquisition by the acquiring firm were calculated for the benchmark groupings as listed in Table 4.2. These aggregate returns were calculated by using the pro forma aggregated results for the benchmark constituent firms (excluding the acquiring firm) as obtained from the INET BFA database.

For each acquiring firm the benchmark-adjusted pre-acquisition and post-acquisition returns were calculated by subtracting the benchmark returns from the returns for the acquiring firms. The post-acquisition changes in returns were calculated by subtracting the benchmark-adjusted pre-acquisition returns from the benchmark-adjusted post-acquisition returns for the acquiring firms.

Graph 4.4 provides a graphical illustration of the post-acquisition changes in benchmark-adjusted free cash flow returns for each of the acquiring firms, with details provided for each of the individual years within the measurement period, as well as for the total returns for the respective pre-acquisition and post-acquisition five year periods. Details are provided for all three levels of benchmark selection (Levels I, II and III). These returns are the returns measured by using reported financial results (i.e. before making any adjustments for operating leases). Graph 4.5 provides the post-acquisition changes in benchmark adjusted EBITDA returns.

Data

Graph 4.4. Post-acquisition benchmark-adjusted changes in free cash flow returns

Pre-acquisition: Total 5 year benchmark-adjusted free cash flow return

Pre-acquisition: Individual years benchmark-adjusted free cash flow return

Post-acquisition: Total 5 year benchmark-adjusted free cash flow return

Post-acquisition: Individual years benchmark-adjusted free cash flow return

Aspen Healthcare Holdings: Level I
12.98%
-5.36%
60.00% 40.00% 20.00% 0.00% -20.00% -40.00%

Aspen Healthcare Holdings: Level II
12.98%
-5.36%
60.00% 40.00% 20.00% 0.00% -20.00% -40.00%

Aspen Healthcare Holdings: Level III
12.98%
-5.36%
60.00% 40.00% 20.00% 0.00% -20.00% -40.00%

Bidvest Group Limited : Level I
22.27%
-17.66%
60.00% 40.00% 20.00% 0.00% -20.00% -40.00%

Bidvest Group Limited : Level II
21.27%
-18.32%
60.00% 40.00% 20.00% 0.00% -20.00% -40.00%

Bidvest Group Limited : Level III
21.57%
-14.32%
60.00% 40.00% 20.00% 0.00% -20.00% -40.00%

Harmony Gold Mining Company Limited: Level I
0.61%
-3.70%
30.00% 20.00% 10.00% 0.00% -10.00% -20.00%

Harmony Gold Mining Company Limited: Level II
0.61%
-3.70%
30.00% 20.00% 10.00% 0.00% -10.00% -20.00%

Harmony Gold Mining Company Limited: Level III
0.61%
-3.70%
30.00% 20.00% 10.00% 0.00% -10.00% -20.00%

Data

Graph 4.4. Post-acquisition benchmark-adjusted changes in free cash flow returns (continued)

Pre-acquisition: Total 5 year benchmark-adjusted free cash flow return

Pre-acquisition: Individual years benchmark-adjusted free cash flow return

Post-acquisition: Total 5 year benchmark-adjusted free cash flow return

Post-acquisition: Individual years benchmark-adjusted free cash flow return

Data

Graph 4.4. Post-acquisition benchmark-adjusted changes in free cash flow returns (continued)

Pre-acquisition: Total 5 year benchmark-adjusted free cash flow return

Pre-acquisition: Individual years benchmark-adjusted free cash flow return

Post-acquisition: Total 5 year benchmark-adjusted free cash flow return

Post-acquisition: Individual years benchmark-adjusted free cash flow return

Data

Graph 4.4. Post-acquisition benchmark-adjusted changes in free cash flow returns (continued)

Pre-acquisition: Total 5 year benchmark-adjusted free cash flow return

Pre-acquisition: Individual years benchmark-adjusted free cash flow return

Post-acquisition: Total 5 year benchmark-adjusted free cash flow return

Post-acquisition: Individual years benchmark-adjusted free cash flow return

Tiger Brands Limited: Level I

25.17%

20.78%

Tiger Brands Limited: Level II

25.48%

19.39%

Tiger Brands Limited: Level III

23.55%

20.07%

Trans Hex Group Limited: Level I

16.42%

13.60%

Trans Hex Group Limited: Level II

16.42%

13.60%

Trans Hex Group Limited: Level III

16.42%

13.60%

Data

Graph 4.5. Post-acquisition benchmark-adjusted changes in EBITDA returns

Pre-acquisition: Total 5 year benchmark-adjusted EBITDA return

Pre-acquisition: Individual years benchmark-adjusted EBITDA return

Post-acquisition: Total 5 year benchmark-adjusted EBITDA return

Post-acquisition: Individual years benchmark-adjusted EBITDA return

Data

Graph 4.5. Post-acquisition benchmark-adjusted changes in EBITDA returns (continued)

Pre-acquisition: Total 5 year benchmark-adjusted EBITDA return
Pre-acquisition: Individual years benchmark-adjusted EBITDA return
Post-acquisition: Total 5 year benchmark-adjusted EBITDA return
Post-acquisition: Individual years benchmark-adjusted EBITDA return

Data

Graph 4.5. Post-acquisition benchmark-adjusted changes in EBITDA returns (continued)

Pre-acquisition: Total 5 year benchmark-adjusted EBITDA return

Pre-acquisition: Individual years benchmark-adjusted EBITDA return

Post-acquisition: Total 5 year benchmark-adjusted EBITDA return

Post-acquisition: Individual years benchmark-adjusted EBITDA return

Data

Graph 4.5. Post-acquisition benchmark-adjusted changes in EBITDA returns (continued)

Pre-acquisition: Total 5 year benchmark-adjusted EBITDA return

Pre-acquisition: Individual years benchmark-adjusted EBITDA return

Post-acquisition: Total 5 year benchmark-adjusted EBITDA return

Post-acquisition: Individual years benchmark-adjusted EBITDA return

Prior studies such as Healy et al (1992), Linn and Switzer (2001) and Ghosh (2001) applied the median benchmark-adjusted returns over the respective pre-acquisition and post-acquisition periods, as opposed to this study which applies total return over these respective periods. Another difference is the use of earnings before interest, tax, depreciation and amortisation (EBITDA) in these studies as opposed to free cash flow to firm used in this study. Adjustments to evaluate the changes in results upon using the same measurement methodologies as prior studies enables comparison with these studies and also serves to test the sensitivity of results to the chosen measurement methodology. For this reason the measured results were expanded to apply median returns as opposed to total returns, and also to use EBITDA as opposed to free cash flow to firm.

Tables 4.5.1 – 4.5.3 sets out the results for all three levels of benchmark selection (Levels I, III and III) using free cash flow and total returns, as well as expanding the results to use EBITDA and median returns. The expansion of cash flow returns to also include median returns and EBITDA returns enabled the comparison of the results of this study to the results of other studies.

Table 4.5.1. Level I Benchmark-adjusted returns (Free cash flow and EBITDA)

POST-ACQUISITION BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	13.44%	10.54%	-0.58%	11.21%	40.62%	11.21%	12.98%
Bidvest Group Limited	21.85%	16.62%	28.10%	21.62%	23.79%	21.85%	22.27%
Harmony Gold Mining Company Limited	-4.70%	-0.12%	-1.70%	-9.67%	-4.35%	-4.35%	-3.70%
Hudaco Industries Limited	14.73%	27.21%	28.79%	23.37%	-20.60%	23.37%	14.88%
Iliad Africa Limited	9.19%	11.06%	13.18%	17.43%	35.12%	13.18%	14.61%
MTN Group Limited	11.21%	16.23%	5.76%	0.00%	8.93%	8.93%	7.99%
Sappi Limited	-21.48%	7.10%	20.18%	11.28%	5.11%	7.10%	2.00%
Sasol Limited	7.77%	1.55%	-19.17%	-22.29%	-4.95%	-4.95%	-7.31%
Silverbridge Holdings Limited	21.82%	-27.21%	-61.63%	38.69%	-19.93%	-19.93%	-3.86%
Tiger Brands Limited	31.22%	25.88%	7.10%	17.32%	30.77%	25.88%	20.78%
Trans Hex Group Limited	9.72%	3.37%	31.89%	29.15%	10.71%	10.71%	16.42%

POST-ACQUISITION BENCHMARK-ADJUSTED EBITDA RETURN

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	21.39%	15.99%	26.71%	22.53%	23.67%	22.53%	21.67%
Bidvest Group Limited	35.84%	47.40%	41.10%	38.80%	42.27%	41.10%	41.50%
Harmony Gold Mining Company Limited	-0.62%	4.43%	-1.26%	-11.88%	-21.35%	-1.26%	-5.08%
Hudaco Industries Limited	-15.09%	-2.92%	8.14%	16.05%	33.58%	8.14%	7.79%
Iliad Africa Limited	-2.43%	1.83%	6.56%	19.16%	-19.54%	1.83%	4.77%
MTN Group Limited	16.86%	-35.78%	16.19%	7.74%	-1.20%	7.74%	1.29%
Sappi Limited	5.47%	8.42%	18.37%	15.63%	1.55%	8.42%	5.21%
Sasol Limited	-0.83%	-35.37%	1.67%	-0.14%	15.21%	-0.14%	-4.37%
Silverbridge Holdings Limited	21.36%	0.78%	-57.85%	-136.90%	31.24%	0.78%	-5.14%
Tiger Brands Limited	30.92%	20.29%	16.03%	21.61%	20.09%	20.29%	20.23%
Trans Hex Group Limited	-11.59%	28.84%	49.27%	32.78%	20.39%	28.84%	24.97%

PRE-ACQUISITION BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	-19.70%	7.07%	-9.14%	-1.62%	-11.47%	-9.14%	-5.36%
Bidvest Group Limited	-8.98%	-73.66%	39.03%	18.58%	50.54%	18.58%	-17.66%
Harmony Gold Mining Company Limited	-4.53%	-2.96%	-3.77%	4.09%	19.81%	-2.96%	0.61%
Hudaco Industries Limited	1.63%	4.62%	-47.96%	18.54%	15.86%	4.62%	-6.07%
Iliad Africa Limited	-14.89%	10.61%	-18.46%	17.41%	-148.62%	-14.89%	-30.40%
MTN Group Limited	-41.99%	-12.11%	-5.77%	-5.26%	-7.68%	-7.68%	-14.29%
Sappi Limited	27.45%	15.32%	-37.59%	-45.92%	7.04%	7.04%	-0.95%
Sasol Limited	13.76%	-17.73%	-10.01%	0.02%	-4.02%	-4.02%	-2.60%
Silverbridge Holdings Limited	-7.73%	90.79%	-58.93%	-29.92%	71.79%	-7.73%	20.56%
Tiger Brands Limited	32.81%	26.04%	16.50%	27.76%	24.05%	26.04%	25.17%
Trans Hex Group Limited	7.89%	5.58%	23.07%	16.24%	26.04%	16.24%	13.60%

PRE-ACQUISITION BENCHMARK-ADJUSTED EBITDA RETURN

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	-50.25%	-5.03%	-8.73%	-1.66%	4.55%	-5.03%	-10.07%
Bidvest Group Limited	62.48%	43.16%	49.44%	48.98%	48.89%	48.98%	53.77%
Harmony Gold Mining Company Limited	-19.62%	-5.98%	-1.75%	6.89%	4.74%	-1.75%	-1.59%
Hudaco Industries Limited	6.58%	6.99%	-1.06%	13.94%	13.69%	6.99%	6.44%
Iliad Africa Limited	-18.10%	-13.58%	1.06%	18.59%	-35.57%	-13.58%	-12.41%
MTN Group Limited	10.00%	-2.31%	-1.80%	-7.81%	-10.19%	-2.31%	-1.03%
Sappi Limited	18.04%	-8.85%	-10.13%	0.49%	10.04%	0.49%	3.30%
Sasol Limited	16.27%	-8.67%	12.36%	14.71%	10.10%	12.36%	9.11%
Silverbridge Holdings Limited	48.17%	79.68%	-53.85%	-20.63%	78.87%	48.17%	49.10%
Tiger Brands Limited	87.03%	27.94%	15.46%	21.46%	18.54%	21.46%	34.87%
Trans Hex Group Limited	27.29%	28.91%	45.70%	44.71%	45.74%	44.71%	37.04%

POST-ACQUISITION CHANGE BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	33.14%	3.47%	8.56%	12.83%	52.09%	12.83%	18.35%
Bidvest Group Limited	30.84%	90.28%	-10.93%	3.04%	-26.75%	3.04%	39.93%
Harmony Gold Mining Company Limited	-0.16%	2.84%	2.08%	-13.76%	-24.16%	-0.16%	-4.30%
Hudaco Industries Limited	13.10%	22.59%	76.74%	4.83%	-36.47%	13.10%	20.95%
Iliad Africa Limited	24.07%	0.45%	31.64%	0.03%	183.74%	24.07%	45.01%
MTN Group Limited	53.20%	28.34%	11.53%	5.25%	16.61%	16.61%	22.27%
Sappi Limited	-48.93%	-8.22%	57.76%	57.20%	-1.92%	-1.92%	2.95%
Sasol Limited	-6.00%	19.28%	-9.16%	-22.32%	-0.93%	-6.00%	-4.72%
Silverbridge Holdings Limited	29.54%	-118.00%	-2.70%	68.61%	-91.72%	-2.70%	-24.42%
Tiger Brands Limited	-1.59%	-0.17%	-9.41%	-10.44%	6.72%	-1.59%	-4.39%
Trans Hex Group Limited	1.83%	-2.21%	8.82%	12.91%	-15.33%	1.83%	2.83%

POST-ACQUISITION CHANGE BENCHMARK-ADJUSTED EBITDA RETURN

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	71.64%	21.01%	35.44%	24.19%	19.12%	24.19%	31.74%
Bidvest Group Limited	-26.64%	4.23%	-8.34%	-10.18%	-6.61%	-8.34%	-12.28%
Harmony Gold Mining Company Limited	19.00%	10.41%	0.49%	-18.77%	-26.10%	0.49%	-3.49%
Hudaco Industries Limited	-21.67%	-9.90%	9.21%	2.12%	19.89%	2.12%	1.35%
Iliad Africa Limited	15.67%	15.41%	5.50%	0.57%	16.03%	15.41%	17.18%
MTN Group Limited	6.87%	-33.47%	17.99%	15.55%	8.99%	8.99%	2.31%
Sappi Limited	-12.57%	17.27%	28.50%	15.14%	-8.48%	15.14%	1.91%
Sasol Limited	-17.10%	-26.70%	-10.69%	-14.85%	5.11%	-14.85%	-13.48%
Silverbridge Holdings Limited	-26.81%	-78.90%	-4.00%	-116.28%	-47.64%	-47.64%	-54.24%
Tiger Brands Limited	-56.11%	-7.65%	0.57%	0.15%	1.56%	0.15%	-14.64%
Trans Hex Group Limited	-38.88%	-0.08%	3.57%	-11.93%	-25.35%	-11.93%	-12.07%

Table 4.5.2. Level II Benchmark-adjusted returns (Free cash flow and EBITDA)

POST-ACQUISITION BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	13.44%	10.54%	-0.58%	11.21%	40.62%	11.21%	12.98%
Bidvest Group Limited	22.04%	15.33%	26.53%	20.87%	20.21%	20.87%	21.27%
Harmony Gold Mining Company Limited	-4.70%	-0.12%	-1.70%	-9.67%	-4.35%	-4.35%	-3.70%
Hudaco Industries Limited	14.73%	27.21%	28.79%	23.37%	-20.60%	23.37%	14.88%
Iliad Africa Limited	11.79%	10.37%	21.95%	25.27%	55.37%	21.95%	17.81%
MTN Group Limited	11.21%	16.23%	5.76%	0.00%	8.93%	8.93%	7.99%
Sappi Limited	0.85%	5.77%	12.60%	15.20%	11.11%	11.11%	6.96%
Sasol Limited	7.77%	1.55%	-19.17%	-22.29%	-4.95%	-4.95%	-7.31%
Silverbridge Holdings Limited	21.82%	-27.21%	-61.63%	38.69%	-19.93%	-19.93%	-3.86%
Tiger Brands Limited	29.93%	24.25%	5.12%	16.47%	30.00%	24.25%	19.39%
Trans Hex Group Limited	9.72%	3.37%	31.89%	29.15%	10.71%	10.71%	16.42%

PRE-ACQUISITION BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	-19.70%	7.07%	-9.14%	-1.62%	-11.47%	-9.14%	-5.36%
Bidvest Group Limited	-7.78%	-78.30%	38.66%	20.25%	49.67%	20.25%	-18.32%
Harmony Gold Mining Company Limited	-4.53%	-2.96%	-3.77%	4.09%	19.81%	-2.96%	0.61%
Hudaco Industries Limited	1.63%	4.62%	-47.96%	18.54%	15.86%	4.62%	-6.07%
Iliad Africa Limited	24.35%	31.34%	-0.28%	7.37%	-46.84%	7.37%	-1.19%
MTN Group Limited	-41.99%	-12.11%	-5.77%	-5.26%	-7.68%	-7.68%	-14.29%
Sappi Limited	1.00%	-0.76%	-3.49%	-21.47%	-23.03%	-3.49%	-7.36%
Sasol Limited	13.76%	-17.73%	-10.01%	0.02%	-4.02%	-4.02%	-2.60%
Silverbridge Holdings Limited	-7.73%	90.79%	-58.93%	-29.92%	71.79%	-7.73%	20.56%
Tiger Brands Limited	31.99%	25.69%	17.88%	29.15%	24.78%	25.69%	25.48%
Trans Hex Group Limited	7.89%	5.58%	23.07%	16.24%	26.04%	16.24%	13.60%

POST-ACQUISITION CHANGE BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	33.14%	3.47%	8.56%	12.83%	52.09%	12.83%	18.35%
Bidvest Group Limited	29.82%	93.63%	-12.13%	0.61%	-29.45%	0.61%	39.59%
Harmony Gold Mining Company Limited	-0.16%	2.84%	2.08%	-13.76%	-24.16%	-0.16%	-4.30%
Hudaco Industries Limited	13.10%	22.59%	76.74%	4.83%	-36.47%	13.10%	20.95%
Iliad Africa Limited	-12.56%	-20.98%	22.24%	17.90%	102.21%	17.90%	19.00%
MTN Group Limited	53.20%	28.34%	11.53%	5.25%	16.61%	16.61%	22.27%
Sappi Limited	-0.15%	6.53%	16.10%	36.66%	34.13%	16.10%	14.32%
Sasol Limited	-6.00%	19.28%	-9.16%	-22.32%	-0.93%	-6.00%	-4.72%
Silverbridge Holdings Limited	29.54%	-118.00%	-2.70%	68.61%	-91.72%	-2.70%	-24.42%
Tiger Brands Limited	-2.05%	-1.43%	-12.75%	-12.68%	5.22%	-2.05%	-6.09%
Trans Hex Group Limited	1.83%	-2.21%	8.82%	12.91%	-15.33%	1.83%	2.83%

POST-ACQUISITION BENCHMARK-ADJUSTED EBITDA RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	21.39%	15.99%	26.71%	22.53%	23.67%	22.53%	21.67%
Bidvest Group Limited	32.00%	43.21%	38.38%	36.78%	34.53%	36.78%	37.74%
Harmony Gold Mining Company Limited	-0.62%	4.43%	-1.26%	-11.88%	-21.35%	-1.26%	-5.08%
Hudaco Industries Limited	-15.09%	-2.92%	8.14%	16.05%	33.58%	8.14%	7.79%
Iliad Africa Limited	-3.39%	2.22%	7.14%	19.35%	34.30%	7.14%	5.79%
MTN Group Limited	16.86%	-35.78%	16.19%	7.74%	-1.20%	7.74%	1.29%
Sappi Limited	-15.90%	-13.13%	-0.05%	-2.22%	-1.91%	-2.22%	-11.50%
Sasol Limited	-0.83%	-35.37%	1.67%	-0.14%	15.21%	-0.14%	-4.37%
Silverbridge Holdings Limited	21.36%	0.78%	-57.85%	-136.90%	31.24%	0.78%	-5.14%
Tiger Brands Limited	30.31%	17.01%	12.34%	19.98%	18.56%	18.56%	17.75%
Trans Hex Group Limited	-11.59%	28.84%	49.27%	32.78%	20.39%	28.84%	24.97%

PRE-ACQUISITION BENCHMARK-ADJUSTED EBITDA RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	-50.25%	-5.03%	-8.73%	-1.66%	4.55%	-5.03%	-10.07%
Bidvest Group Limited	59.28%	39.07%	43.99%	43.59%	42.31%	43.59%	49.14%
Harmony Gold Mining Company Limited	-19.62%	-5.98%	-1.75%	6.89%	4.74%	-1.75%	-1.59%
Hudaco Industries Limited	6.58%	6.99%	-1.06%	13.94%	13.69%	6.99%	6.44%
Iliad Africa Limited	29.71%	17.70%	13.49%	32.82%	-10.77%	17.70%	14.44%
MTN Group Limited	10.00%	-2.31%	-1.80%	-7.81%	-10.19%	-2.31%	-1.03%
Sappi Limited	-12.87%	-5.74%	-9.18%	-4.90%	-4.60%	-5.74%	-7.36%
Sasol Limited	16.27%	-8.67%	12.36%	14.71%	10.10%	12.36%	9.11%
Silverbridge Holdings Limited	48.17%	79.68%	-53.85%	-20.63%	78.87%	48.17%	49.10%
Tiger Brands Limited	86.85%	29.91%	17.57%	24.20%	19.83%	24.20%	36.31%
Trans Hex Group Limited	27.29%	28.91%	45.70%	44.71%	45.74%	44.71%	37.04%

POST-ACQUISITION CHANGE BENCHMARK-ADJUSTED EBITDA RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	71.64%	21.01%	35.44%	24.19%	19.12%	24.19%	31.74%
Bidvest Group Limited	-27.29%	4.14%	-5.61%	-6.81%	-7.78%	-6.81%	-11.40%
Harmony Gold Mining Company Limited	19.00%	10.41%	0.49%	-18.77%	-26.10%	0.49%	-3.49%
Hudaco Industries Limited	-21.67%	-9.90%	9.21%	2.12%	19.89%	2.12%	1.35%
Iliad Africa Limited	-33.11%	-15.48%	-6.34%	-13.47%	45.06%	-13.47%	-8.65%
MTN Group Limited	6.87%	-33.47%	17.99%	15.55%	8.99%	8.99%	2.31%
Sappi Limited	-3.02%	-7.39%	9.12%	2.68%	2.69%	2.68%	-4.14%
Sasol Limited	-17.10%	-26.70%	-10.69%	-14.85%	5.11%	-14.85%	-13.48%
Silverbridge Holdings Limited	-26.81%	-78.90%	-4.00%	-116.28%	-47.64%	-47.64%	-54.24%
Tiger Brands Limited	-56.53%	-12.90%	-5.23%	-4.21%	-1.27%	-5.23%	-18.56%
Trans Hex Group Limited	-38.88%	-0.08%	3.57%	-11.93%	-25.35%	-11.93%	-12.07%

Table 4.5.3. Level III Benchmark-adjusted returns (Free cash flow and EBITDA)

POST-ACQUISITION BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	13.44%	10.54%	-0.58%	11.21%	40.62%	11.21%	12.98%
Bidvest Group Limited	25.17%	11.36%	26.89%	21.27%	22.83%	22.83%	21.57%
Harmony Gold Mining Company Limited	-4.70%	-0.12%	-1.70%	-9.67%	-4.35%	-4.35%	-3.70%
Hudaco Industries Limited	14.73%	27.21%	28.79%	23.37%	-20.60%	23.37%	14.88%
Iliad Africa Limited	10.26%	-1.67%	12.36%	23.29%	50.46%	12.36%	12.23%
MTN Group Limited	11.21%	16.23%	5.76%	0.00%	8.93%	8.93%	7.99%
Sappi Limited	0.85%	5.77%	12.60%	15.20%	11.11%	11.11%	6.96%
Sasol Limited	7.77%	1.55%	-19.17%	-22.29%	-4.95%	-4.95%	-7.31%
Silverbridge Holdings Limited	21.82%	-27.21%	-61.63%	38.69%	-19.93%	-19.93%	-3.86%
Tiger Brands Limited	38.49%	21.90%	9.93%	22.05%	35.44%	22.05%	23.55%
Trans Hex Group Limited	9.72%	3.37%	31.89%	29.15%	10.71%	10.71%	16.42%

POST-ACQUISITION BENCHMARK-ADJUSTED EBITDA RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	21.39%	15.99%	26.71%	22.53%	23.67%	22.53%	21.67%
Bidvest Group Limited	29.25%	25.88%	29.85%	30.48%	40.41%	29.85%	29.95%
Harmony Gold Mining Company Limited	-0.62%	4.43%	-1.26%	-11.88%	-21.35%	-1.26%	-5.08%
Hudaco Industries Limited	-15.09%	-2.92%	8.14%	16.05%	33.58%	8.14%	7.79%
Iliad Africa Limited	3.37%	-1.99%	-4.10%	9.32%	27.92%	3.37%	3.41%
MTN Group Limited	16.86%	-35.78%	16.19%	7.74%	-1.20%	7.74%	1.29%
Sappi Limited	-15.90%	-13.13%	-0.05%	-2.22%	-1.91%	-2.22%	-11.50%
Sasol Limited	-0.83%	-35.37%	1.67%	-0.14%	15.21%	-0.14%	-4.37%
Silverbridge Holdings Limited	21.36%	0.78%	-57.85%	-136.90%	31.24%	0.78%	-5.14%
Tiger Brands Limited	49.18%	23.52%	20.41%	31.19%	22.43%	23.52%	27.15%
Trans Hex Group Limited	-11.59%	28.84%	49.27%	32.78%	20.39%	28.84%	24.97%

PRE-ACQUISITION BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	-19.70%	7.07%	-9.14%	-1.62%	-11.47%	-9.14%	-5.36%
Bidvest Group Limited	-0.99%	-70.96%	39.80%	22.96%	48.37%	22.96%	-14.32%
Harmony Gold Mining Company Limited	-4.53%	-2.96%	-3.77%	4.09%	19.81%	-2.96%	0.61%
Hudaco Industries Limited	1.63%	4.62%	-47.96%	18.54%	15.86%	4.62%	-6.07%
Iliad Africa Limited	26.66%	37.60%	5.62%	11.04%	-61.76%	11.04%	0.18%
MTN Group Limited	-41.99%	-12.11%	-5.77%	-5.26%	-7.68%	-7.68%	-14.29%
Sappi Limited	1.00%	-0.76%	-3.49%	-21.47%	-23.03%	-3.49%	-7.36%
Sasol Limited	13.76%	-17.73%	-10.01%	0.02%	-4.02%	-4.02%	-2.60%
Silverbridge Holdings Limited	-7.73%	90.79%	-58.93%	-29.92%	71.79%	-7.73%	20.56%
Tiger Brands Limited	35.41%	14.31%	7.56%	24.36%	19.64%	19.64%	20.07%
Trans Hex Group Limited	7.89%	5.58%	23.07%	16.24%	26.04%	16.24%	13.60%

PRE-ACQUISITION BENCHMARK-ADJUSTED EBITDA RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	-50.25%	-5.03%	-8.73%	-1.66%	4.55%	-5.03%	-10.07%
Bidvest Group Limited	57.67%	42.68%	40.40%	38.33%	37.01%	40.40%	47.24%
Harmony Gold Mining Company Limited	-19.62%	-5.98%	-1.75%	6.89%	4.74%	-1.75%	-1.59%
Hudaco Industries Limited	6.58%	6.99%	-1.06%	13.94%	13.69%	6.99%	6.44%
Iliad Africa Limited	37.92%	16.66%	-23.17%	26.61%	-19.61%	16.66%	7.96%
MTN Group Limited	10.00%	-2.31%	-1.80%	-7.81%	-10.19%	-2.31%	-1.03%
Sappi Limited	-12.87%	-5.74%	-9.18%	-4.90%	-4.60%	-5.74%	-7.36%
Sasol Limited	16.27%	-8.67%	12.36%	14.71%	10.10%	12.36%	9.11%
Silverbridge Holdings Limited	48.17%	79.68%	-53.85%	-20.63%	78.87%	48.17%	49.10%
Tiger Brands Limited	81.11%	16.69%	9.91%	16.66%	12.55%	16.66%	28.13%
Trans Hex Group Limited	27.29%	28.91%	45.70%	44.71%	45.74%	44.71%	37.04%

POST-ACQUISITION CHANGE BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	33.14%	3.47%	8.56%	12.83%	52.09%	12.83%	18.35%
Bidvest Group Limited	26.16%	82.32%	-12.91%	-1.69%	-25.54%	-1.69%	35.89%
Harmony Gold Mining Company Limited	-0.16%	2.84%	2.08%	-13.76%	-24.16%	-0.16%	-4.30%
Hudaco Industries Limited	13.10%	22.59%	76.74%	4.83%	-36.47%	13.10%	20.95%
Iliad Africa Limited	-16.39%	-39.28%	6.74%	12.25%	112.22%	6.74%	12.05%
MTN Group Limited	53.20%	28.34%	11.53%	5.25%	16.61%	16.61%	22.27%
Sappi Limited	-0.15%	6.53%	16.10%	36.66%	34.13%	16.10%	14.32%
Sasol Limited	-6.00%	19.28%	-9.16%	-22.32%	-0.93%	-6.00%	-4.72%
Silverbridge Holdings Limited	29.54%	-118.00%	-2.70%	68.61%	-91.72%	-2.70%	-24.42%
Tiger Brands Limited	3.08%	7.59%	2.37%	-2.31%	15.79%	3.08%	3.49%
Trans Hex Group Limited	1.83%	-2.21%	8.82%	12.91%	-15.33%	1.83%	2.83%

POST-ACQUISITION CHANGE BENCHMARK-ADJUSTED EBITDA RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	71.64%	21.01%	35.44%	24.19%	19.12%	24.19%	31.74%
Bidvest Group Limited	-28.42%	-16.81%	-10.54%	-7.86%	3.40%	-10.54%	-17.29%
Harmony Gold Mining Company Limited	19.00%	10.41%	0.49%	-18.77%	-26.10%	0.49%	-3.49%
Hudaco Industries Limited	-21.67%	-9.90%	9.21%	2.12%	19.89%	2.12%	1.35%
Iliad Africa Limited	-34.55%	-18.66%	19.07%	-17.29%	47.53%	-17.29%	-4.55%
MTN Group Limited	6.87%	-33.47%	17.99%	15.55%	8.99%	8.99%	2.31%
Sappi Limited	-3.02%	-7.39%	9.12%	2.68%	2.69%	2.68%	-4.14%
Sasol Limited	-17.10%	-26.70%	-10.69%	-14.85%	5.11%	-14.85%	-13.48%
Silverbridge Holdings Limited	-26.81%	-78.90%	-4.00%	-116.28%	-47.64%	-47.64%	-54.24%
Tiger Brands Limited	-31.93%	6.82%	10.50%	14.54%	9.88%	9.88%	-0.98%
Trans Hex Group Limited	-38.88%	-0.08%	3.57%	-11.93%	-25.35%	-11.93%	-12.07%

4.5. Capital expenditure analysis

Significant changes in capital expenditure between pre-acquisition and post-acquisition periods, or significant differences between acquiring firms and benchmark firms, could result in significant differences in free cash flow returns. In an effort to isolate the contribution of changes in capital expenditure to any observable changes from pre-acquisition to post-acquisition returns, or differences between acquiring firms' and benchmark firms' returns, relative levels of capital expenditure were measured in two ways:

1. Capital expenditure (expenditure net of asset disposals) as percentage of revenue; and
2. Capital expenditure (expenditure net of asset disposals) as percentage of depreciation.

Table 4.6 provides details relating to these relative levels of capital expenditure for Level I benchmark selection. Graph 4.6. indicates capital expenditure as percentage of revenue for the respective pre-acquisition and post-acquisition five year periods.

Table 4.6. Relative levels of capital expenditure

POST-ACQUISITION CAPITAL EXPENDITURE AS % OF REVENUE

Acquiring Firm

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	11.28%	13.69%	11.61%	10.99%	5.47%	11.28%	11.16%
Bidvest Group Limited	1.80%	2.12%	1.70%	1.71%	1.73%	1.73%	1.84%
Harmony Gold Mining Company Limited	26.38%	33.51%	27.87%	20.74%	8.60%	26.38%	24.53%
Hudaco Industries Limited	0.79%	0.39%	0.52%	1.54%	5.53%	0.79%	1.77%
Iliad Africa Limited	1.06%	0.69%	0.52%	0.61%	0.40%	0.61%	0.71%
MTN Group Limited	10.12%	14.31%	26.43%	27.53%	22.13%	22.13%	19.60%
Sappi Limited	5.42%	4.30%	4.58%	1.68%	5.60%	4.58%	3.74%
Sasol Limited	15.30%	17.41%	17.74%	16.21%	13.97%	16.21%	16.10%
Silverbridge Holdings Limited	2.40%	1.49%	1.45%	8.72%	4.12%	2.40%	3.75%
Tiger Brands Limited	2.12%	1.54%	1.26%	0.48%	-1.57%	1.26%	0.83%
Trans Hex Group Limited	8.69%	13.28%	7.15%	15.84%	24.57%	13.28%	13.33%

PRE-ACQUISITION CAPITAL EXPENDITURE AS % OF REVENUE

Acquiring Firm

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	2.66%	9.38%	2.56%	2.34%	2.14%	2.56%	4.17%
Bidvest Group Limited	4.47%	13.18%	1.37%	1.35%	1.37%	1.37%	5.02%
Harmony Gold Mining Company Limited	10.39%	8.95%	7.44%	2.95%	5.48%	7.44%	8.21%
Hudaco Industries Limited	2.14%	0.72%	11.43%	0.62%	1.68%	1.68%	3.60%
Iliad Africa Limited	0.85%	-0.05%	1.24%	7.72%	36.08%	1.24%	5.34%
MTN Group Limited	47.71%	21.13%	20.22%	28.79%	55.19%	28.79%	33.77%
Sappi Limited	12.42%	16.39%	8.65%	45.62%	6.24%	12.42%	16.50%
Sasol Limited	7.45%	12.05%	18.09%	16.30%	14.44%	14.44%	12.95%
Silverbridge Holdings Limited	3.58%	2.56%	0.00%	1.67%	4.18%	2.56%	2.88%
Tiger Brands Limited	0.31%	4.15%	2.08%	-1.70%	0.68%	0.68%	1.20%
Trans Hex Group Limited	28.03%	19.09%	20.74%	27.99%	10.96%	20.74%	22.12%

POST-ACQUISITION CAPITAL EXPENDITURE AS % OF REVENUE

Acquiring Firm Benchmark

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	6.56%	6.85%	6.34%	6.80%	6.26%	6.56%	6.59%
Bidvest Group Limited	1.50%	4.26%	4.25%	3.36%	5.14%	4.25%	3.52%
Harmony Gold Mining Company Limited	13.71%	34.76%	28.43%	19.29%	22.02%	22.02%	23.61%
Hudaco Industries Limited	4.58%	6.44%	6.70%	5.47%	4.08%	5.47%	5.47%
Iliad Africa Limited	2.59%	4.33%	3.45%	3.74%	5.20%	3.74%	3.59%
MTN Group Limited	9.49%	9.65%	15.39%	16.74%	19.19%	15.39%	13.25%
Sappi Limited	5.32%	-0.19%	-0.71%	-0.01%	0.85%	-0.01%	1.38%
Sasol Limited	5.82%	4.79%	5.81%	4.30%	3.64%	4.79%	4.85%
Silverbridge Holdings Limited	0.97%	1.03%	0.94%	0.80%	0.75%	0.94%	0.93%
Tiger Brands Limited	4.18%	5.33%	5.07%	4.69%	5.50%	5.07%	4.94%
Trans Hex Group Limited	19.55%	19.29%	18.44%	14.91%	12.31%	18.44%	16.89%

POST-ACQUISITION CAPITAL EXPENDITURE AS % OF REVENUE

Acquiring Firm Benchmark

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	7.28%	31.95%	8.60%	15.12%	3.71%	8.60%	14.86%
Bidvest Group Limited	1.48%	2.44%	2.29%	1.76%	-0.68%	1.76%	1.62%
Harmony Gold Mining Company Limited	16.20%	13.08%	13.06%	13.47%	19.10%	13.47%	14.73%
Hudaco Industries Limited	2.38%	1.57%	1.40%	0.29%	4.28%	1.57%	1.89%
Iliad Africa Limited	3.75%	3.88%	4.00%	3.79%	1.44%	3.79%	3.44%
MTN Group Limited	13.55%	12.74%	15.08%	26.18%	30.02%	15.08%	18.78%
Sappi Limited	16.51%	5.41%	0.02%	-4.49%	0.27%	0.27%	4.03%
Sasol Limited	4.43%	4.87%	4.89%	6.12%	5.83%	4.89%	5.21%
Silverbridge Holdings Limited	0.68%	0.66%	0.57%	1.01%	1.05%	0.68%	0.68%
Tiger Brands Limited	6.02%	11.75%	8.09%	5.36%	4.42%	6.02%	7.25%
Trans Hex Group Limited	12.36%	17.76%	12.13%	6.02%	0.00%	12.13%	12.15%

POST-ACQUISITION CAPITAL EXPENDITURE AS % OF DEPRECIATION

Acquiring Firm

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	903.07%	943.45%	784.21%	558.13%	163.97%	784.21%	651.09%
Bidvest Group Limited	134.83%	139.53%	122.46%	129.50%	133.58%	133.58%	132.49%
Harmony Gold Mining Company Limited	210.19%	475.28%	295.48%	153.08%	82.58%	210.19%	234.47%
Hudaco Industries Limited	70.15%	31.12%	17.06%	128.55%	480.47%	70.15%	146.15%
Iliad Africa Limited	144.75%	127.33%	78.55%	85.55%	53.59%	85.55%	105.53%
MTN Group Limited	92.79%	123.91%	250.59%	283.99%	239.00%	239.00%	186.61%
Sappi Limited	65.16%	60.00%	67.50%	22.17%	77.51%	65.16%	50.52%
Sasol Limited	403.42%	335.76%	225.96%	234.20%	209.01%	234.20%	271.70%
Silverbridge Holdings Limited	316.69%	86.93%	82.43%	562.32%	414.84%	316.69%	280.82%
Tiger Brands Limited	137.13%	144.18%	112.01%	43.70%	-125.38%	112.01%	69.51%
Trans Hex Group Limited	71.12%	99.43%	68.78%	132.45%	158.18%	99.43%	106.17%

POST-ACQUISITION CAPITAL EXPENDITURE AS % OF DEPRECIATION

Acquiring Firm

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	104.59%	473.73%	167.49%	152.72%	128.88%	152.72%	221.04%
Bidvest Group Limited	274.40%	1361.39%	141.64%	156.12%	166.97%	166.97%	436.05%
Harmony Gold Mining Company Limited	160.65%	226.95%	141.12%	64.90%	125.71%	141.12%	160.15%
Hudaco Industries Limited	149.79%	45.63%	673.42%	36.68%	104.02%	104.02%	226.44%
Iliad Africa Limited	125.51%	-7.15%	152.69%	1141.49%	7649.40%	152.69%	765.88%
MTN Group Limited	515.15%	228.90%	237.67%	330.94%	668.31%	330.94%	377.61%
Sappi Limited	229.57%	322.28%	148.22%	760.88%	93.86%	229.57%	297.79%
Sasol Limited	111.11%	164.56%	251.88%	264.58%	221.27%	221.27%	190.37%
Silverbridge Holdings Limited	223.31%	172.43%	0.00%	78.24%	223.23%	172.43%	184.71%
Tiger Brands Limited	19.96%	303.72%	156.05%	-116.32%	40.70%	40.70%	82.01%
Trans Hex Group Limited	308.91%	199.00%	171.31%	245.03%	100.46%	199.00%	210.02%

POST-ACQUISITION CAPITAL EXPENDITURE AS % OF DEPRECIATION

Acquiring Firm Benchmark

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	40.02%	131.89%	123.92%	96.08%	133.28%	123.92%	99.81%
Bidvest Group Limited	226.42%	235.82%	202.70%	209.25%	212.74%	212.74%	219.24%
Harmony Gold Mining Company Limited	98.29%	247.69%	179.99%	124.63%	139.72%	139.72%	159.33%
Hudaco Industries Limited	151.72%	210.87%	228.62%	216.83%	173.33%	210.87%	193.33%
Iliad Africa Limited	212.28%	352.81%	303.61%	296.96%	485.75%	303.61%	299.28%
MTN Group Limited	128.65%	130.48%	265.52%	237.03%	222.79%	222.79%	188.42%
Sappi Limited	238.37%	-6.24%	-21.10%	-0.16%	17.96%	-0.16%	41.28%
Sasol Limited	212.35%	163.89%	140.25%	135.41%	114.09%	140.25%	151.73%
Silverbridge Holdings Limited	169.12%	194.88%	189.09%	153.94%	163.49%	169.12%	176.07%
Tiger Brands Limited	131.44%	135.37%	142.50%	109.17%	120.22%	131.44%	127.57%
Trans Hex Group Limited	129.17%	131.48%	204.01%	249.15%	169.03%	169.03%	161.10%

POST-ACQUISITION CAPITAL EXPENDITURE AS % OF DEPRECIATION

Acquiring Firm Benchmark

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Bidvest Healthcare Holdings Limited	59.60%	131.38%	134.90%	105.59%	-33.50%	105.59%	82.67%
Bidvest Group Limited	249.33%	984.91%	253.57%	456.11%	108.86%	253.57%	478.76%
Harmony Gold Mining Company Limited	277.05%	162.50%	182.93%	200.27%	1828.11%	200.27%	241.64%
Hudaco Industries Limited	87.76%	58.62%	51.24%	12.00%	183.14%	58.62%	73.26%
Iliad Africa Limited	329.37%	381.24%	377.01%	326.34%	99.47%	329.37%	298.35%
MTN Group Limited	100.27%	76.81%	92.27%	173.23%	197.35%	100.27%	122.50%
Sappi Limited	373.81%	162.27%	0.55%	-98.37%	5.54%	5.54%	103.00%
Sasol Limited	129.33%	130.17%	128.32%	177.03%	173.80%	130.17%	146.07%
Silverbridge Holdings Limited	169.54%	172.95%	108.98%	152.42%	105.55%	152.42%	146.66%
Tiger Brands Limited	192.11%	446.53%	335.35%	252.21%	218.89%	252.21%	293.97%
Trans Hex Group Limited	190.32%	1295.45%	896.43%	487.12%	0.00%	487.12%	399.81%

Graph 4.6. Capital expenditure as percentage of revenue

——— Pre-acquisition: Capital expenditure as percentage of revenue

——— Post-acquisition: Capital expenditure as percentage of revenue

Graph 4.6. Capital expenditure as percentage of revenue

Pre-acquisition: Capital expenditure as percentage of revenue
Post-acquisition: Capital expenditure as percentage of revenue

Sappi Limited

Sasol Limited

Silverbridge Holdings Limited

Tiger Brands Limited

Trans Hex Group Limited
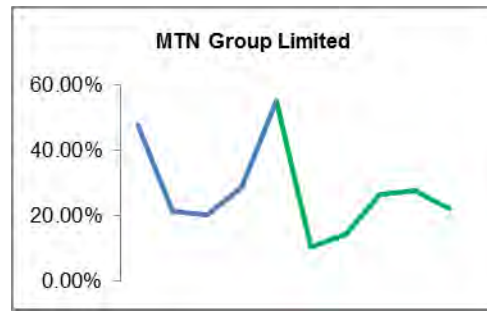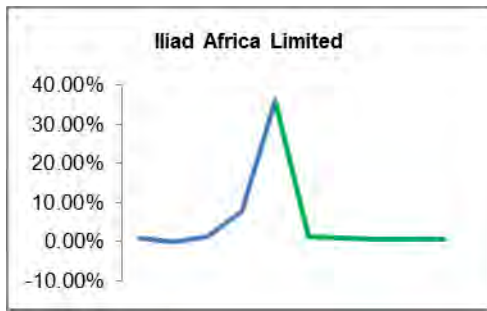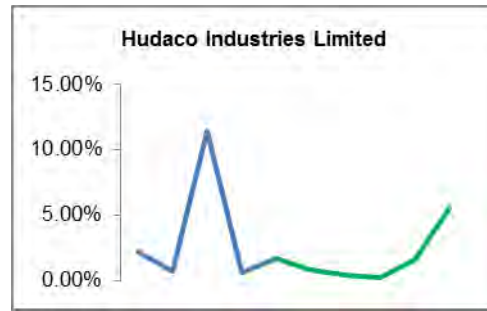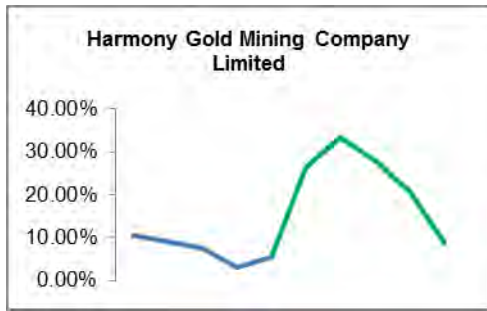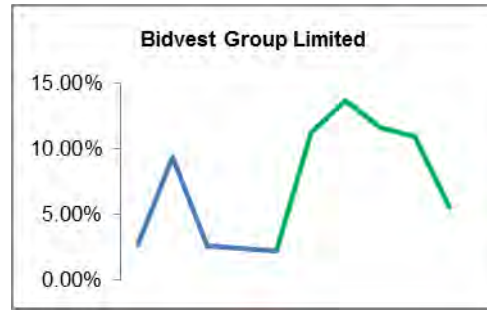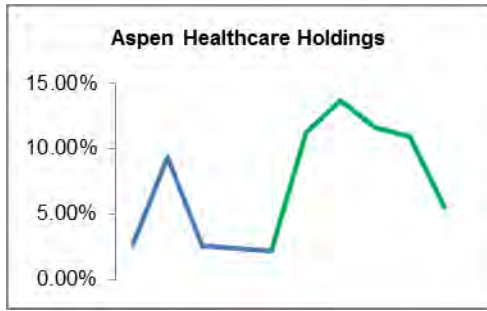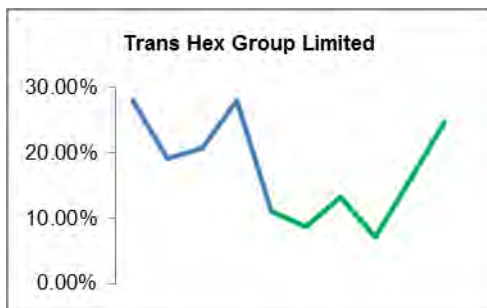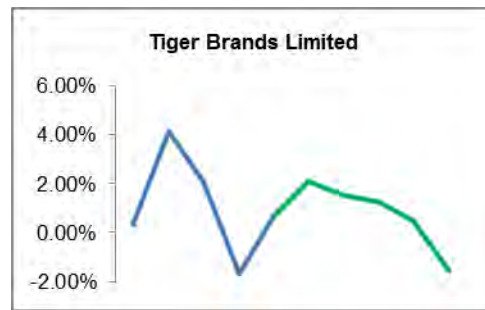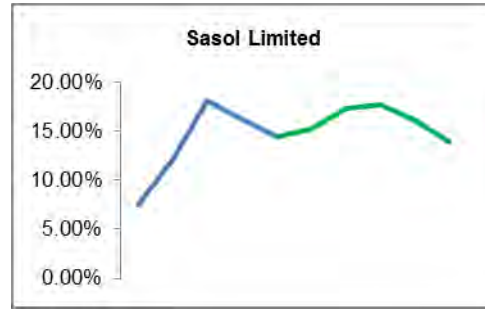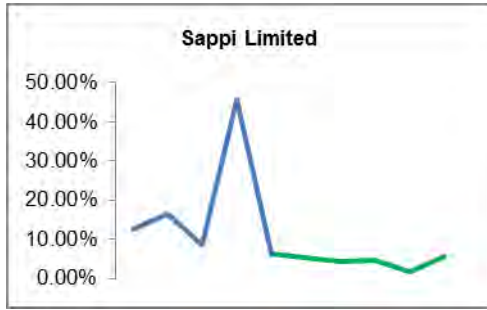
4.6. Adjustment for operating leases

As outlined in Chapter Three a challenge to using reported book values for assets when calculating capital employed is presented by the use of long-term operating leases by some firms as a form of off-balance sheet financing. Comparing free cash flow returns for two different firms where one firm owns the fixed assets used to generate returns as opposed to the second firm which uses long-term operating leases might result in inaccurate conclusions.

For this reason adjustments were made to the reported financial results of all acquiring firms and relevant benchmark constituents in an effort to ensure comparability. The aim of these adjustments were to effectively treat all long-term operating leases as owned assets in an effort to ensure comparability of the capital bases of all firms. This capitalisation of long-term operating leases is in line with the proposed adjustments to the accounting standards prescribing the accounting treatment of operating leases as proposed by the International Accounting Standards Board.

Adjustments for long-term operating leases were made in the following manner:

1. The long-term operating lease commitments as disclosed at each year-end was divided by the total operating lease payments for the respective years in order to estimate the operating lease terms relating to each year's disclosed operating lease commitments- and payments.
2. The disclosed operating lease payments for each year and the estimated operating lease terms were used to calculate the estimated present value of future operating lease payments. The median South African prime interest rate for each respective five year period was used as discount rate.
3. An adjustment to the capital base of each of the individual years within the respective five year periods were made by adding the estimated present values of the long-term operating leases to reported total assets excluding cash reserves, effectively treating these long-term operating leases as owned assets. This adjustment assumes that the alternative to long-term operating leases would be to fund the acquisition of the respective assets by means of debt or cash.

4. The annual changes in adjusted total assets were added to capital expenditure amounts as per the financial statements. The financial information obtained from the INET BFA database does not provide details relating to accumulated depreciation balances. Only net book values of fixed assets are provided. Without the accumulated depreciation balances it is not possible to estimate the average depreciation periods for acquiring and benchmark firms, which would be required to calculate the estimated depreciation charge and accumulated depreciation for the operating lease adjustments to fixed assets and capital expenditure. Not adjusting for estimated accumulated depreciation balances could result in an understatement of the adjustments to capital expenditure relating from the annual movements in fixed assets. The impact of such a potential understatement on the overall results and conclusion are deemed immaterial given the consistent omission of estimated depreciation amounts across all acquiring and benchmark firms. It is however acknowledged that to the extent that the acquiring firms and the benchmark firms use varying levels of operating leases it could result in differences in returns.

5. Cash flow from operating activities for each year was adjusted by adding back the after-tax operating lease payments for each year. After-tax operating lease payments were calculated using the effective tax rate for each year.

Tables 4.7.1 – 4.7.3 sets out the results for all three levels of benchmark selection (Levels I, III and III) using free cash flow and total return, as well as adjusting the results to use EBITDA and median return, after making the adjustments relating to operating leases as outlined.

Table 4.7.1. Level I Benchmark-adjusted returns (Free cash flow and EBITDA) adjusted for operating leases

POST-ACQUISITION BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	13.14%	9.29%	-0.33%	12.43%	31.50%	12.43%	11.84%
Bidvest Group Limited	12.91%	13.75%	15.62%	13.25%	13.69%	13.69%	13.48%
Harmony Gold Mining Company Limited	-5.06%	-0.41%	0.25%	-9.89%	-4.35%	-4.35%	-3.47%
Hudaco Industries Limited	15.45%	26.52%	32.40%	11.60%	-10.92%	15.45%	15.24%
Iliad Africa Limited	12.00%	15.34%	14.39%	7.40%	24.72%	14.39%	12.67%
MTN Group Limited	0.44%	17.99%	5.81%	0.93%	11.53%	5.81%	6.47%
Sappi Limited	-21.24%	6.77%	58.66%	6.59%	0.53%	6.59%	0.42%
Sasol Limited	6.00%	-10.18%	-15.67%	-17.22%	-0.76%	-10.18%	-7.43%
Silverbridge Holdings Limited	27.68%	-9.18%	-46.50%	67.94%	-10.54%	-9.18%	4.43%
Tiger Brands Limited	39.91%	16.31%	2.77%	16.51%	28.80%	16.51%	18.25%
Trans Hex Group Limited	10.44%	3.37%	31.89%	29.15%	10.71%	10.71%	16.64%

POST-ACQUISITION BENCHMARK-ADJUSTED EBITDA RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	23.11%	16.38%	27.54%	24.15%	14.78%	23.11%	21.42%
Bidvest Group Limited	23.15%	35.28%	24.11%	24.77%	26.66%	24.77%	26.82%
Harmony Gold Mining Company Limited	-0.95%	4.18%	0.75%	-12.00%	-21.35%	-0.95%	-4.80%
Hudaco Industries Limited	-12.00%	-1.23%	13.14%	3.93%	45.04%	3.93%	8.62%
Iliad Africa Limited	1.56%	5.84%	6.67%	4.22%	-8.87%	4.22%	2.62%
MTN Group Limited	6.43%	-22.68%	17.36%	9.72%	2.75%	6.43%	2.43%
Sappi Limited	6.25%	7.71%	99.98%	-1.97%	-4.22%	6.25%	2.34%
Sasol Limited	-2.25%	-45.29%	5.33%	5.28%	19.24%	5.28%	-3.44%
Silverbridge Holdings Limited	29.29%	18.80%	-43.43%	-81.65%	35.35%	18.80%	3.72%
Tiger Brands Limited	38.41%	10.16%	10.94%	20.70%	18.87%	18.87%	17.36%
Trans Hex Group Limited	-10.79%	28.84%	49.27%	32.78%	20.39%	28.84%	25.21%

PRE-ACQUISITION BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	-20.65%	6.26%	-14.45%	-2.16%	-11.61%	-11.61%	-6.52%
Bidvest Group Limited	-8.87%	-67.15%	28.32%	24.03%	55.57%	24.03%	-15.71%
Harmony Gold Mining Company Limited	-4.53%	-2.96%	-3.77%	4.09%	19.81%	-2.96%	0.61%
Hudaco Industries Limited	0.67%	4.04%	-46.35%	18.54%	15.86%	4.04%	-5.99%
Iliad Africa Limited	-6.54%	6.36%	-4.55%	30.44%	-163.76%	-4.55%	-17.71%
MTN Group Limited	-38.35%	-14.57%	-9.25%	-6.85%	-5.00%	-9.25%	-14.05%
Sappi Limited	24.48%	15.31%	-37.91%	-45.88%	6.17%	6.17%	-1.86%
Sasol Limited	14.35%	-16.12%	-10.67%	0.93%	-2.42%	-2.42%	-1.86%
Silverbridge Holdings Limited	-0.78%	60.22%	-40.20%	-28.62%	96.08%	-0.78%	20.83%
Tiger Brands Limited	31.70%	23.97%	13.41%	23.11%	20.62%	23.11%	22.48%
Trans Hex Group Limited	7.89%	5.58%	23.07%	16.24%	26.04%	16.24%	13.60%

PRE-ACQUISITION BENCHMARK-ADJUSTED EBITDA RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	-51.20%	-5.84%	-14.04%	-2.20%	4.41%	-5.84%	-11.23%
Bidvest Group Limited	55.96%	38.51%	37.17%	55.37%	54.30%	54.30%	44.99%
Harmony Gold Mining Company Limited	-19.62%	-5.98%	-1.75%	6.89%	4.74%	-1.75%	-1.59%
Hudaco Industries Limited	6.06%	6.59%	0.98%	13.94%	13.69%	6.59%	6.29%
Iliad Africa Limited	-8.19%	-8.63%	10.51%	29.35%	-61.66%	-8.19%	16.20%
MTN Group Limited	12.91%	-5.11%	-5.35%	-8.49%	-6.36%	-5.35%	-0.81%
Sappi Limited	-3.69%	-1.34%	-3.41%	-4.31%	-0.82%	-3.41%	-0.25%
Sasol Limited	17.54%	-6.58%	11.85%	16.12%	11.92%	11.92%	10.24%
Silverbridge Holdings Limited	50.83%	50.11%	-32.59%	-16.76%	107.23%	50.11%	47.31%
Tiger Brands Limited	79.65%	23.61%	10.62%	16.31%	14.76%	16.31%	31.70%
Trans Hex Group Limited	27.29%	28.91%	45.70%	44.71%	45.74%	44.71%	37.04%

POST-ACQUISITION CHANGE BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	33.79%	3.04%	14.12%	14.59%	43.11%	14.59%	18.37%
Bidvest Group Limited	21.78%	80.90%	-12.70%	-10.79%	-41.88%	-10.79%	29.19%
Harmony Gold Mining Company Limited	-0.52%	2.55%	4.03%	-13.99%	-24.16%	-0.52%	-4.07%
Hudaco Industries Limited	14.78%	22.48%	78.75%	-6.94%	-26.79%	14.78%	21.23%
Iliad Africa Limited	18.54%	8.98%	18.94%	-23.04%	188.48%	18.54%	30.39%
MTN Group Limited	38.78%	32.56%	15.06%	7.78%	16.53%	16.53%	20.52%
Sappi Limited	-45.72%	-8.55%	96.57%	52.46%	-5.65%	-5.65%	2.28%
Sasol Limited	-8.35%	5.94%	-4.99%	-18.15%	1.66%	-4.99%	-5.58%
Silverbridge Holdings Limited	28.46%	-69.40%	-6.29%	96.56%	-106.62%	-6.29%	-16.39%
Tiger Brands Limited	8.20%	-7.66%	-10.64%	-6.60%	8.18%	-6.60%	-4.22%
Trans Hex Group Limited	2.55%	-2.21%	8.82%	12.91%	-15.33%	2.55%	3.04%

POST-ACQUISITION CHANGE BENCHMARK-ADJUSTED EBITDA RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	74.31%	22.22%	41.58%	26.35%	10.37%	26.35%	32.66%
Bidvest Group Limited	-32.81%	-3.23%	-13.06%	-30.60%	-27.64%	-27.64%	-18.17%
Harmony Gold Mining Company Limited	18.67%	10.16%	2.50%	-18.89%	-26.10%	2.50%	-3.21%
Hudaco Industries Limited	-18.06%	-7.82%	12.16%	-10.01%	31.36%	-7.82%	2.33%
Iliad Africa Limited	9.75%	14.47%	-3.85%	-25.12%	52.79%	9.75%	-13.59%
MTN Group Limited	-6.48%	-17.57%	22.71%	18.21%	9.11%	9.11%	3.24%
Sappi Limited	9.94%	9.06%	103.40%	2.33%	-3.40%	9.06%	2.59%
Sasol Limited	-19.79%	-38.71%	-6.52%	-10.83%	7.31%	-10.83%	-13.68%
Silverbridge Holdings Limited	-21.54%	-31.31%	-10.84%	-64.90%	-71.88%	-31.31%	-43.59%
Tiger Brands Limited	-41.24%	-13.45%	0.32%	4.40%	4.11%	0.32%	-14.34%
Trans Hex Group Limited	-38.09%	-0.08%	3.57%	-11.93%	-25.35%	-11.93%	-11.83%

Table 4.7.2. Level II Benchmark-adjusted returns (Free cash flow and EBITDA) adjusted for operating leases

POST-ACQUISITION BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	13.14%	9.29%	-0.33%	12.43%	31.50%	12.43%	11.84%
Bidvest Group Limited	12.91%	12.80%	14.05%	12.81%	9.46%	12.81%	12.58%
Harmony Gold Mining Company Limited	-5.06%	-0.41%	0.25%	-9.89%	-4.35%	-4.35%	-3.47%
Hudaco Industries Limited	15.45%	26.52%	32.40%	11.60%	-10.92%	15.45%	15.24%
Iliad Africa Limited	15.35%	7.83%	21.78%	9.04%	49.39%	15.35%	18.69%
MTN Group Limited	0.44%	17.99%	5.81%	0.93%	11.53%	5.81%	6.47%
Sappi Limited	1.84%	7.48%	52.30%	12.25%	8.58%	8.58%	6.94%
Sasol Limited	6.00%	-10.18%	-15.67%	-17.22%	-0.76%	-10.18%	-7.43%
Silverbridge Holdings Limited	27.68%	-9.18%	-46.50%	67.94%	-10.54%	-9.18%	4.43%
Tiger Brands Limited	39.52%	14.89%	2.91%	14.81%	28.75%	14.89%	17.42%
Trans Hex Group Limited	10.44%	3.37%	31.89%	29.15%	10.71%	10.71%	16.64%

POST-ACQUISITION BENCHMARK-ADJUSTED EBITDA RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	23.11%	16.38%	27.54%	24.15%	14.78%	23.11%	21.42%
Bidvest Group Limited	19.28%	31.56%	21.44%	23.15%	18.33%	21.44%	23.28%
Harmony Gold Mining Company Limited	-0.95%	4.18%	0.75%	-12.00%	-21.35%	-0.95%	-4.80%
Hudaco Industries Limited	-12.00%	-1.23%	13.14%	3.93%	45.04%	3.93%	8.62%
Iliad Africa Limited	9.08%	6.48%	16.04%	6.99%	39.00%	9.08%	14.51%
MTN Group Limited	6.43%	-22.68%	17.36%	9.72%	2.75%	6.43%	2.43%
Sappi Limited	5.88%	9.92%	102.06%	1.72%	-2.16%	5.88%	4.28%
Sasol Limited	-2.25%	-45.29%	5.33%	5.28%	19.24%	5.28%	-3.44%
Silverbridge Holdings Limited	29.29%	18.80%	-43.43%	-81.65%	35.35%	18.80%	3.72%
Tiger Brands Limited	39.03%	7.33%	9.63%	18.19%	18.15%	18.15%	15.60%
Trans Hex Group Limited	-10.79%	28.84%	49.27%	32.78%	20.39%	28.84%	25.21%

PRE-ACQUISITION BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	-20.65%	6.26%	-14.45%	-2.16%	-11.61%	-11.61%	-6.52%
Bidvest Group Limited	-7.47%	-71.24%	27.51%	25.15%	53.94%	25.15%	-16.44%
Harmony Gold Mining Company Limited	-4.53%	-2.96%	-3.77%	4.09%	19.81%	-2.96%	0.61%
Hudaco Industries Limited	-0.10%	3.65%	-49.08%	18.46%	17.39%	3.65%	-6.58%
Iliad Africa Limited	11.32%	25.52%	33.68%	-12.85%	-35.72%	11.32%	3.68%
MTN Group Limited	-38.35%	-14.57%	-9.25%	-6.85%	-5.00%	-9.25%	-14.05%
Sappi Limited	0.42%	-0.90%	-3.88%	-21.47%	-23.60%	-3.88%	-7.68%
Sasol Limited	14.35%	-16.12%	-10.67%	0.93%	-2.42%	-2.42%	-1.86%
Silverbridge Holdings Limited	-0.78%	60.22%	-40.20%	-28.62%	96.08%	-0.78%	20.83%
Tiger Brands Limited	30.79%	23.76%	14.90%	24.51%	21.37%	23.76%	22.81%
Trans Hex Group Limited	7.89%	5.58%	23.07%	16.24%	26.04%	16.24%	13.60%

PRE-ACQUISITION BENCHMARK-ADJUSTED EBITDA RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	-51.20%	-5.84%	-14.04%	-2.20%	4.41%	-5.84%	-11.23%
Bidvest Group Limited	53.24%	34.56%	31.51%	49.71%	47.04%	47.04%	44.99%
Harmony Gold Mining Company Limited	-19.62%	-5.98%	-1.75%	6.89%	4.74%	-1.75%	-1.59%
Hudaco Industries Limited	5.31%	6.20%	-1.80%	14.16%	15.78%	6.20%	6.29%
Iliad Africa Limited	15.47%	18.66%	47.03%	-0.86%	-1.35%	15.47%	16.20%
MTN Group Limited	12.91%	-5.11%	-5.35%	-8.49%	-6.36%	-5.35%	-0.81%
Sappi Limited	-0.41%	-0.86%	0.17%	-0.55%	-0.62%	-0.55%	-0.25%
Sasol Limited	17.54%	-6.58%	11.85%	16.12%	11.92%	11.92%	10.24%
Silverbridge Holdings Limited	50.83%	50.11%	-32.59%	-16.76%	107.23%	50.11%	47.31%
Tiger Brands Limited	79.32%	25.69%	12.80%	19.00%	16.08%	19.00%	31.70%
Trans Hex Group Limited	27.29%	28.91%	45.70%	44.71%	45.74%	44.71%	37.04%

POST-ACQUISITION CHANGE BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	33.79%	3.04%	14.12%	14.59%	43.11%	14.59%	18.37%
Bidvest Group Limited	20.38%	84.04%	-13.47%	-12.34%	-44.48%	-12.34%	29.01%
Harmony Gold Mining Company Limited	-0.52%	2.55%	4.03%	-13.99%	-24.16%	-0.52%	-4.07%
Hudaco Industries Limited	15.55%	22.88%	81.48%	-6.86%	-28.31%	15.55%	21.82%
Iliad Africa Limited	4.03%	-17.69%	-11.90%	21.89%	85.11%	4.03%	15.00%
MTN Group Limited	38.78%	32.56%	15.06%	7.78%	16.53%	16.53%	20.52%
Sappi Limited	1.42%	8.39%	56.18%	33.73%	32.19%	32.19%	14.62%
Sasol Limited	-8.35%	5.94%	-4.99%	-18.15%	1.66%	-4.99%	-5.58%
Silverbridge Holdings Limited	28.46%	-69.40%	-6.29%	96.56%	-106.62%	-6.29%	-16.39%
Tiger Brands Limited	8.73%	-8.87%	-11.98%	-9.70%	7.38%	-8.87%	-5.39%
Trans Hex Group Limited	2.55%	-2.21%	8.82%	12.91%	-15.33%	2.55%	3.04%

POST-ACQUISITION CHANGE BENCHMARK-ADJUSTED EBITDA RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	74.31%	22.22%	41.58%	26.35%	10.37%	26.35%	32.66%
Bidvest Group Limited	-33.96%	-2.99%	-10.07%	-26.57%	-28.70%	-26.57%	-21.71%
Harmony Gold Mining Company Limited	18.67%	10.16%	2.50%	-18.89%	-26.10%	2.50%	-3.21%
Hudaco Industries Limited	-17.32%	-7.43%	14.93%	-10.23%	29.27%	-7.43%	2.33%
Iliad Africa Limited	-6.39%	-12.19%	-30.99%	7.85%	40.35%	-6.39%	-1.70%
MTN Group Limited	-6.48%	-17.57%	22.71%	18.21%	9.11%	9.11%	3.24%
Sappi Limited	6.30%	10.78%	101.89%	2.27%	-1.54%	6.30%	4.53%
Sasol Limited	-19.79%	-38.71%	-6.52%	-10.83%	7.31%	-10.83%	-13.68%
Silverbridge Holdings Limited	-21.54%	-31.31%	-10.84%	-64.90%	-71.88%	-31.31%	-43.59%
Tiger Brands Limited	-40.30%	-18.36%	-3.18%	-0.82%	2.07%	-3.18%	-16.10%
Trans Hex Group Limited	-38.09%	-0.08%	3.57%	-11.93%	-25.35%	-11.93%	-11.83%

Table 4.7.3. Level III Benchmark-adjusted returns (Free cash flow and EBITDA) adjusted for operating leases

POST-ACQUISITION BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	13.14%	9.29%	-0.33%	12.43%	31.50%	12.43%	11.84%
Bidvest Group Limited	15.37%	9.13%	13.37%	16.31%	9.05%	13.37%	12.94%
Harmony Gold Mining Company Limited	-5.06%	-0.41%	0.25%	-9.89%	-4.35%	-4.35%	-3.47%
Hudaco Industries Limited	15.45%	26.52%	32.40%	11.60%	-10.92%	15.45%	15.24%
Iliad Africa Limited	11.21%	5.04%	14.13%	10.28%	39.52%	11.21%	13.95%
MTN Group Limited	0.44%	17.99%	5.81%	0.93%	11.53%	5.81%	6.47%
Sappi Limited	1.84%	7.48%	52.30%	12.25%	8.58%	8.58%	6.94%
Sasol Limited	6.00%	-10.18%	-15.67%	-17.22%	-0.76%	-10.18%	-7.43%
Silverbridge Holdings Limited	27.68%	-9.18%	-46.50%	67.94%	-10.54%	-9.18%	4.43%
Tiger Brands Limited	53.56%	15.05%	7.24%	20.21%	33.05%	20.21%	22.85%
Trans Hex Group Limited	10.44%	3.37%	31.89%	29.15%	10.71%	10.71%	16.64%

POST-ACQUISITION BENCHMARK-ADJUSTED EBITDA RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	23.11%	16.38%	27.54%	24.15%	14.78%	23.11%	21.42%
Bidvest Group Limited	16.49%	15.77%	12.74%	20.82%	20.53%	16.49%	16.41%
Harmony Gold Mining Company Limited	-0.95%	4.18%	0.75%	-12.00%	-21.35%	-0.95%	-4.80%
Hudaco Industries Limited	-12.00%	-1.23%	13.14%	3.93%	45.04%	3.93%	8.62%
Iliad Africa Limited	7.14%	8.02%	6.28%	2.65%	26.83%	7.14%	9.78%
MTN Group Limited	6.43%	-22.68%	17.36%	9.72%	2.75%	6.43%	2.43%
Sappi Limited	5.88%	9.92%	102.06%	1.72%	-2.16%	5.88%	4.28%
Sasol Limited	-2.25%	-45.29%	5.33%	5.28%	19.24%	5.28%	-3.44%
Silverbridge Holdings Limited	29.29%	18.80%	-43.43%	-81.65%	35.35%	18.80%	3.72%
Tiger Brands Limited	63.75%	16.00%	16.84%	28.73%	20.91%	20.91%	26.05%
Trans Hex Group Limited	-10.79%	28.84%	49.27%	32.78%	20.39%	28.84%	25.21%

PRE-ACQUISITION BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	-20.65%	6.26%	-14.45%	-2.16%	-11.61%	-11.61%	-6.52%
Bidvest Group Limited	-1.01%	-65.85%	28.06%	26.01%	51.37%	26.01%	-13.57%
Harmony Gold Mining Company Limited	-4.53%	-2.96%	-3.77%	4.09%	19.81%	-2.96%	0.61%
Hudaco Industries Limited	-0.10%	3.65%	-49.08%	18.46%	17.39%	3.65%	-6.58%
Iliad Africa Limited	15.91%	33.58%	22.34%	-9.83%	-58.19%	15.91%	2.47%
MTN Group Limited	-38.35%	-14.57%	-9.25%	-6.85%	-5.00%	-9.25%	-14.05%
Sappi Limited	0.42%	-0.90%	-3.88%	-21.47%	-23.60%	-3.88%	-7.68%
Sasol Limited	14.35%	-16.12%	-10.67%	0.93%	-2.42%	-2.42%	-1.86%
Silverbridge Holdings Limited	-0.78%	60.22%	-40.20%	-28.62%	96.08%	-0.78%	20.83%
Tiger Brands Limited	31.54%	10.03%	2.89%	19.06%	17.66%	17.66%	16.04%
Trans Hex Group Limited	7.89%	5.58%	23.07%	16.24%	26.04%	16.24%	13.60%

PRE-ACQUISITION BENCHMARK-ADJUSTED EBITDA RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	-51.20%	-5.84%	-14.04%	-2.20%	4.41%	-5.84%	-11.23%
Bidvest Group Limited	51.43%	35.87%	27.32%	42.54%	40.47%	40.47%	44.99%
Harmony Gold Mining Company Limited	-19.62%	-5.98%	-1.75%	6.89%	4.74%	-1.75%	-1.59%
Hudaco Industries Limited	5.31%	6.20%	-1.80%	14.16%	15.78%	6.20%	6.29%
Iliad Africa Limited	21.63%	18.82%	-1.83%	-9.88%	-22.85%	-1.83%	16.20%
MTN Group Limited	12.91%	-5.11%	-5.35%	-8.49%	-6.36%	-5.35%	-0.81%
Sappi Limited	-0.41%	-0.86%	0.17%	-0.55%	-0.62%	-0.55%	-0.25%
Sasol Limited	17.54%	-6.58%	11.85%	16.12%	11.92%	11.92%	10.24%
Silverbridge Holdings Limited	50.83%	50.11%	-32.59%	-16.76%	107.23%	50.11%	47.31%
Tiger Brands Limited	71.17%	10.80%	4.15%	11.39%	10.57%	10.80%	31.70%
Trans Hex Group Limited	27.29%	28.91%	45.70%	44.71%	45.74%	44.71%	37.04%

POST-ACQUISITION CHANGE BENCHMARK-ADJUSTED FREE CASH FLOW RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	33.79%	3.04%	14.12%	14.59%	43.11%	14.59%	18.37%
Bidvest Group Limited	16.38%	74.98%	-14.69%	-9.70%	-42.32%	-9.70%	26.51%
Harmony Gold Mining Company Limited	-0.52%	2.55%	4.03%	-13.99%	-24.16%	-0.52%	-4.07%
Hudaco Industries Limited	15.55%	22.88%	81.48%	-6.86%	-28.31%	15.55%	21.82%
Iliad Africa Limited	-4.70%	-28.54%	-8.21%	20.11%	97.70%	-4.70%	11.49%
MTN Group Limited	38.78%	32.56%	15.06%	7.78%	16.53%	16.53%	20.52%
Sappi Limited	1.42%	8.39%	56.18%	33.73%	32.19%	32.19%	14.62%
Sasol Limited	-8.35%	5.94%	-4.99%	-18.15%	1.66%	-4.99%	-5.58%
Silverbridge Holdings Limited	28.46%	-69.40%	-6.29%	96.56%	-106.62%	-6.29%	-16.39%
Tiger Brands Limited	22.02%	5.02%	4.35%	1.16%	15.39%	5.02%	6.81%
Trans Hex Group Limited	2.55%	-2.21%	8.82%	12.91%	-15.33%	2.55%	3.04%

POST-ACQUISITION CHANGE BENCHMARK-ADJUSTED EBITDA RETURN

Acquiring Firm	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	MEDIAN	TOTAL
Aspen Healthcare Holdings Limited	74.31%	22.22%	41.58%	26.35%	10.37%	26.35%	32.66%
Bidvest Group Limited	-34.93%	-20.10%	-14.58%	-21.72%	-19.94%	-20.10%	-28.58%
Harmony Gold Mining Company Limited	18.67%	10.16%	2.50%	-18.89%	-26.10%	2.50%	-3.21%
Hudaco Industries Limited	-17.32%	-7.43%	14.93%	-10.23%	29.27%	-7.43%	2.33%
Iliad Africa Limited	-14.49%	-10.79%	8.11%	12.53%	49.68%	8.11%	-6.43%
MTN Group Limited	-6.48%	-17.57%	22.71%	18.21%	9.11%	9.11%	3.24%
Sappi Limited	6.30%	10.78%	101.89%	2.27%	-1.54%	6.30%	4.53%
Sasol Limited	-19.79%	-38.71%	-6.52%	-10.83%	7.31%	-10.83%	-13.68%
Silverbridge Holdings Limited	-21.54%	-31.31%	-10.84%	-64.90%	-71.88%	-31.31%	-43.59%
Tiger Brands Limited	-7.42%	5.20%	12.69%	17.33%	10.34%	10.34%	-5.66%
Trans Hex Group Limited	-38.09%	-0.08%	3.57%	-11.93%	-25.35%	-11.93%	-11.83%

Chapter 5: Data Analysis

5.1. Introduction

This chapter will be dedicated to an analysis of the data as outlined in the previous chapter. The results of this data analysis will be used to either reject the null hypothesis as outlined in Chapter Three, or to conclude that it is not possible to reject the stated null hypothesis. This will provide support for the conclusions to be outlined in Chapter Six.

5.2. Statistical findings

As outlined in earlier chapters the primary method of measuring post-acquisition changes in returns is free cash flow return with reference to the total five year returns over the respective pre-acquisition and post-acquisition periods.

In an effort to ensure comparability with previous studies, as well as to test the sensitivities of results to the chosen methodologies, supplementary measurements replacing free cash flow with earnings before interest, tax, depreciation and amortisation (EBITDA), as well as using median five year returns as opposed to total five year returns, will also be considered.

One-tailed paired samples t-tests (dependent means) at a 5% significance level were used to determine whether post-acquisition changes in returns were significantly more than zero across any of the benchmark selections (Levels I, II and III) for both the primary and supplementary measurement methodologies as outlined.

A summary of the statistical findings are provided in Table 5.1.

Table 5.1. Summary of statistical findings

	Free cash flow return: Reported Financial Results			Free cash flow return: Reported Financial Results adjusted for operating leases		
	Level I	Level II	Level III	Level I	Level II	Level III
Statistical analysis based on total 5-year return						
Number of acquiring firms with post-acquisition increase in return	7	7	8	7	7	8
Number of acquiring firms with post-acquisition decrease in return	4	4	3	4	4	3
% of acquiring firms with post-acquisition increase in return	64%	64%	73%	64%	64%	73%
% of acquiring firms with post-acquisition decrease in return	36%	36%	27%	36%	36%	27%
p-value	0.065	0.066	0.054	0.051	0.045	0.027
Possible to reject null hypothesis?	No	No	No	No	Yes	Yes
Statistical analysis based on median 5-year return						
Number of acquiring firms with post-acquisition increase in return	6	7	7	5	6	6
Number of acquiring firms with post-acquisition decrease in return	5	4	4	6	5	5
% of acquiring firms with post-acquisition increase in return	55%	64%	64%	45%	55%	55%
% of acquiring firms with post-acquisition decrease in return	45%	36%	36%	55%	45%	45%
p-value	0.072	0.059	0.083	0.241	0.291	0.267
Possible to reject null hypothesis?	No	No	No	No	No	No

	EBITDA return: Reported Financial Results			EBITDA return: Reported Financial Results adjusted for operating leases		
	Level I	Level II	Level III	Level I	Level II	Level III
Statistical analysis based on total 5-year return						
Number of acquiring firms with post-acquisition increase in return	5	4	4	5	4	5
Number of acquiring firms with post-acquisition decrease in return	6	7	7	6	7	6
% of acquiring firms with post-acquisition increase in return	45%	36%	36%	45%	36%	45%
% of acquiring firms with post-acquisition decrease in return	55%	64%	64%	55%	64%	55%
p-value	0.228	0.104	0.146	0.118	0.149	0.149
Possible to reject null hypothesis?	No	No	No	No	No	No
Statistical analysis based on median 5-year return						
Number of acquiring firms with post-acquisition increase in return	7	5	6	6	4	6
Number of acquiring firms with post-acquisition decrease in return	4	6	5	5	7	5
% of acquiring firms with post-acquisition increase in return	64%	45%	55%	55%	36%	55%
% of acquiring firms with post-acquisition decrease in return	36%	55%	45%	45%	64%	45%
p-value	0.370	0.192	0.224	0.375	0.238	0.411
Possible to reject null hypothesis?	No	No	No	No	No	No

The results of the chosen primary measurement methodology of total free cash flow returns over the respective pre-acquisitions and post-acquisition five year periods are considered first.

For Levels I and II benchmark selections seven acquiring firms (64%) had post-acquisition increases in benchmark-adjusted free cash flow returns, while four firms (36%) had declines. For Level III benchmark selection the number of firms with increased returns was eight (73%). At a 5% significance level the mean post-acquisition increase in returns for the acquiring firms included within the sample were statistically insignificant for Levels I,II and III benchmark selection when using reported financial results and a 5% significance level. The respective p-values of 0.065, 0.066 and 0.054 serve as indication that marginal changes to reported financial results could potentially result in the observed post-acquisition increases in free cash flow returns becoming statistically significant. This is indeed the case when adjusting for operating leases, with the observed post-acquisition increases in free cash flow returns becoming statistically significant for Levels II and III benchmark selection.

Previous international studies following a broadly similar approach to this study (i.e. measurement of post-acquisition changes in operating performance) as outlined in Chapter Two such as Healy et al (1992), Linn and Switzer (2001), Powell and Stark (2005), Yen and Paul (2007), Hassan et al (2007) and Lau et al (2008) observed post-acquisition increases in returns that were statistically significant. There were however studies such as Ghosh (2001), Dube et al (2007), Papadakis and Thanos (2010) and Andre et al (2013) that observed no post-acquisition increases in returns. These ambiguous results would imply that the observed results for this study do not contradict the findings of international studies.

Excluding the adjustments for operating leases at levels II and III, the study supports the findings of the Smit and Ward (2007) study of South African acquisitions, which observed statistically insignificant decreases in post-acquisition returns. However, in two tests of free cash flow returns adjusted for operating leases, it was found that the returns were statistically significant.

As already outlined most of the similar studies noted differed from the approach followed in this study in two material regards, being the use of median returns as opposed to total returns, as well as using earnings before interest, tax, depreciation and amortisation (EBITDA) as opposed to free cash flow. In order to ensure comparison it is therefore required to consider the results when adjusting for these two material differences.

When measuring free cash flow returns as the median returns for the respective five year pre-acquisition and post-acquisition periods, as opposed to total returns, the number of acquiring firms with post-acquisition increases in returns decrease for Levels I and III benchmark selection. For all three levels of benchmark selection the post-acquisition changes in free cash flow returns are statistically insignificant.

When using EBITDA as opposed to free cash flow as the numerator in the return calculation (using total returns) the results also change significantly. For Level I benchmark selection the number of acquiring firms with post-acquisition increases in returns decreases from seven (64%) to five (45%). For Levels II and III the number of acquiring firms with post acquisition increases in returns amount to four (36%). The post-acquisition changes in returns across all three levels of benchmark selection are statistically insignificant. These results do not change materially when adjusting for operating leases across all three levels of benchmark selection. Using median EBITDA returns as opposed to total EBITDA returns does not result in any material changes to these results.

Given the fact that several previous international studies such as Ghosh (2001), Dube et al (2007), Papadakis and Thanos (2010) and Andre et al (2013) also observed no significant changes in post-acquisition returns, the revised results when applying the outlined supplementary measurement methodologies are not deemed contradictory to previous international studies. The ambiguity in the results of international studies necessitates closer comparison to the results of the only published South African study, being Smith and Ward (2007). The revised results are similar to those observed by Smith and Ward (2007), i.e. post-acquisition changes in EBITDA returns which are statistically insignificant.

In summary, of the 22 tests in Table 5.1 22 of 24 tests support the findings of other studies that post-acquisition increases in free cash flow and EBITDA returns are not statistically significant.

5.3. Relative levels of capital expenditure

The material difference in observed results between using total free cash flow returns and total EBITDA returns confirms the prominence and relative importance of relative levels of capital expenditure, seeing as the most prominent difference between the calculation of free cash flow and EBITDA is the inclusion of capital expenditure in free cash flow and its exclusion from EBITDA. In light of this difference due consideration of the analysis of relative capital expenditure levels as outlined in Table 4.6 in Chapter Four is required.

Given the fact that observed post-acquisition returns when using total free cash flow returns are statistically significant (when adjusting for operating leases) as opposed to statistically insignificant changes when using EBITDA, the role of relative levels of capital expenditure in resulting in increased post-acquisition total free cash flow returns needs to be explored, with particular relevance afforded to those acquiring firms with post-acquisition increases in total free cash flow returns. However, using median cash flow returns (unadjusted and adjusted for operating leases) results in post-acquisition changes which are not significant.

Table 5.2 provides a summary of post-acquisition changes in relative levels of capital expenditure for acquiring firms with post-acquisition increases in free cash flow returns.

Data Analysis

Table 5.2. Post-acquisition changes in relative levels of capital expenditure for firms with increased post-acquisition total free cash flow returns

Level I

	Change in total benchmark-adjusted return	Total 5 year capex as % of revenue			
		Acquiring firm pre-acquisition	Benchmark pre-acquisition	Acquiring firm post-acquisition	Benchmark post-acquisition
Aspen Healthcare Holdings Limited	18.35%	4.17%	14.86%	11.16%	6.59%
Bidvest Group Limited	39.93%	5.02%	1.62%	1.84%	3.52%
Hudaco Industries Limited	20.95%	3.60%	1.89%	1.77%	5.47%
Iliad Africa Limited	45.01%	5.34%	3.44%	0.71%	3.59%
MTN Group Limited	22.27%	33.77%	18.78%	19.60%	13.25%
Sappi Limited	2.95%	16.50%	4.03%	3.74%	1.38%
Trans Hex Group Limited	2.83%	22.12%	12.15%	13.33%	16.89%

	Change in total benchmark-adjusted return	Total 5 year capex as % of depreciation			
		Acquiring firm pre-acquisition	Benchmark pre-acquisition	Acquiring firm post-acquisition	Benchmark post-acquisition
Aspen Healthcare Holdings Limited	18.35%	221.04%	478.76%	651.09%	219.24%
Bidvest Group Limited	39.93%	436.05%	82.67%	132.49%	99.81%
Hudaco Industries Limited	20.95%	226.44%	73.26%	146.15%	193.33%
Iliad Africa Limited	45.01%	765.88%	298.35%	105.53%	299.28%
MTN Group Limited	22.27%	377.61%	122.50%	186.61%	188.42%
Sappi Limited	2.95%	297.79%	103.00%	50.52%	41.28%
Trans Hex Group Limited	2.83%	210.02%	399.81%	106.17%	161.10%

Level II

	Change in total benchmark-adjusted return	Total 5 year capex as % of revenue			
		Acquiring firm pre-acquisition	Benchmark pre-acquisition	Acquiring firm post-acquisition	Benchmark post-acquisition
Aspen Healthcare Holdings Limited	18.35%	4.17%	14.86%	11.16%	6.59%
Bidvest Group Limited	39.59%	5.02%	2.83%	1.84%	3.84%
Hudaco Industries Limited	20.95%	3.60%	1.89%	1.77%	5.47%
Iliad Africa Limited	19.00%	5.34%	3.02%	0.71%	2.37%
MTN Group Limited	22.27%	33.77%	18.78%	19.60%	13.25%
Sappi Limited	14.32%	16.50%	21.33%	3.74%	12.77%
Trans Hex Group Limited	-4.72%	22.12%	12.15%	13.33%	16.89%

	Change in total benchmark-adjusted return	Total 5 year capex as % of depreciation			
		Acquiring firm pre-acquisition	Benchmark pre-acquisition	Acquiring firm post-acquisition	Benchmark post-acquisition
Aspen Healthcare Holdings Limited	18.35%	221.04%	478.76%	651.09%	219.24%
Bidvest Group Limited	39.59%	436.05%	120.33%	132.49%	104.08%
Hudaco Industries Limited	20.95%	226.44%	73.26%	146.15%	193.33%
Iliad Africa Limited	19.00%	765.88%	151.71%	105.53%	195.02%
MTN Group Limited	22.27%	377.61%	122.50%	186.61%	188.42%
Sappi Limited	14.32%	297.79%	593.81%	50.52%	267.12%
Trans Hex Group Limited	-4.72%	210.02%	399.81%	106.17%	161.10%

Level III

	Change in total benchmark-adjusted return	Total 5 year capex as % of revenue			
		Acquiring firm pre-acquisition	Benchmark pre-acquisition	Acquiring firm post-acquisition	Benchmark post-acquisition
Aspen Healthcare Holdings Limited	18.35%	4.17%	14.86%	11.16%	6.59%
Bidvest Group Limited	35.89%	5.02%	4.74%	1.84%	4.39%
Hudaco Industries Limited	20.95%	3.60%	1.89%	1.77%	5.47%
Iliad Africa Limited	12.05%	5.34%	4.04%	0.71%	3.08%
MTN Group Limited	22.27%	33.77%	18.78%	19.60%	13.25%
Sappi Limited	14.32%	16.50%	21.33%	3.74%	12.77%
Tiger Brands Limited	3.49%	1.20%	7.25%	0.83%	4.94%
Trans Hex Group Limited	2.83%	22.12%	12.15%	13.33%	16.89%

	Change in total benchmark-adjusted return	Total 5 year capex as % of depreciation			
		Acquiring firm pre-acquisition	Benchmark pre-acquisition	Acquiring firm post-acquisition	Benchmark post-acquisition
Aspen Healthcare Holdings Limited	18.35%	221.04%	478.76%	651.09%	219.24%
Bidvest Group Limited	35.89%	436.05%	177.18%	132.49%	142.03%
Hudaco Industries Limited	20.95%	226.44%	73.26%	146.15%	193.33%
Iliad Africa Limited	12.05%	765.88%	178.53%	105.53%	199.10%
MTN Group Limited	22.27%	377.61%	122.50%	186.61%	188.42%
Sappi Limited	14.32%	297.79%	593.81%	50.52%	267.12%
Tiger Brands Limited	3.49%	82.01%	293.97%	69.51%	127.57%
Trans Hex Group Limited	2.83%	210.02%	399.81%	106.17%	161.10%

Capital expenditure is a significant component of free cash to firm and could in some instances represent a drain on cash flow returns, depending on the capital expenditure cycle and expansion plans of a firm. Divergence in relative capital expenditure levels between acquiring firms and benchmark constituent firms, or between pre-acquisition and post-acquisition periods might be part of the reason for acquiring firms' relative outperformance compared to benchmark firms, or for post-acquisition increases in free cash flow returns.

The observation that based on EBITDA returns (which excludes capital expenditure, changes in net working capital and tax payments) there are no statistically significant post-acquisition changes in returns, while there are statistically significant post-acquisition improvements in returns when using free cash flow (which includes capital expenditure) raises the question as to whether the reason for post-acquisition increases in free cash flow returns might be due to lower levels of relative capital expenditure after completion of acquisitions. Should this be the case the underlying reasons for such lower levels of relative capital expenditure would have to be evaluated in order to access the sustainability of improved post-acquisition returns. Given the fact that observed results across the three different levels of benchmark selections are very similar, as is evident from the close proximity of the p-values, evaluation of relevant levels of capital expenditure will only be performed for Level I. The extent of changes to p-values should be the same across all three levels of benchmark selection.

Insufficient replacement and expansion capital expenditure (i.e. too low levels) might over the short term boost free cash flow returns, but will ultimately at some point in future result in output constraints which would cause a drag on cash flow returns. In the same way it could be that high levels of expansion capital expenditure cause a short term drag on free cash flow returns, but should over the long term boost returns as additional output capacity is utilised in a profitable manner.

From Table 5.2 it can be seen that for Bidvest Group Limited, Hudaco Industries Limited, Iliad Africa Limited, MTN Group Limited, Sappi Limited and Trans Hex Group Limited there were post-acquisition decreases in relative levels of capital expenditure. In an effort to determine the extent to which the post-acquisition increase in free cash flow returns were the result of lower relative levels of capital expenditure, an adjustment to the data used were made for the firms mentioned. Actual capital expenditure was increased to the extent that the post-acquisition capital expenditure / revenue ratio was equal to the pre-acquisition ratio for these acquiring firms (total five year ratio).

When making these adjustments to capital expenditure for Level I total free cash flow returns, the result changes significantly, with the p-value changing from 0.065 to 0.372. This change leaves no doubt that the reason for observed post-acquisition increases in free cash flow returns are probably due to lower levels of relative capital expenditure after completion of these acquisitions.

It was however found that only in the instances of Hudaco Industries Limited and Iliad Africa Limited the combined relative capital expenditure levels for the pre-acquisition and post-acquisition periods were lower than the combined relative levels for the benchmark groupings. This would seem to indicate that the post-acquisition decrease in relative capital expenditure levels for the firms mentioned excluding Hudaco Industries Limited and Iliad Africa Limited were probably due to elevated pre-acquisition levels of capital expenditure, as opposed to a non-sustainable post-acquisition decrease in an effort to temporarily boost free cash flow returns. Such elevated levels of capital expenditure could have been due to an expansion phase during which new output capacity was established. The post-acquisition decrease in relative capital expenditure levels, coupled with combined pre-acquisition and post-acquisition relative capital expenditure levels which are in line with those of benchmark groupings (excluding Hudaco Industries Limited and Iliad Africa Limited), could also indicate the one of the driving forces behind these mergers were synergies to be derived from asset base rationalisation, which is often a prominent driver for acquisitions. Such an observation is similar to the finding by Healy et al (1992) that post-acquisition improvements in returns were in large part due to improved asset turnover as opposed to improved cash flow margins.

In summary it would seem that only in the cases of Hudaco Industries Limited and Iliad Africa Limited there remain questions as to whether the observed increases in post-acquisition free cash flow returns are sustainable or whether these observed increases have largely been the result of non-sustainable decreases in capital expenditure. For the rest of the acquiring firms included within the sample it would seem that post-acquisition levels of capital expenditure are sufficient to sustain future earnings and that observed increases in post-acquisition free cash flow returns have not been inflated by non-sustainable decreases in levels of capital expenditure.

Chapter 6: Conclusion

6.1. Background

The research question addressed by this study was whether large South African acquisitions resulted in long term improvements in operating performance, with operating performance measured as free cash flow return on capital employed.

This research question is relevant as mergers and acquisitions are clearly a prominent part of modern corporate finance strategy, with significant resources employed towards it across all regions. A continuous overall increase in the extent of mergers and acquisitions activity over time has been observed. The natural expectation might be for mergers and acquisitions activity to be successful and for the rates of success to have increased over time, given the extent of mergers and acquisitions activity relative to global economic output.

Further significance is afforded to the research question by the fact that most previous studies with a similar goal have focussed on international markets. It would therefore be of relevance to attempt to determine whether the position in South Africa is any different than that observed in global markets over time.

The scope of the research question was very narrowly defined in terms of selection criteria. The reason for such a narrow definition is to ensure comparability between the firms included within the sample, as well as to address some particular views and underlying reasons as outlined in earlier chapters.

In essence this study aimed to test and analyse whether acquisitions (as opposed to a broader definition of mergers and acquisitions which also includes mergers) create long-term, sustained value (as opposed to more volatile short term value) for acquiring firm shareholders (as opposed to both acquiring- and target firm shareholders). Such long-term, sustained value will ultimately be derived from sustained improvements in operating performance.

The narrowly defined scope and selection criteria do raise some implications for the conclusions resulting from the research, with the most profound implications relating to comparability to the results of similar previous studies and limitations imposed by the relatively small available sample size.

6.2. Benchmark selection

It was found that when applying the chosen primary measurement methodology of free cash flow returns measured as total five year returns, post-acquisition increases in returns were in a close range across the three different levels of benchmark selection. Although the p-values for the different levels of benchmark selection were in very close proximity, these p-values only enabled rejection of the null hypothesis for Levels II and III when adjusting for operating leases. The fact that when adjusting for operating leases the observed post-acquisition improvements in free cash flow returns were statistically insignificant for Level I benchmark selection but statistically significant for Levels II and III benchmark selection, indicates the relevance and importance of appropriate benchmark selection.

The implication is that a different approach to benchmark selection than the one applied in this study might lead to a different result. The approach to benchmark selection applied in this study is based on the premise that shareholders are invested in a firm to a large extent because of the specific industry in which the firm operates. An alternative approach would be to assume that shareholders are invested in a firm in order to optimise their portfolio returns, regardless of the specific industry in which the firm operates. Such an assumption would require the use of firms of similar size and structure in any industry within the investable universe (including non-related industries) as appropriate benchmarks, as opposed to only firms in similar industries. Such an alternative approach to benchmark selection and a comparison of the results with those of this study could be considered as a future area of research.

6.3. Operating leases

As outlined in earlier chapters comparability between the returns for different firms could be hampered by differences in the use and extent of long-term operating leases given potential differences in fixed asset bases and resultant returns. It was found that changing reported financial results for the impact of long-term operating leases did result in a material change of overall results.

For Levels II and III benchmark selection the observed post-acquisition improvements in free cash flow return changed from being statistically insignificant to being statistically significant at a 5% confidence level. It should however be noted that the p-values across all three levels of benchmark selection and with use of reported financial results and use of reported financial results adjusted for operating leases were in very close proximity.

The proximity of the p-values imply that for the acquiring firms included within the sample the use of long-term operating leases by acquiring firms and benchmark constituent firms did not have a material impact on the free cash flow returns as measured. This result sufficiently addresses the concern raised in Chapter Three about the potential distorting impact of long-term operating leases on measured results.

6.4. Comparison to previous studies

The results of previous international studies on post-acquisition changes in operating performance are ambiguous, with both observed statistically significant and statistically insignificant post-acquisition changes in operating performance amongst these studies. These ambiguous results necessitate a closer comparison with the only published South African study with a similar research methodology, being Smit and Ward (2007). The observed result of statistically significant increases in post-acquisition returns (when adjusting for operating leases) contradict the findings of Smit and Ward (2007) who observed statistically insignificant decreases in post-acquisition returns.

As outlined in earlier chapters most previous studies with a similar approach (including Smit and Ward, 2007) differs from the primary approach followed in this study in two material regards, being the use of a median return as opposed to a total return, as well as using earnings before interest, tax, depreciation and amortisation (EBITDA) as opposed to free cash flow. Adjustments to the chosen measurement methodologies were therefore made in order to ensure comparability with these results.

When measuring free cash flow returns as the median returns for the respective five year pre-acquisition and post-acquisition periods, as opposed to total returns, the post-acquisition changes in free cash flow returns are found to be statistically insignificant, which is a significant change from the results when using total free cash flow returns. This result is similar to the observed results from Smit and Ward (2007).

This change in results when changing from total return to median return serves as clear indication of the sensitivity of the results to the chosen measurement methodology. In light of this sensitivity particular relevance is afforded to the choice between total returns and median returns as measurement method. Both methods have their merits, and the choice will ultimately be determined by the intended use of the results.

The median return over a five year period might be a better indication of short-term volatility and associated risk than total return. Given the fact that acquisitions are complex and often disruptive transactions which might dilute short term returns in pursuit of sustained long-term improvements in returns, total returns are the primary interest of this study, and therefore the use of total returns as opposed to median returns are deemed appropriate. In order to enable comparison to previous studies the study did however measure changes in median returns as well.

When using EBITDA as opposed to free cash flow as the numerator in the return calculation (using both total and median returns) the results also change significantly. This change also results in post-acquisition observed changes in returns that are found to be statistically insignificant. This result is similar to the findings of Smit and Ward (2007).

As already outlined in Chapter Five the material difference in results when using EBITDA returns as opposed to free cash flow returns serves as indication of the prominence and relevance of relative levels of capital expenditure. It was illustrated that the observed post-acquisition increases in free cash flow returns were probably mostly the result of lower post-acquisition relative levels of capital expenditure.

The sensitivity of results to the choice between free cash flow and EBITDA as numerator in the return measurement indicates its relevance. The use of EBITDA by numerous studies provides support and merit for its use. Given the exclusion of capital expenditure, changes in net working capital and tax payments from EBITDA, coupled with the fact that capital expenditure could in some instances be a significant drag on cash flows, the use of free cash flow in this study is deemed appropriate.

A possible future area of research with relevance to this study might be to perform more detailed analysis of capital expenditure and its impact on post-acquisition free cash flow returns with specific reference to distinction between replacement - and expansion capital expenditure, as well as the post-acquisition synergies obtained and resultant impact on returns.

6.5. Closing remarks

In summary, the study found no significant increases in free cash flow returns (excluding when adjustments for operating leases were made). Also no significant increases in EBITDA returns were found, which is in line with other similar studies. Significant increases in free cash flow returns were observed once adjustments were made for operating leases. Further research is required to analyse why this is the case as this result may relate to varying use of operating leases between the acquiring firms and the benchmarked firms rather than differences relating to the acquisitions. It should be noted that results may be affected by the method used to value operating leases. It was found that observed increases in free cash flow returns were due to post-acquisition decreases in capital expenditure (which will not be captured by the analysis of EBITDA returns).

It should be acknowledged that the narrowly defined scope and selection criteria, coupled with the fact that the population of listed entities in South Africa with large acquisitions is relatively small compared to international markets, present limitations to the inferences to be made from the results. The sample of eleven firms is relatively small and any inferences about South African acquisitions in general should therefore be approached with care.

The divergence in results between the individual firms within the sample, as well as other matters considered, such as the relevance of benchmark selection and the sensitivity of observed results to the choice between using total returns and median returns and the choice between using free cash flow returns and EBITDA returns, lend further support for the cautionary approach.

Despite the limited number of acquisitions that occurred over the period studies this study should contribute towards a better understanding of the overall value proposition of large South African acquisitions, as well as provide impetus for related future research.

What is clear from this study is that the lack of unambiguous results relating to the benefits of acquisitions should lead to caution in undertaking of acquisitions in South Africa - at least from the perspective of acquiring shareholders.

Bibliography

1. Alton, R. , Christensen, M. , Rising, C. and Waldeck, A. (2011) *The big idea: The New M&A playbook*. Harvard Business Review. March 2011. p. 48 -57.

2. Andre, P. , Chou, S. and Yen, T. (2013) *Operating performance of emerging market acquirers: Corporate governance issues.* Emerging Markets Finance and Trade 49 (3). p. 5 – 19.

3. Annema, A. , Bansal, R. and West, A. (2014) *Return of the big deal.* Available from: http://www.mckinsey.com/insights/corporate_finance/m_and_a_2014_return_of_the_big _deal. [Accessed: 27 July 2015].

4. Agrawal, A. , Jaffe, J. F. and Mandelker, G. N. (1992) *The post-merger performance of acquiring firms: Are-examination of an anomaly.* Journal of Finance. 47 (4). p. 1605 – 1621.

5. Akinboade, O. A. and Maluna, D. (2009) *Banking lending business cycles: South African evidence.* African Development Review 21 (3). p.476 – 498.

6. Bassen, A. , Schiereck, D. and Wubben, B. (2010) *M&A success of German acquisitions in the US – evidence from capital market and survey data.* Applied Financial Economics 20 (7) p. 543 – 559.

7. Becalli, E. and Frantz, P. (2009) *M&A operations and performance in banking.* Journal of financial services 36 (1) p. 203 – 226.

8. Botha, Z. , Goodspeed, I. and Van Wyk, K. (2012) *Understanding South African Financial Markets*. 4th Ed. Van Schaik Publishers.

9. Cao, T.H. , Rao-Nicolson, R. and Salaber, J. (2016) *Long-term performance of mergers and acquisitions in ASEAN countries*. Research in International Business and Finance 36 (1). p. 373 – 387.

10. Craninckx, K. and Huyghebaert, N. (2011) *Can stock markets predict M&A failure? A study of European transactions in the fifth takeover wave.* European Financial Management 17 (1). p. 9 – 45.

11. Cristofferson, S.A., McNish, R.S. and Sias, D.L. (2004) *Where mergers go wrong.* McKinsey Quarterly. No.2. May 2004. p. 92 – 99.

12. Damodaran, A. *Damodaran on valuation.* (2006) 2nd edition. Wiley Finance Publishers.

13. Damodaran, A. (2009) *Valuing financial services firms*. Available from: http://people.stern.nyu.edu/adamodar/pdfiles/papers.[Accessed: 3 August 2015].

Bibliography

14. Datta, S. , Kodwani, D. and Viney, H. (2013) *Shareholder wealth creation following M&A: Evidence from European utility sectors*. Applied Financial Economics 23 (10). p. 891 – 900.

15. Davidson, I. , Frank, R. and Ismail, A. (2009) *Operating performance of European bank mergers*. The Service Industries Journal 29 (3). p. 345 – 366.

16. Dube, S. , Francis-Glaney, L. , Langdon, W. and Romero, R. (2007) *Merger motives for US utility acquirers: Evidence from performance, risk metrics, and executive compensation.* Journal of Business and Economics Research 5 (5). p. 49 – 62.

17. Faulkner, D. Joseph, R.J. and Teerikangas, S. (2012) *The handbook of mergers and acquisitions*. Oxford University Press.

18. Fu, F. , Lin. L and Officer, M.S. (2013) *Acquisitions driven by stock overvaluation*. Journal of Financial Economics 109 (1). p. 24 – 39.

19. Ghosh, A. (2001) *Does operating performance really improve following corporate acquisitions?* Journal of Corporate Finance 7 (2). p.151 – 178.

20. Graham, B. and Dodd, D. (1940) *Security Analysis*. McGraw-Hill Book Co.

21. Harding, D. , Harris, K. , Jackson, R. and Leung, P. (2014) *The renaissance in mergers and acquisitions: What to do with all that cash?* Available from: http://www.bain.com. [Accessed: 27 June 2015].

22. Hassam, M., Patro, D.K. and Tuckman, H. (2007) *Do mergers and acquisitions create shareholder wealth in the pharmaceutical industry?* International Journal of Pharmaceutical and Healthcare Marketing. 1 (1). p. 58 – 78.

23. Healy, P. M. , Palepu, K. G. and Ruback, R. S. (1992) *Does corporate performance improve after mergers?* Journal of Financial Economics 31 (2). p.135 – 175.

24. Healy, P. M. , Palepu, K. G. and Ruback, R. S. (1997) *Which takeovers are profitable? Strategic or financial?* MIT Sloan Management Review 38 (4) . p. 45 – 57.

25. Jain, P.K., Rani, N. and Yadav, S.S. (2013) *Post M&A operating performance of Indian acquiring firms: A Du Pont analysis.* International Journal of Economics and Finance 5 (8). p. 65 – 73.

26. Kummer, C. and Steger, U. (2007) *Why merger and acquisition (M&A) waves reoccur – The vicious circle from pressure to failure.* Available from http://www.imd.org. [Accessed: 27 June 2015].

27. Lau, B., Proimos, A. and Wright. S. (2008) *Accounting measures of operating performance outcomes for Australian mergers*. Journal of Applied Accounting Research 9 (3). p. 168 – 180.

Bibliography

28. Linn, S. C. and Switzer, J. A. (2001) *Are cash acquisitions associated with better post-combination operating performance than stock acquisitions?* Journal of Banking and Finance 25 (6). p.1113 – 1138.

29. Malkiel, B.G. (2003) *The efficient market hypothesis and its critics*. The Journal of Economic Perspectives. 17 (1). p. 59 – 82.

30. Martynova, M. and Renneboog, L. (2008) *A century of corporate takeovers: What have we learned and where do we stand?* Journal of Banking and Finance 32 (10). p.2148 – 2177.

31. Negash, M. and Wimberley, T. (2004) *The value creation effects of mergers and acquisitions: Evidence from the JSE Securities Exchange South Africa*. Investment Analysts Journal, 33 (59). p. 31 – 40.

32. Papadakis, V.M. and Thanos, I.C. (2010) *Measuring the performance of acquisitions: An empirical investigation using multiple criteria.* British Journal of Management 21 (4). p. 859 – 873.

33. Pardee, S. , Tswamuno, D. T. and Wunnava, P. V. (2007) *Financial liberalisation and economic growth: Lessons from the South African Experience*. International Journal of Applied Economics 4 (2). p.75 – 89.

34. Paul, A. and Yen T. (2007) *Ownership structure and operating performance of acquiring firms: The case of English-origin countries.* Journal of Economics and Business 59 (5). p. 380 – 405.

35. Powell, R. G. and Stark, A. W. (2005) *Does operating performance increase post-takeover for UK takeovers? A comparison of performance measures and benchmarks*. Journal of Corporate Finance 11 (1). p. 293 – 317.

36. Rehm, W. and West, A. (2015) *M&A 2015:New highs, and a new tone*. Mckinsey & Company Corporate Finance Practice.

37. Schertzinger, A. (2009) *Creating value in insurance mergers and acquisitions*. Gabler.

38. Smit, C. J. B. and Ward, M. J. D. (2007) *The impact of large acquisitions on the share price and operating performance of acquiring companies listed on the JSE*. Investment Analysts Journal 36 (65). p. 5 – 14.

39. *Thomson Reuters Mergers and Acquisitions Review, Full Year 2014*. Available from http://share.thomsonreuters.com/general/PR/MA-4Q14-(E).pdf. [Accessed: 14 August 2015].