THE RELEVANCE OF THE RESOURCE-BASED VIEW OF
THE FIRM IN CONSOLIDATED INDUSTRIES: A CASE
STUDY OF THE CEMENT INDUSTRY IN KENYA.

BY

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UNITED STATES INTERNATIONAL UNIVERSITY - AFRICA

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SUMMER 2014
STUDENT’S DECLARATION
I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution or university other than the United States International University in Nairobi for academic credit.

Signed: ___________________________ Date: ________________________________

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This project has been presented for examination with my approval as the appointed supervisor.

Signed: ___________________________ Date: ________________________________

Dr. Maina Muchara

Signed: ___________________________ Date: ________________________________

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ABSTRACT
This study sought to evaluate the relevance of the resource-based view of the firm (RBV) in consolidated industries, with a specific focus on the Kenyan cement industry. The research objectives included: to evaluate the role of tangible assets in generating sustainable competitive advantage in consolidated industries; to evaluate the role of intangible assets in generating sustainable competitive advantage in consolidated industries; and to evaluate the role of the market-based view vis-à-vis the resource-based view in the generation of competitive advantage in consolidated industries.

The multiple case study method involving the three listed cement firms in Kenya (Bamburi, Athi River, and East Africa Portland cement companies) was adopted. These three firms were selected from a target population of six firms, using the purposive sampling method. Since the data collection was based on secondary rather than primary sources, further sampling was not necessary and was therefore not done. Data was analysed using the linear regression method.

It was found that some of the tangible and intangible assets are positively correlated with firm performance, while others are negatively correlated with firm performance. It was also found that none of the tangible and intangible assets satisfied all the four components of the VRIO framework. The industry structure was found to be positively correlated with the firms’ asset turnover and current ratios. Moreover, industry competitiveness was broadly found to be declining over the review period. Although Bamburi was found to possess competitive advantage relative to the other firms, its performance across all the measures used was found to be deteriorating over the review period, pointing to the fact that this competitive advantage was not sustainable over the long-term. The findings with regard to the role of intangible assets in generating sustainable competitive advantages (SCAs) were inconclusive.

It was concluded that the various assets were useful in the generation of competitive parity, competitive disadvantage, or temporary competitive advantage, but none contributed to sustained competitive advantage. Contrastingly, the industry structure was found to be useful in enhancing firm performance through enhanced efficiency and liquidity. Further, it was concluded that the industry structure (which reflects the market-based view) has had a more
dominant role in explaining the performance of cement firms in Kenya than the resources possessed by the firms (the resource based view).

Accordingly, it is recommended that the cement firms should consider exploring for new ways through which they can recombine/reconfigure the existing assets in order to create new value for customers. Investment in new facilities (e.g. clinker production plants and coal-fired kilns) which can add value and which are scarce in the industry is also recommended. It is recommended that future studies should consider using more firms, a longer duration of study, more holistic performance measurement tools such as the balanced scorecard, more categories of intangible assets, and supplementing secondary data sources with surveys or other primary research techniques in order to overcome some of the weaknesses associated with the exclusive use of secondary data. Moreover, given the floor effects arising from the positive skewness of some of the data used, future research studies need to carry out transformations to reduce the positive skewness of their data.
ACKNOWLEDGMENT
I am grateful for the support of my supervisor Dr. Maina Muchara, whose invaluable advice and patience has helped me complete this research project.
DEDICATION

This research project is dedicated to all the scholars of strategic management.
# TABLE OF CONTENTS

STUDENT’S DECLARATION ........................................................................................................ ii
COPYRIGHT ............................................................................................................................... iii
ABSTRACT ................................................................................................................................. iv
ACKNOWLEDGMENT ................................................................................................................ vi
DEDICATION ........................................................................................................................... vii
LIST OF TABLES ...................................................................................................................... xi

## CHAPTER ONE: INTRODUCTION ................................................................. 1

1.1 Background of the Problem ....................................................................................... 1
1.2 Statement of the Problem ......................................................................................... 2
1.3 Purpose of the Study ................................................................................................. 3
1.4 Research Objectives ................................................................................................. 3
1.5 Significance of the Study .......................................................................................... 4
1.6 Scope of the Study .................................................................................................... 5
1.7 Definition of Terms .................................................................................................. 5
1.8 Chapter Summary ..................................................................................................... 6

## CHAPTER TWO: LITERATURE REVIEW .................................................. 7

2.1 Introduction .................................................................................................................... 7
2.2 The Role of Tangible Assets in Generating Sustainable Competitive Advantages .................................................................................................................... 7
  2.2.1 Definitions ............................................................................................................. 7
  2.2.2 Role of Tangible Assets ..................................................................................... 8
2.3 The Role of Intangible Assets in Generating Sustainable Competitive Advantages ......................................................................................................................... 11
  2.3.1 Definition of Intangible Assets ......................................................................... 11
  2.3.2 Role of Intangible Assets .................................................................................. 12
2.4 The Role of the Market-Based View Vis-à-vis the RBV in the Generation of Sustainable Competitive Advantages ........................................................................... 15
  2.4.1 The Market-Based View of the Firm ................................................................. 15
  2.4.2 Measurement of Market Power ......................................................................... 18
2.5 Measurement of Competitive Advantage .................................................................. 19
2.6 Chapter Summary ..................................................................................................... 24

## CHAPTER THREE: RESEARCH METHODOLOGY ................................ 25

3.1 Introduction .................................................................................................................. 25
3.2 Research Design .................................................................................................................. 25
3.3 Population and Sampling Design ....................................................................................... 26
  3.3.1 Population....................................................................................................................... 26
  3.3.2 Sampling Design ........................................................................................................... 26
3.4 Data Collection Methods .................................................................................................... 27
3.5 Research Procedures ........................................................................................................... 28
3.6 Data Analysis Methods ....................................................................................................... 28
3.7 Chapter Summary .............................................................................................................. 30

CHAPTER FOUR: RESULTS AND FINDINGS ....................................................................... 31

4.1 Introduction .......................................................................................................................... 31
4.2 Role of Tangible Assets in Generating SCAs’s ................................................................. 31
  4.2.1 Correlation between Tangible Assets and Competitive Advantage for Athi River Mining (ARM) .............................................................................................................. 32
  4.2.2 Correlation between Tangible Assets and Competitive Advantage for Bamburi ........ 36
  4.2.3 Correlation between Tangible Assets and Competitive Advantage for East Africa Portland Cement Company (EAPCC) .................................................................................. 38
  4.2.4 Tangible Assets for the Three Firms Jointly ................................................................. 40
4.3 Role of Intangible Assets in Generating SCAs ............................................................... 41
  4.3.1 Correlation between Intangible Assets and Competitive Advantage for ARM ............ 41
  4.3.2 Correlation between Intangible Assets and Competitive Advantage for Bamburi ....... 43
  4.3.3 Correlation between Intangible Assets and EAPCC’s Competitive Advantage .......... 43
  4.3.4 Intangible Assets for the Three Firms Jointly .............................................................. 43
  4.3.5 Asset Combinations ..................................................................................................... 44
4.4 The Market Based View versus the RBV .......................................................................... 47
  4.4.1 Contribution of Industry Structure to Competitive Advantage ................................. 48
4.5 Measurement of Competitive Advantage ........................................................................ 50
  4.5.1 Liquidity ....................................................................................................................... 50
  4.5.2 Profitability .................................................................................................................. 51
  4.5.3 Efficiency – the Asset Turnover Ratio ......................................................................... 51
  4.5.4 Leverage ...................................................................................................................... 52
  4.5.5 Shareholder Value - Earnings per Share .................................................................... 53
  4.5.6 Competitive Advantage of the Three Cement Firms ............................................... 53
CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS ................................. 57

5.1 Introduction .................................................................................................................. 57

5.2 Summary of the Major Findings .................................................................................. 57

5.3 Discussion ..................................................................................................................... 59

5.3.1 The Role of Tangible Assets in Generating Sustainable Competitive Advantage in Consolidated Industries .................................................................................. 59

5.3.2 The Role of Intangible Assets in Generating Sustainable Competitive Advantage in Consolidated Industries .................................................................................. 60

5.3.3 The Role of Market Structure in Generating Sustainable Competitive Advantage in Consolidated Industries .................................................................................. 62

5.4 Conclusions .................................................................................................................. 63

5.5 Recommendations ....................................................................................................... 64

5.5.1 Recommendations for Improvement ....................................................................... 64

5.5.2 Recommendations for Further Studies ..................................................................... 66

REFERENCES .................................................................................................................. 67

APPENDICES .................................................................................................................... 80

7.1 Appendix 1: Coefficients of Determination - Market Concentration ......................... 80

7.2 Appendix 2: Coefficients of Determination - Total Tangible Assets ......................... 80

7.3 Appendix 3: Coefficients of Determination - Total Intangible Assets ....................... 80

7.4 Appendix 4: Skewness Statistics .................................................................................. 80
LIST OF TABLES

Table 4.1: Tangible Assets (ARM, Bamburi and EAPCC) .......................................................... 32
Table 4.2: Correlation between Tangible Assets and Financial Performance (ARM) .................. 32
Table 4.3: Correlation between Total Tangible Assets and Financial Performance (ARM) .......... 35
Table 4.4: Correlation between Tangible Assets and Financial Performance (Bamburi) .......... 36
Table 4.5: Correlation between Total Tangible Assets and Financial Performance (Bamburi) .... 38
Table 4.6: Correlation between tangible assets and Financial Performance (EAPCC) ............... 38
Table 4.7: Correlation between Total Tangible Assets and Financial Performance ................... 40
Table 4.8: Correlation between tangible assets and Financial Performance ............................. 41
Table 4.9: Intangible Assets (ARM, Bamburi and EAPCC) ........................................................ 41
Table 4.10: Correlation between Intangible Assets and Financial Performance .......................... 41
Table 4.11: Correlation between Intangible Assets and Financial Performance ......................... 43
Table 4.12: Correlation between tangible assets and Financial Performance ............................ 43
Table 4.13: Correlation between tangible assets and Financial Performance ............................ 43
Table 4.14: Possible Resource Combinations without Repetition (n=6, r=3) .............................. 45
Table 4.15 Regression Analysis (Resource Bundles) ................................................................. 46
Table 4.16: Market Shares of the Three Firms (per cent) .......................................................... 47
Table 4.17: Market Shares of the Three Firms ........................................................................ 48
Table 4.18: Correlation between Market Power and Competitive Advantage ............................. 48
Table 4.19: Liquidity of the case study firms ............................................................................. 50
Table 4.20: Profitability of the case study firms ........................................................................ 51
Table 4.21: Efficiency of the case study firms ......................................................................... 52
Table 4.22: Leverage of the case study firms .......................................................................... 52
Table 4.23: Shareholder value of the case study firms ............................................................... 53
CHAPTER ONE: INTRODUCTION

1.1 Background of the Problem

The cement industry in Kenya is consolidated. It comprises of six major firms, which include Bamburi Cement Limited, Athi River Mining Limited (ARM), East Africa Portland Cement Company Limited (EAPCC), Mombasa Cement Limited, National Cement Company Ltd, and Savannah Cement Company. Bamburi Cement Company is the largest cement manufacturer in the country. Apart from producing the largest volume of cement that is consumed in the country, it also has the largest market share. It controls 40 per cent of the market, followed by the East Africa Portland Cement Company Ltd and Athi River Mining, which have market shares of 24 per cent and 16 per cent respectively. Collectively, the four largest players control 93 per cent of the market share, thus making the structure of the cement industry in Kenya consolidated (EAPCC, 2012; Dyer and Blair, 2012). Moreover, the French cement company Lafarge holds a 58.6 per cent stake in Bamburi, a 41.7 per cent share in EAPCC, and a 14.1 percent stake in ARM, thus giving it a dominant role in the Kenyan cement market and enhancing the possibility of collusive behaviour across the three largest cement companies in the country (Kestrel Capital, 2011).

In addition to being consolidated, the cement industry in Kenya is also characterised by very high rates of growth. According to Dyer and Blair (2012), cement consumption in Kenya between 2006 and 2011 grew by more than twice the growth of Kenya’s GDP over the same period. The rate of growth of the cement industry over that period was 14.1 per cent, with the key drivers of that growth including growth in demand for housing, growth in foreign investments in the commercial building sector, and massive investments by the government and donors in mega infrastructural projects. This led to the per capita consumption of cement rising by 10.7 per cent.

Although corporate governance wars in mid-2012 affected EAPCC’s performance in the recent past (Dyer & Blair, 2012), the performance of all the listed cement companies in Kenya has been consistently good. For example, ARM’s share price has consistently outperformed the NSE 20 share index since 2011, while Bamburi’s has tracked the same index over the same period. Before the turf wars erupted at EAPC, its share price had substantially outperformed the market (Dyer & Blair, 2012). According to Kestrel Capital
(2011), the 2010 return on equity (ROE) for Bamburi, EAPCC, and ARM stood at 23.9, 27.9 and 25.9 respectively, significantly outperforming returns in the manufacturing sector, the NSE 20 share index, the benchmark Treasury bond (TB) rate, as well as the performance of regional peers.

In evaluating the reasons behind the superior performance of firms in an industry, two alternative views exist side by side in strategic management discourse. These include the market based view of the firm, and the resource based view of the firm. The market based view of the firm is based on the structure-conduct-performance (SCP) paradigm of industrial organisation economics, and attributes above-normal returns to the structure of the market. In contrast, the resource- based view locates a firm’s competitive advantage, and the resulting superior performance, to a set of rare, valuable, non-substitutable, and inimitable assets which the firm possesses (Wills-Johnson, 2008; Bain, 1959).

In line with the SCP paradigm, firms in highly oligopolistic industries have various conduct options not available to firms in competitive market structures, which they may exploit to obtain significant competitive advantages. These include, among others, tacit collusion and exploitation of market power. They have the power to restrict output and cause scarcity, which they can then exploit to achieve supernormal rents. As such, the market based view appears to offer a very attractive explanation for above-normal returns which cement companies in Kenya have been reporting. What is less clear, however, is the role of firm-specific assets under such industry conditions, and by extension the relevance of the resource-based view in this and other consolidated industries.

1.2 Statement of the Problem

Although many studies have examined the source of the competitive advantage of the firm, available evidence regarding whether firms achieve sustainable competitive advantage based on firm-level resources or industry structure remains mixed (Brahma & Chakraborty, 2011). Seminal studies carried out by Bain (1951, 1956), Comanor & Wilson (1967) and Collins & Preston (1969) and supported by more recent studies such as Porter (2008) and Lee (2007) demonstrate that competitive advantage derives from the privileged market positions possessed by the firm, as opposed to the firm-level resources possessed by these firms.
In contrast, other studies have presented evidence to demonstrate that firm-level resources play a more dominant role than industry structure in explaining the competitive advantage of the firm, as opposed to industry structure. These include the studies of, among others, Brahma & Chakraborty (2011), Schmalensee (1985), Cubbin & Geroski (1987), Jacobsen (1988), and Rumelt (1991), among many others.

Yet other studies have taken the middle position, asserting that firm-level factors are more relevant in explaining the competitive advantage for some firms, but industry structure plays a more dominant role in explaining the competitive advantage for other firms. For example, Hawawini, Subramanian, and Verdin (2003), demonstrate that firm-specific assets are more relevant than industry level factors to the performance of the two leading firms in an industry, and to the two weakest firms in the same industry. For the other firms in the same industry, the industry level factors have more influence on performance and firm-level factors are less relevant.

Consequently, the question of whether competitive advantage depends on firm level factors or industry level factors has yet to be conclusively resolved, is characterized by mixed findings, and is a significant issue which merits further investigation (Brahma & Chakraborty, 2011).

1.3 Purpose of the Study

The main aim of this research study is to evaluate the role of the resource based view of the firm in explaining the performance of firms in consolidated industries.

1.4 Research Objectives

The study adopted the following research objectives:

1. To evaluate the role of tangible assets in generating a sustainable competitive advantage in consolidated industries
2. To evaluate the role of intangible assets in generating a sustainable competitive advantage in consolidated industries
3. To evaluate the role of the market-based view vis-à-vis the resource based view in the generation of competitive advantage in consolidated industries
1.5 Significance of the Study

This study is likely to be beneficial to the cement industry in Kenya, to individual firms within the industry, as well as to the academia.

According to Dyer & Blair (2012), the cement industry in Kenya is relatively cost-inefficient compared to the cement industries of Egypt, China, Pakistan, and India. Apart from these countries being low-cost cement producers, the EAC (East Africa Community) common external tariff for imported cement was reduced from 25 per cent to 10 per cent, thus allowing cheaper imports from these low-cost producers to get into the Kenyan market and pose serious competitive threats to the Kenyan cement industry. Moreover, with a capacity utilisation rate of 72 per cent, the Kenyan cement industry is yet to achieve perfect efficiency in production. Since this study analyses the tangible and intangible assets and firm capabilities in the generation of competitive advantage in the cement industry, the recommendations made are likely to be useful in helping the cement industry in Kenya to enhance its competitiveness.

Since this study identifies the resource bundles which are most significant in the achievement of sustainable competitive advantage, it is also likely to help individual firms within the Kenyan cement industry to identify the tangible and intangible assets and core capabilities which they should specifically leverage to achieve a sustainable competitive advantage in the industry. This study is of relevance to the academia because it not only addresses the gaps that are present in the existing body of knowledge, but also adds on to that stock of knowledge. In providing an empirical assessment of the validity of the resource based view, as well as of the correlation between the dynamic capabilities and sustainable competitive advantage; the study fills existing gaps in the field and provides a rich source from which future researchers in the area can base their studies. By focussing this study specifically on consolidated industries, the study addresses a unique aspect which most studies in the area of competitive advantage have ignored, that is, the role of firm-level resources in the generation of competitive advantage in consolidated industries.
1.6 Scope of the Study

The study focussed on the cement industry in Kenya. More specifically, it involved all the six cement firms in the country at the time of the study. These included: Bamburi Cement Limited, Athi River Mining Limited, East Africa Portland Cement Company Limited, National Cement Company Limited, Mombasa Cement Limited, and Savannah Cement Company. Given the wide geographical spread of these six firms, the geographical scope of the study covered the Lukenya, Athi River, Nairobi, and Mombasa regions of Kenya where these six firms have their factories and offices. The data used covered a time period of ten years, stretching from 2003 to 2012.

1.7 Definition of Terms

Clinker – an intermediate material used in the manufacture of cement, typically produced through ground limestone and clay at high temperatures (ARM, 2012).

Concentrated industry – this is an industry which is dominated by a few large firms. In such an industry, few firms control a large market share, the firms wield a lot of market power, and barriers to entry are high. Market concentration, measured by a number of indices, is generally used to assess the degree of market power wielded by firms. It is generally considered to be high in consolidated industries. As such, a consolidated industry is necessarily considered to be concentrated (Bikker & Haaf, 2002).

Consolidated industry - this is a market structure where a few firms control a disproportionately large market share. Such market structures are associated with high entry barriers and large profit margins (Hill, Jones, and Schilling, 2014).

Intangible assets - these are the non-physical assets of the firm (Kristandl & Bontis, 2007).

Slag – a by-product of the ore smelting process which can be used to enhance the durability of cement (Baeza, Martelli, & Rilo, 2014).

Strategic capabilities – these are the systems or processes which organizations put in place with a view to helping them leverage organizational resources to generate a competitive advantage (DeNissi et al, 2003).
Sustainable competitive advantage - refers to the ability of the firm to consistently generate profits that are above the industry average for a long period of time (Peng, 2008).

Tangible assets – these are assets which are physical in nature, examples of which include land, equipment and buildings (Kristandl & Bontis, 2007).

VRIO Framework - a framework proposed by Barney (1991), which states that for resources to generate a sustainable competitive advantage, they must be valuable, rare, inimitable, and the firm must be organised to exploit them.

1.8 Chapter Summary

The cement industry in Kenya is consolidated, with the four largest firms controlling 93 percent of the market. Moreover, there is significant cross-ownership among these firms. This provides an incentive for the firms to engage in conduct options such as tacit collusion or exploitation of market power for purposes of gaining a sustainable competitive advantage. While this indicates the use of market position to achieve above-normal returns, a position that is consistent with the market based view of the firm, the role of firm-level resources in obtaining competitive advantage in such conditions is unclear, and calls for further research.
CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction
Chapter two is the literature review section. This chapter reviews the literature related to the role of tangible and intangible assets, in generating a sustainable competitive advantage. It also undertakes a critical analysis of the literature existing in the field, with regards to the role of industry structure (the market based view) in explaining the competitive advantage of firms. Also reviewed are the concepts central to the conduct of this study, including: the definitions of consolidated industries, classification of firm resources, the VRIO framework, and the measurement of competitive advantage.

2.2 The Role of Tangible Assets in Generating Sustainable Competitive Advantages

2.2.1 Definitions
The resource based view of the firm is seen as flowing directly from the seminal work of Penrose (1959). Penrose (1959) asserted that firms consist of bundles of resources, which are semi-permanently tied to the firm, and that different firms possess different combinations of these resources. It is these resources which firms should leverage in order to achieve a sustainable competitive advantage. According to Barney (2001), such resources must be valuable, rare, inimitable, and the firm must be organised to exploit them (VRIO) for firms to generate a sustainable competitive advantage. Julienti et al (2010) clarify that assets are considered to be valuable when they can be used to exploit opportunities or to neutralise threats. They are considered rare when they are unique to an organisation and not available to rivals. Assets are considered inimitable when they cannot be copied or replicated by other players, and are considered non-substitutable when they cannot be replaced with other assets (Julienti et al, 2010).

For purposes of this study, the definition of consolidated industry offered by Hill, Jones, and Schilling (2014) is adopted. Hill, Jones and Schilling (2014) define a consolidated industry as a type of market structure which is dominated by a few but larger players (an oligopoly), or in very extreme cases one dominant player (a monopoly). According to Bamford & West (2010), life cycle models depict industry consolidation as beginning to manifest in the growth phase, proceeding all through to the maturity stage of the industry life cycle.
Various classifications of firm-level resources are extant in strategic management literature. Barney (1991) classified firm-level resources into three groups, namely: physical, organisational, and human capital resources. Amit & Schoemaker (1993) viewed strategic resources of the firm as being broadly divisible into three: strategic assets, capabilities, and resources. Teece et al (1997) thought that firm-level resources consist of seven broad resource types, namely: reputational, technological, institutional, financial, complementary, market, and structural assets. Fahy & Smithee (1999) categorised firm resources into tangible assets, intangible assets, and capabilities. Tangible assets are not only physical, but are also concrete and can be codified (Mathur et al, 2007). Peng (2009) identifies four types of tangible assets. These include: financial assets (for example cash reserves), physical assets (for example land, buildings, and equipment), technological assets, and organisational assets. In his seminal work, Wernefelt (1984) viewed the firm’s resources as consisting of tangible and intangible assets. It is this latter perspective offered by Wernefelt (1984) that this study will be based upon.

2.2.2 Role of Tangible Assets

A number of studies have been carried out to determine the role of tangible assets in generating competitive advantages for firms. Soumadi & Hayajneh (2011) evaluated the role of financial assets (more specifically capital structure) on a firm’s performance. Using a sample of 76 listed firms drawn from the Amman stock exchange, the researchers analysed the data by means of the regression model. The study established a negative and statistically significant correlation between the capital structure of the firms sampled and their performance. Moreover, the study showed that the degree of leverage has no impact on the firm’s performance. In a similar study however, Muritala (2012) demonstrated a positive and significant correlation between the capital structure and performance of sampled firms. Muritala’s (2012) study focussed on ten listed, non-financial firms in Nigeria, used firm data for the period between 2006 and 2010, with the analysis being carried out by means of the panel least squares method.

Using the survey questionnaire method, Julienti et al (2010) evaluated the relative contributions of tangible versus intangible assets on product innovation performance. Their study focused on 700 small and mid-sized enterprises in Malaysia, and found that intangible
assets are the key drivers of product innovation performance, with tangible assets only playing a minor role. Inmyxai & Takahashi (2010) carried out a research study which sought to evaluate the impact of tangible assets on the performance of firms in the Lao People’s Democratic Republic. The study was conducted within the context of female and male-headed MSMEs (micro, small and medium sized enterprises). Data was collected from 840 observations, and analysed by means of the ordered probit model. The specific tangible assets assessed in this study included the firms’ financial resources, physical resources, and technology. The study only found partial support for the relationship between tangible assets and firm performance.

In a study focussing on 182 firms in Slovenia, Cater & Cater (2009) evaluate the impact of various tangible assets on firm performance. After analysing their data using the structured equation modelling approach, they conclude that a firm’s financial resources and customer capital have a positive impact on its cost advantage. They also demonstrate that the firm’s financial resources and intellectual capital have a positive and significant impact on the differentiation advantage. Ultimately, both the differentiation and cost advantages are found to positively influence the performance of the sampled firms. As such, the findings provide support for the resource based view of the firm.

Ray et al (2008) evaluate the contribution of a firm’s information technology (IT) assets to the firm’s performance. Their findings show that firms whose assets are predominantly in the form of tangible assets, have significantly lower levels of vertical integration, while those whose assets are predominantly in the form of intangible assets have higher levels of horizontal diversification. As such, firms which have more tangible assets tend to leverage their IT assets to enhance their degree of vertical specialisation, while those which have more intangible assets tend to leverage their tangible IT assets to enhance the degree of their horizontal diversification. Either way, the assets are expected to enhance the firm’s performance (Ray et al, 2008).

In their research, Bruque-Cámara et al (2005) review some of the studies which have explored the link between technological assets and the competitive advantage of the firm. With reference to technological assets such as robots, computers, and telecommunication equipment; they conclude that technological assets (which are a form of tangible assets),
have a positive impact on the competitive advantage of the firm. More specifically, the technological assets are seen as having a favourable impact on the conditions in which production occurs. Consequently, they help to enhance production economics. Eventually, this positively affects the efficiency with which the activities in the firm’s value chain are undertaken, and leads to a significant improvement in the firm’s performance (Bruque-Cámara et al, 2005).

Mac an Bhaird (2012) investigated the impact which financial resources, which are a type of tangible asset, have on the competitive advantage of firms. Using multivariate regression analyses focused on Irish small and micro enterprises (SMEs), the research findings led to the conclusion that even though financial resources are important in the performance of a firm, they cannot by themselves lead to the generation of sustainable competitive advantages in a firm. This is because value creation from these assets is contingent on their effective and efficient management. As such, Mac an Bhaird (2012) concludes that competencies related to the management of financial resources are more important than the mere possession of the financial resources.

In a much acclaimed article, Collis & Montgomery (2008) gave an example of how tangible assets can help generate sustainable competitive advantages for a firm. Focusing on Marks & Spencer (a leading retail chain in the UK), they illustrate how freehold locations (an example of a tangible asset), have helped reduce the cost structure for the retail chain, thus giving it a competitive edge over its rivals. More specifically, they assert that Marks & Spencer’s freehold locations have ensured that the occupancy costs of the retail chain average just 1% of all sales. This is in sharp contrast to other retail chains in the UK, where the occupancy costs average between 3% and 9% of all sales. This superior cost structure can enable Marks & Spencer to effectively compete on the basis of the low cost leadership strategy, and thus outdo its rivals (Collis & Montgomery, 2008).

Evans & Price (2012) have argued that while tangible assets were the most critical determinants of firm performance during the Industrial Age, creation of value in the knowledge economy to which the world has transitioned makes it impossible to generate value through an exclusive focus on these assets.
Although the findings regarding the role of the tangible assets in the generation of competitive advantages of the firm are mixed, most researchers seem to agree on the position that even though tangible assets may be rare and valuable, they are more prone to imitation than intangible assets, which makes them less useful than the intangible assets in the generation of sustainable competitive advantages. Unlike the tangible assets, intangible assets are viewed as being highly firm-specific, and therefore as possessing isolating mechanisms which prevent them from being imitated by competitors (Wang et al, 2009).

2.3 The Role of Intangible Assets in Generating Sustainable Competitive Advantages

2.3.1 Definition of Intangible Assets

Although the concept of intangible assets has been widely explored in strategic management literature, there as yet exists a lack of semantic and definitional uniformity regarding the concept. According to Kristandl & Bontis (2007) and Tomer (2008), intangible assets have been referred to variously in existing literature, including as: “intangibles”, “intellectual capital”, “intellectual property”, “intellectual assets”, “knowledge capital”, and “knowledge based assets.”

Numerous definitions have been offered since the first usage of the concept of “intangibles” by Lawrence Dicksee in 1896 and of “intellectual capital” by Galbraith in 1969, but a universal definition of the concept is yet to be embraced to date. Some definitions of intangible assets have adopted an accounting perspective, viewing it as the difference between the firm’s book value and its market value. Others have defined the concept in terms of its various components, including human, structural, and relational capital (Adams, 2008; Kristandl & Bontis, 2007). According to Steenkamp & Kashyak (2010) and OECD (2008), the many terminologies associated with the concept are not only used interchangeably, but also unambiguously, thus adding to the complexities associated with attempting a universal definition of the concept. Moreover, the appeal of the concept across many disciplines and participants has contributed to this lack of uniformity (Steenkamp & Kashyak, 2010).

At the most basic level however, intangible assets are seen as comprising of the non-physical resources which the firm owns, and which it can use to create a competitive advantage. They derive their legitimacy from legal rights or intellectual basis, and include patents, brand name
recognition, copyrights, corporate reputation, trademarks, and registered designs. Because they are non-physical, they are also non-financial and finite (Kristandl & Bontis, 2007). Vidrascu (2013) categorised intangible assets into six broad categories. These categories include: intangible marketing assets, intangible customer assets, intangible contractual assets, intangible technological assets, intangible art assets, and goodwill.

Examples of intangible marketing assets include: trademarks, certifications, service marks, non-compete agreements, and unique packaging, colours, or shapes. Examples of intangible customer assets include: contractual and non-contractual customer relationships, customer list, and order portfolios. Intangible contractual assets include: licenses, copyrights, franchising contracts, lease agreements, broadcast rights, mineral rights, service contracts, and building permits, among others (Vidrascu, 2013).

Examples of art-related intangible assets include: literary compositions such as books, musical compositions, paintings, visual productions, photos, and dramatic compositions. Examples of intangible technological assets include: computer programs/software, patents, trade secrets, databases, as well as non-proprietary technology (Vidrascu, 2013). Embedded within intangible assets are capabilities and competencies, which refer to the proficiency with which the organisation can integrate its various resources so as to improve its effectiveness and efficiency (Soko, 2014).

2.3.2 Role of Intangible Assets

According to Perrini & Vurro (2010), intangible assets are much harder to amass, and are not easily transferrable compared to physical assets. As such, they have been framed as being less prone to imitation and as having more potential to provide differential advantages for sustainable above-normal profit performance, in line with Barney’s (1991) VRIO framework. In this regard, Costa & Evangelista (2008) regard intangible assets as the ultimate source of an organisation’s competitive advantage. Some researchers such as Ticha (2008) and Lerro et al, (2012) contend that as the importance of tangible assets has diminished relative to that of intangible assets, intangible assets are now considered more favourably than the traditional tangible assets in the process of pursuing organisational competitive advantage. According to Lerro et al (2012), contemporary business organisations are highly complex, interconnected,
and interdependent. For these organisations to be successful, they are required to be flexible, proactive, and dynamic. Moreover, most of the traditional strategies and techniques would not work for the contemporary organisation. Instead, this organisation is required to be proactive, flexible, and dynamic. They are particularly called upon to leverage their intellectual assets to achieve competitiveness (Lerro et al, 2012). According to Grimaldi and Cricelli (2009), it is the intangible assets which determine the strategic as well as cultural specificity of business organisations.

According to Brondoni (2009), given the widespread recognition of the potential of intangible assets to generate differential advantages necessary for the firm’s competitive advantage position; debate related to the categorisation of firm-level assets and their connection to sustainable competitive advantage has now shifted to increased focus on intangible assets as sources of sustainable competitive advantage. Various studies have been carried out to evaluate the role of intangible assets in generating a sustainable competitive advantage. Steenkamp & Kashyak (2010) carried out their study within the context of the SME (small and medium enterprise) sector. Based on findings arrived at through survey questionnaires, they concluded that intangible assets are crucial towards the achievement of a sustainable competitive advantage by small businesses. Some of the intangible assets which the study rated as being important included: corporate and product reputation.

Boujelben & Fedhila (2011) evaluated the role of intangible assets in the generation of future cash flow. The specific intangible assets investigated in this study included research and development, training, advertising, quality, and software acquisition. Using a dynamic panel model, their study focused on fifty manufacturing firms in Tunisia’s manufacturing sector, and relied on six-year data (2001 – 2006). Their findings demonstrated a positive and significant relationship between intangible investments and future cash flow generation.

The study by Durst (2008) focused on the German market, and sought to investigate the relevance of intangible assets to firms. Using the online survey method, their study demonstrated that intangible assets are only moderately important in the organisations’ quest for competitiveness, although the importance of these assets for the organisations evaluated is expected to increase in future. Salamudin et al (2010) focused their study on the Malaysian market. They evaluated the correlation between intangible assets and market value of
Malaysian firms over a period stretching from 2000 to 2006. Using the multiple regression method and the Landsman’s balance sheet identity model to analyse the data; they concluded that the value of intangible assets is positively correlated with the corporate market value of Malaysian firms.

Edvardsson and Oskarsson (2011) evaluated the role of knowledge management in the creation of value for service firms in Iceland. Using survey questionnaires administered to 222 firms in Iceland, they established that firms which had implemented knowledge management practices had more value creation in the areas of customer, innovation, and human resource capital relative to those firms which had no knowledge management practices. As such, they concluded that knowledge management is positively and significantly related to competitive advantage.

Chareonsuk & Chansa-ngaev (2010) evaluated the relationship between intangible assets and firm performance. The specific intangible assets evaluated in the study included internal business processes, learning and growth, and external structure. Using the survey method, they analyse the data generated using the structured equation modelling method. They demonstrate the existence of positive causal connections between learning and growth and internal business processes, internal business processes and external structure, and external structure on firm performance. In another study, Mnzava (2013) investigated the impact of intangible assets on the performance of listed soccer organisations in the UK. Using the grounded theory method, the researcher analysed data generated by means of the multiple regression method, and shows that intangible assets have a positive and significant impact on the financial as well as sporting performance of listed soccer firms, thus affirming the basic claims of the resource based view.

Ramirez and Hachiya (2008) focussed on evaluating the strategic resources and industry conditions which are critical to the achievement of sustainable competitive advantages for firms. Using firm-specific profits as the proxy measure for a firm’s competitive advantage; their study however marks a sharp departure from the previous findings by concluding that neither is the creation of a competitive advantage or its sustenance explained through a firm’s strategic resources. Mathur et al (2007) focus their attention on the role of intangible assets within the specific context of the project management discipline. Using the online survey
method to collect data, they evaluated the data collected by means of the multivariate analysis approach and concluded that intangible assets are a source of significant competitive advantages for firms. This occurs both directly, as well as through “a mediating role in the relationship between tangible project management assets and the competitive characteristics of the project management process” (Mathur et al, p.460). According to Brown & Kimbrough (2011), intangible resources provide the basis upon which firms can differentiate themselves from their competitors, and are thus a critical aspect upon which firms can build and sustain a competitive advantage.

Since intangible assets are generally tacit, not easily codifiable, highly complementary, and are bought/sold in imperfect markets; they are less imitable, and are harder for firms to obtain develop, or amass. As such, they are seen as being the main drivers of the sustainability of the firm’s competitive advantage. All the same, intangible assets may also contribute to competitive disadvantage through various mechanisms. Firstly, commitment to core capabilities possessed by the firm may lead to rigidities, which may in turn erode competitive advantages. Secondly, adoption of radical innovation is likely to erode the utility of the capabilities hitherto existent in the firm. Thus, it is not a given that the possession of intangible assets will generate sustainable competitive advantages (Villalonga, 2004).

2.4 The Role of the Market-Based View Vis-à-vis the RBV in the Generation of Sustainable Competitive Advantages

2.4.1 The Market-Based View of the Firm

Unlike the resource based view of the firm which takes the position that firms generate their competitive advantages from the internal resources which they possess; the market-based view of the firm holds that the source of the firm’s competitive advantage is the privileged market position held by that firm as a result of competitive barriers in the industry in which the firm operates. This view is rooted in the Industrial Organisation (IO) theory. As a result of this privileged market position, the firm is in a position to generate supernormal rents (Chamberlain, 1932; Bain, 1956; Porter, 2008). Therefore, while the RBV focuses on the internal environment of the firm and its assets and capabilities, the market based view
focuses on the dynamics in the firm’s external environment, how the environment affects the firm’s competitiveness, and its ability to respond strategically.

A key theoretical strand of the market based view of the firm is Porter’s Five Forces model. The Five Forces Model frames the firm’s competitive advantage as arising out of a deliberate effort by the firm to create a position in the market, which it can then use to defend itself from forces of competition or influence the competitive forces with the end-goal of gaining an advantage relative to its rivals (Porter, 2008).

Porter’s Five Forces model identifies five types of forces, operating at the industry level, which have the potential to affect the firm’s strategy. These include: industry rivalry, supplier bargaining power, buyer bargaining power, threat posed by substitutes, and threat posed by new entrants (Porter, 2008). As Makhija (2003) asserts, this model is linked to the SCP paradigm of the Industrial Organisation perspective, where the industry structure influences both the conduct and the strategy of the firm, and therefore also ultimately influences the firm’s performance.

Various studies have been carried out which demonstrate the viability of the market based view to explain the competitive advantage of the firm. In his seminal work, Bain (1951) deployed the use of descriptive statistics. This involved assessing the link between the market concentration, and the profitability of the firm. The market concentration was measured using the eight-firm concentration ratio (i.e. CR-8 ratio). Bain (1951) also adopted the return on equity (ROE) as the proxy measure for firm profitability. Based on his findings, Bain (1951) concluded that there was a positive and significant relationship between profitability and industry concentration. In other words, the more concentrated an industry is, the higher firm profits are likely to be. In a subsequent study, Bain (1956) used the four-firm concentration index (CR-4) to measure market concentration, linking it with entry barriers, and demonstrated that profitability was high for firms which operate in industries that have high entry barriers.

The study by Comanor & Wilson (1967) has also been celebrated as one of the most important studies in regards to the efficacy of the SCP paradigm. In this study, the researchers used an econometric model to depict the relationship between firm profitability
and industry structure. Profitability was measured using the ratio between after-tax profits and shareholder equity, while industry structure was assessed using several measures, including: the advertising sales ratio, absolute capital requirements, and demand growth rate. A dummy variable was also incorporated into the model to capture the markets of local industries. This study also demonstrated that firm profitability depends on the market structure.

Equally significant to the theory of the SCP was the study by Collins & Preston (1969), which used a different performance measure (that is, the price-cost margin). Industry concentration was measured using the CR4 ratio. Like the previous studies, Collins & Preston (1969) demonstrated that firm profitability is a function of industry structure. Subsequent studies in the sixties and seventies continued to demonstrate that firm profitability highly depends on industry structure, as attested to by the reviews done by Schmalensee (1989), Scherer and Ross (1990), Hay and Morris (1991), Weiss (1991) and Martin (2002).

According to Lee (2007), from the eighties onwards, the number of studies based on the SCP paradigm have significantly dwindled. This is due to some methodological weaknesses associated with these studies, necessitating the adoption of the New Empirical Industrial Organization (NEIO) approach. Some of these weaknesses include the contention by adherents of the Chicago School that the observed correlation between firm profitability and industry structure may be as a result of big firms in concentrated industries having huge profits owing to their large shares of the market. Empirical evidence supporting this contention was adduced (Lee, 2007). All the same, Lee (2007) admits that the number of studies evaluating the efficacy of the market based view, including those based on the NEIO approach, have been little less than a trickle, since the eighties.

Weighing in on the same issue, Brahma & Chakraborty (2011) contend that the number of studies which affirm the efficacy of the industry-level factors to explain the competitive advantage of the firm (market based view or SCP paradigm) are too few compared to those which adduce evidence in favour of the firm-level factors (the RBV).
According to Brahma & Chakraborty (2011), comparative analyses of the impact of the firm-level factors vis-à-vis the impact of the industry-level factors demonstrate that the RBV has a dominant role to play in explaining the competitive advantage of firms. Some of the studies in this regard include those of Schmalensee (1985), Cubbin & Geroski (1987), Jacobsen (1988), and Rumelt (1991), among many others.

In Hawawini, Subramanian, and Verdin (2003), the researchers evaluate if the previous research findings on whether the competitive advantage of firms is attributable to firm-specific or industry-specific factors can be generalized for all the companies operating in an industry or if the findings apply only to a specific group of companies within the industry. Rather than using accounting ratios to evaluate firm performance, the researchers use value-based performance measures (i.e. economic profits). Their findings show that the strong firm-level effects which have been adduced in previous studies that have supported the RBV have been as a result of exceptional performance by outliers in the industry - the two strongest market leaders and the two weakest market losers in the industry. Put differently, firm-specific assets are more relevant than industry level factors to the performance of the two leading firms in an industry, and to the two weakest firms in the same industry. For the other firms in the same industry, the industry level factors have more influence on performance and firm-level factors are less relevant. These finding are further demonstrated to hold true, regardless of the measure of performance deployed (Hawawini, Subramanian, and Verdin, 2003).

Taking into consideration the earlier studies on the validity of the SCP paradigm and those of the RBV, it can be surmised that even though more studies have been carried out on the RBV than on the market based view, the question of whether competitive advantage depends on firm level factors or industry level factors has yet to be conclusively resolved, is characterized by mixed findings, and is a significant issue which merits further investigation (Brahma & Chakraborty, 2011).

2.4.2 Measurement of Market Power

According to Bikker & Haaf (2002), market power is typically measured using concentration ratios. Concentration ratios are widely preferred because of their ability to effectively capture
the structural aspects of the market, and to highlight changes in the concentration of the market due to the entry, exit, or merger of firms in the market. As such, concentration ratios are widely used in anti-trust enforcement in many jurisdictions globally (Hirschey, 2008; Bikker & Haaf, 2002).

The concept of market concentration has been extensively discussed in research. Although many different types of concentration ratios have been developed, there is widespread consensus that concentration is a function of a number of factors, including the number of firms operating in an industry, and the distribution of the firms in the industry (Hirschey, 2008). In a comprehensive review of the concentration ratios which are most commonly used, Xu (2005) and Bikker & Haaf (2002) have outlined the following as the most common concentration ratios: the Herfindahl-Hirschman Index (HHI), the Hall-Tideman Index (HTI), the Rosenbluth Index (RI), the Comprehensive Industrial Concentration Index (CCI), the Hannah and Kay Index (HKI), the U Index (U), the additive Hause Index (Hₐ), the multiplicative Hause Index (Hₘ), and the Entropy measure (E).

Of the various concentration indices highlighted, the HHI index is the most widely used concentration measure, and is often taken as a yardstick against which all the other concentration ratios can be measured or evaluated. The HHI index is defined as the sum of the squares of the market shares of the firms operating in the industry. It is also described as the full-information index by virtue of the fact that it takes into account the aspects of distribution of the firm sizes. Unlike the other indices, the HHI gives more weight to larger firms through attaching stronger weights to them compared to smaller firms. In so doing, it helps eliminate the problems of insensitivity and haphazard cut-offs which have been associated with the other indices (Bikker & Haaf, 2002).

2.5 Measurement of Competitive Advantage

Although attempts have been made to define the concept of “competitive advantage”, an exact definition of the concept is yet to be arrived at (Beal, 2008; Gleibner, Helm, & Kreiter, 2013). Traditional definitions viewed competitive advantage as the ability of a firm to earn a consistently higher return than its rivals. However, with the emergence of the RBV,
alternative definitions of the concept have emerged, further clouding the definitional clarity of the concept (Beal, 2008).

Rumelt, Harry, & Elsa (2003) identify at least four areas of disagreement regarding the operational definition of the concept of competitive advantage: differences in the way value can be conceptualised or measured, vagueness in the definition of rents, disagreements over the suitability of using the opportunity cost concept, and disagreements over whether competitive advantage means being first in the market or having enough resources to maintain a reasonable position in the market.

With respect to the measurement of competitive advantage, at least four different schools of thought or perspectives have been put forward in strategic management literature. Rumelt et al (2003) assert that notwithstanding the differences in the operational definition of the concept, generation of value is the common denominator among the various schools of thought which have taken a position on the concept of competitive advantage.

One of the perspectives views value as the difference between costs and revenues. According to this school of thought, value is generated when an organisation is able to enjoy favourable terms of trade - that is - when its revenues are higher than its costs. It measures competitive advantage based on economic value creation. The measurement is done relative to other firms in the industry. Examples of key metrics used under this approach include economic profits (which is equivalent to accounting profit less opportunity costs). When the economic profit of the firm is greater than that of its rivals, the firm is said to have achieved a competitive advantage. When it is equal to that of its rivals, the firm is said to have achieved competitive parity, and when its economic profit is less than that of its rivals, the firm is considered to be at a competitive disadvantage (Rothaermel, 2013; Rumelt et al, 2003).

Another school of thought holds the view that value is generated when the firm is able to generate “supernormal” returns, where such returns are measured using accounting and financial performance indicators. Examples of accounting measures commonly used to measure competitive advantage include: return on assets or ROA, return on equity or ROE, and return on capital or ROC. Examples of financial measures commonly used for measuring competitive advantage include the net present value or NPV method and the discounted cash
flow or DCF method. Additionally, capital market approaches are used to measure competitive advantage, and include: the Market Value Added (MVA) method, Tobin’s q and the market value of the firm (Rothaermel, 2013).

Yet another perspective measures value from the point of view of the performance of the firm’s stock in the stock market. Key metrics used under this perspective include total shareholder returns (TSR), and the prices of the firm’s stocks based on expectations (Rothaermel, 2013; Rumelt et al, 2003). According to Rothaermel (2013), apart from the purely financial metrics, there are other approaches which combine both quantitative and qualitative aspects of the firm’s performance, and which can also be effectively used to measure the firm’s competitive advantage. These include the balanced scorecard (BSC) and the triple bottom line concepts. The BSC was developed by Kaplan & Norton (Niven, 2010). The original framework of the BSC was based on the findings of a year-long study that had involved twelve firms, but was revised and refined following subsequent studies involving more than 300 firms. The subsequent refinements have led to the inclusion of leadership and management principles and strategy maps into the original framework of the BSC, effectively transforming it from a mere performance measurement instrument into a strategic management system (Hoque, 2013).

The BSC consists of four perspectives, which include the financial perspective, the customer perspective, the learning and growth perspective, and the internal business process perspective. The financial perspective addresses the question of what the firm must look like for it to be considered successful by its shareholders, while the customer perspective addresses the question of what the firm must do for it to be considered successful by its customers. The internal business process perspective refers to the internal business processes or mechanisms which the firm must excel at if it is to satisfy its customers, while the learning and growth perspective refers to the continuous learning and improvements which the firm needs to undertake if it is to achieve its vision (Kaplan & Norton, 1996).

The triple bottom line concept demands that in addition to financial goals, firms also need to pursue social and environmental goals if they are to be successful. As such, in addition to financial performance measures, the triple bottom line also measures how well the firm is meeting its social and ecological/environmental goals (Rothaermel, 2013). Each of these
approaches to the measurement of competitive advantage has been associated with a number of weaknesses. Financial measures are limited in their ability to measure long term investments, and especially intangible assets. However, since accounting measures involve the use of standard ratios, they enable direct comparison of performance between firms. Accounting measures also involve firms in the same industry. Thus, it measures competitive advantage relative to competitors, and allows for an “apple to apple” comparison. Moreover, accounting measures provide more than a snapshot measure, since they involve data spanning several years (Rothaermel, 2013).

The main disadvantage of accounting measures is that they don’t incorporate off-balance sheet items such as operating leases. Moreover, accounting data is primarily historical and backward looking, and focus mainly on tangible assets which are not as strategically vital as intangible assets (which it ignores). A major drawback of the shareholder value approach to the measurement of competitive advantage is that it applies only to firms which are listed, and is therefore not applicable for unlisted firms. Moreover, stock prices tend to be highly volatile, thus limiting the ease with which the performance of the firm can be evaluated. Additionally, stock prices are highly vulnerable to macroeconomic factors. Movements in stock prices also often reflect the psychological state of the investors, and such movements may be based on irrational sentiments or what is referred to “irrational exuberance” (Rothaermel, 2013).

Compared to the traditional performance measurement systems which focussed solely on financial performance indicators and ignored non-financial performance indicators, the BSC breaks new ground in that it also addresses non-financial performance by integrating customer, business process, financial, and learning and growth perspectives into a single scorecard. The sole focus on financial performance by the traditional measurement systems had cultured organisations to focus on short-term financial goals, at the expense of long-run performance, and the BSC has been credited with addressing this weakness (Chandra, 2008).

In addition to having received widespread adoption, the balanced scorecard has been associated with a number of positive outcomes for organisations which have adopted it. Hoque & James (2000) have found a positive and significant correlation between BSC adoption and organisational performance, and assert that this correlation exists in all firms.
which have adopted the BSC, regardless of their size, share of the market, or life cycle stage. This is a position which is confirmed by, among others, Speckbacher et al (2003) and Banker, Chang, Janakiraman, & Konstans (2004). Other positive outcomes which have been associated with the balanced scorecard include: superior planning, better strategic implementation, enhanced communication, superior management and control, better change management, higher-quality decision-making, better alignment of strategy, and superior translation of the organisation’s strategy into action (Malina & Selto, 2001; Malmi, 2001; Lipe & Salterio, 2002; Hoque, 2013).

In spite of the positive outcomes associated with the balanced scorecard, numerous other researchers have associated it with a number of weaknesses. Norreklit (2003), for instance, casts aspersions over the causal connections implied between its four perspectives (asserting that the linkages are more logical rather than causal) and questions its validity as a strategic management framework. Other weaknesses attributed to the BSC include its inability to weight or rank the four perspectives, which makes it impossible for managers to make trade-offs should any of the perspectives conflict (Chenhall, 2010; Norreklit & Mitchell, 2007). According to Vaivio (1999), the four perspectives are not adequate to cover all the aspects of a firm’s strategy. Liedtka, Church & Ray (2008) have found that the use of BSC is associated with very high levels of variability in performance, while in a study of German companies; Speckbacher et al (2003) found that the adoption of the BSC not only requires rigorous efforts which many organisations are not willing to exert, or that most firms don’t find any advantages in implementing it. As a result, close to 8 per cent of the firms surveyed were not willing to adopt it (Speckbacher et al, 2003). According to Hoque (2013), the BSC is also a very general tool and is therefore not applicable in some organisational cultures or compatible with certain organisational missions. Moreover, its four perspectives have been criticised as being descriptive rather than prescriptive, and therefore of little use to managers. The BSC has also been criticised as incorporating some unimportant factors and ignoring other important ones (Laitinen, 2003). Taking into consideration the different measures of competitive advantage, Pieterman (2012) asserts that given the difficulties in measuring competitive advantage that arise from the abstract nature of the concept; the majority of strategic management researchers focus on the relationship between strategic resources and firm performance.
2.6 Chapter Summary

Chapter 2 has carried out a review of the existing literature relating to firm-level resources. Adopting the perspective taken by Wernefelt (1984) in his seminal work, these resources are viewed as including tangible assets and intangible assets. The literature reviewed demonstrates that the correlation between intangible assets and a firm’s competitive advantage is generally positive and significant. The findings regarding the role of tangible assets are mixed, with most studies concluding that tangible assets are not as important as intangible assets in the generation of competitive advantages. This is attributed to the fact that tangible assets lack firm specificity and can be easily imitated by rivals. The chapter also evaluates the techniques used to measure the concept of competitive advantage, and establishes that notwithstanding the lack of definitional clarity regarding the concept, competitive advantage is measured through measuring the firm’s performance. This can be done using the economic value approach, accounting/financial measures, the stockholder approach, and more holistic measures such as the balanced scorecard or the triple bottom line approach.
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the procedures, methods, techniques and processes which were used to collect, measure, and analyse data for purposes of meeting the research objectives. It comprises of various subsections, including: the research design, population and sampling design, the data collection methods, research procedures, and the data analysis methods. A brief summary of the chapter is subsequently offered.

3.2 Research Design

The research design refers to the blueprint through which research questions are answered and research objectives met (Babbie, 2008; Saunders, Lewis, & Thornhill, 2009). To the extent that this study focused on finding the strength and direction of the degree of correlation and causation between various dependent and independent variables, it can be described as a causal rather than exploratory study. Moreover, the study adopted the multiple case study design, which involved evaluation of a limited number of firms in the cement industry with respect to the research questions.

As Yin (2009) demonstrates, the choice of the case study as the principal research design method was ideal for this study since it would help to not only answer the “what” questions, but would also help address the “how” and the “why” questions. For example, the study helped to not only identify what resources (tangible and intangible) the cement companies have, but also how they contribute to the firms’ performance (if at all). Since the case study design involves the study of only one or a few entities, it allowed for a more in-depth investigation of the subjects. Moreover, its use of multiple evidential sources enabled the researcher to arrive at richer findings (Yin, 2009).

Distinction has been made between the quantitative and qualitative designs. In the quantitative design, phenomena are reduced to numerical amounts or quantities, and measured as such. In the qualitative design, the focus is on quality or kind, rather than quantity, and a subjective assessment of attitudes, behaviours and opinions undertaken (Cooper & Schindler, 2010). This study adopted the quantitative rather than qualitative approach.
3.3 Population and Sampling Design

3.3.1 Population
Kothari (2004) describes the population as the entire set of objects, individuals, or items from which a sample is drawn for purposes of measurement. This research focused on the cement industry in Kenya. Accordingly, the population of interest was comprised of all the firms operating in the cement manufacturing industry in Kenya. The Kenya National Chamber of Commerce and Industry (KNCCI) (2013) states that there are six registered cement companies currently operational in Kenya. These include: Bamburi Cement Company, East Africa Portland Cement Company, Savannah Cement Company, Mombasa Cement Company, Athi River Mining, and National Cement Company (KNCCI, 2013). These formed the entire population of interest for the study.

3.3.2 Sampling Design

3.3.2.1 Sampling Frame
The sampling frame refers to the source list, or a list containing the names of all the items in the entire set of population (or the universe) from which the sample is drawn (Cooper & Schindler, 2010; Kothari, 2004). With specific reference to this study, it refers to the list of all the firms in the industry from which the case studies were selected. The sampling frame was obtained from the data list of the Kenya National Chamber of Commerce and Industry (KNCCI) and includes: Bamburi Cement Company, East Africa Portland Cement Company, Savannah Cement Company, Mombasa Cement Company, Athi River Mining, and National Cement Company.

As the list denotes, the sampling frame coincides exactly with the targeted population. This is important in helping reduce bias in the study, since differences between the sampling frame and population of interest often end up underrepresenting or over representing some categories, and generating bias in the study (Kothari, 2004).

3.3.2.2 Sampling Technique
Sampling is the process by which a subset of objects, items or individuals is selected from the entire population or universe, for purposes of measurement, and in such a way that the
subset chosen reflects the characteristics of and is representative of the universe from which it has been selected (Babbie, 2008).

Yin (2009) avers that the choice of a particular case to use in the research should be guided by its ability to provide the access needed by the study, its ability to provide varied organisational mix as well as rich and specific practices. Given the study’s focus on the use of secondary data (annual reports), the purposive sampling method which is a type of non-probability sampling technique was utilised (Kothari, 2004). Accordingly, only listed entities in the entire sampling frame and population of interest were selected. This is informed by the fact that unlike unlisted firms, listed firms offered the required access to the information needed. The listed firms are required by law to make public and timely disclosures of their annual reports and other financial statements, and therefore their information could be easily obtained unlike the unlisted firms.

**3.3.2.3 Sample Size**
Based on the purposive sampling technique outlined in the previous section, it was found that of all the cement firms in the Kenyan cement industry, only three were listed. These included: Bamburi, Athi River, and East Africa Portland. The sample size for the study therefore comprised of these three firms. The three firms jointly control 80 per cent of the market share, and therefore represent a significant sample of the entire industry (Dyer & Blair, 2012; EAPCC, 2012).

**3.4 Data Collection Methods**
Saunders et al (2009) outlined two types of data, that is, primary and secondary data. Primary data refers to the data which is being collected for the first time, and is therefore original. On the other hand, secondary data is that data which has already been collected by another person and passed through the statistical process. Secondary data was used for this research study. More specifically, data was collected from the annual reports for the ten year period between 2003 and 2012 for the three cement companies selected for the case study. This data was supplemented by data from other secondary sources, including: books, journals, industry and trade reports, newspaper reports and internet articles. Consistent with Yin (2009), the use of multiple sources of data increased the opportunity to maximise the convergence of
findings from different sources, thereby enhancing the construct validity of the research study.

3.5 Research Procedures

After determining that the study will utilize only secondary data sources, the first step in the research involved locating the requisite data. This involved the use of printed indices at various libraries, as well as the Online Public Access Catalog (OPAC) at the United States International University (USIU) library. Additionally, online databases such as Emerald and Ebscohost were identified as critical data sources for the study. The second research procedure involved the assessment of the identified data. Accordingly, the various identified secondary sources were inspected and examined to ensure that the study had a high degree of validity and reliability. This assessment involved the critical interrogation of, among others: theoretical and conceptual models deployed in the secondary sources, the variables used, the hypotheses advanced, the operational definitions used, the measures used, response rates achieved, and quality control procedures used in the secondary studies.

After the data was assessed, the other research procedure involved the verification of the data. This involved ensuring that all the sources used had: the requisite documentation, and that they deployed the right coding, observations, and variables, and the statistics presented in them were replicable. Based on the secondary data, the regression model to be used in the study was developed, and expressed in the form of regression equations. The efficacy of this model in testing and predicting the values of the dependent variable, given the independent variables; was also tested using various measures such as the R squared, the standard error, and the F statistic. The regression model was then used to ascertain the nature and direction of the relationship between the independent and dependent variables. Tests of statistical significance, as well as the measures of association were assessed, and related to the study objectives, after which the requisite conclusions were drawn.

3.6 Data Analysis Methods

Data analysis has been described as the use of logical or analytical tools to evaluate the data collected by the researcher, with an aim of making inferences or conclusions based on such evaluations. In the quantitative studies, two broad data analysis methods have been identified. These include descriptive statistics and inferential statistics (Cooper & Schindler,
This study adopted inferential statistics. More specifically, it used the linear regression method, which takes the form \( y = a + bx \), to evaluate the direction and strength of correlation between the dependent and independent variables (Saunders et al, 2009). The specific model used is outlined at the end of this section.

The study adopted three independent variables, namely: tangible assets, intangible assets, and market concentration. The study had one dependent variable, namely, sustainable competitive advantage. The tangible assets were measured based on their accounting value, as reported in the annual reports and financial statements of the three companies chosen for the study. Likewise, the intangible assets were measured based on their monetary value, as reported in the annual reports and financial statements of the three companies chosen for the study.

The financial performance of the three firms was used as the proxy measure of the competitive advantage of the firms. The financial health of the firm is typically considered as being anchored on five pillars. These five pillars include: liquidity, leverage, profitability, shareholder value, and management efficiency (Khan & Jain, 2007). The performance of the three case study firms was evaluated along these five dimensions. The specific measures used included the current ratio (which was used to assess liquidity), the debt ratio (to measure leverage), after-tax profits (to assess profitability), asset turnover ratio (to measure efficiency), and the Earnings per Share or EPS (to measure shareholder value).

Current ratio is defined as current assets over current liabilities. The debt ratio is defined as total liabilities over total assets. The asset turnover ratio is defined as net sales over fixed assets, while the EPS is defined as: (net income minus dividends on preference shares)/average outstanding shares (Khan & Jain, 2007). The HHI index was used to measure market concentration, was adopted as the proxy measure for industry structure, and was defined as \( HHI = s1^2 + s2^2 + s3^2 + \ldots + sn^2 \). In the formula, \( sn \) refers to the market share which is held by the \( ith \) firm (Xu, 2005).

The general equation for the multiple regression model with predictor variables \( b1 \) to \( bk \) is denoted as follows: \( \hat{Y} = b0 + b1x1 + b2x2 + \ldots + bxxk \). In the equation, \( \hat{Y} \) stands for the outcome being predicted, \( b2 \ldots bk \) represents the slope or coefficient of the variables, while
b0 stands for the Y intercept. The general equation for the simple linear regression is the same for a straight line, and is given as \( y = mx + c \), where \( c \) is the Y intercept, \( m \) is the slope (or correlation coefficient), and \( x \) is the explanatory variable. Using after-tax profits as the main measure of firm performance (and the proxy measure for competitive advantage), the covariance matrix approach was run in the Excel spreadsheet, and the following regression equations for the study were derived:

1) \( \hat{Y} = 97682076.987 + 0.155x_1 -3.046x_2 \) (regression equation for the relationship between firm resources and firm performance, with \( x_1 \) being the explanatory variable for tangible assets and \( x_2 \) being the explanatory variable for intangible assets).

2) \( \hat{Y} = 10274519572.184 -1393263.762x \) (regression equation for the relationship between industry structure and firm performance, with \( x \) being the explanatory variable for industry structure).

The analysis was done using computer software. A significance level of 95 per cent was used for purposes of evaluating the significance of the findings. The findings were presented using tables.

3.7 Chapter Summary

This chapter has outlined the procedures, methods, techniques and processes which were used to collect, measure, and analyse data for purposes of meeting the research objectives. The study was quantitative and adopted a causal design. The multiple case study method, involving the three largest cement companies in Kenya, was used, and the data was analysed by means of inferential statistics. Necessary conclusions were then made, and used to explain the relationship between organisational resources and capabilities on the one hand and competitive advantage on the other hand.
CHAPTER FOUR: RESULTS AND FINDINGS

4.1 Introduction

This chapter presents the study findings. It begins by reporting on the financial performance of the three listed cement firms in Kenya (East Africa Portland Cement Company, Bamburi Cement Company, and Athi River Cement Company) for the ten-year period between 2003 and 2012. The geographical scope of the study covered the Lukenya, Athi River, Nairobi, and Mombasa regions of Kenya where these firms have their factories and offices. The data used covered a time period of ten years, stretching from 2003 to 2012.

The financial performance is presented based on the five pillars of the firm’s financial health, including: profitability, liquidity, shareholder value, efficiency, and leverage. The specific financial ratios/indicators used to measure these five pillars include: current ratio (for liquidity), earnings per share (for shareholder value), asset turnover ratio (for efficiency), debt ratio (or leverage), and after-tax profits (for profitability).

The first section of the chapter evaluates the role of tangible assets in generating sustainable competitive advantages. The second section of the chapter investigates the role of intangible assets in generating sustainable competitive advantage. Thereafter, the role of the market based view in the firm’s competitive advantage is evaluated. The final section of the chapter focuses on the measurement of competitive advantage and the requisite conclusions are made.

4.2 Role of Tangible Assets in Generating SCA’s

Based on the secondary data available, the tangible assets of Athi River, Bamburi, and East Africa Portland Cement companies were identified, and are given in table 4.1 below.
Table 4.1: Tangible Assets (ARM, Bamburi and EAPCC)

<table>
<thead>
<tr>
<th>Athi River Cement Company</th>
<th>Bamburi Cement Company</th>
<th>East Africa Portland Cement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freehold land</td>
<td>Land &amp; Residential buildings</td>
<td>Freehold land</td>
</tr>
<tr>
<td>Buildings</td>
<td>Plant &amp; Machinery</td>
<td>Buildings</td>
</tr>
<tr>
<td>Heavy commercial vehicles &amp; Quarrying equipment</td>
<td>Office equipment and tools</td>
<td>Plant &amp; Machinery</td>
</tr>
<tr>
<td>Computer hardware, plant, machinery, motor vehicles, furniture and fittings</td>
<td>Mobile plant</td>
<td>Computers, office equipment, furniture, &amp; fittings</td>
</tr>
<tr>
<td>Capital work in progress</td>
<td>Capital work in progress</td>
<td>Motor vehicles</td>
</tr>
</tbody>
</table>


Table 4.1 shows that the main tangible assets possessed by Bamburi, Athi River and East Africa Portland Cement companies include: land, buildings, plant and machinery, vehicles, office equipment and tools, and capital work in progress. In order to evaluate the contribution of these identified tangible assets to the cement firms’ competitive advantage, regression analyses for each of the firms’ assets against its financial performance was carried out. The results are summarized in the sub-sections below.

4.2.1 Correlation between Tangible Assets and Competitive Advantage for Athi River Mining (ARM)

The correlation between the tangible assets possessed by ARM and its financial performance is summarised in table 4.2 below.

Table 4.2: Correlation between Tangible Assets and Financial Performance (ARM)

<table>
<thead>
<tr>
<th></th>
<th>Profits</th>
<th>Debt Ratio</th>
<th>Asset Turnover</th>
<th>EPS</th>
<th>Current Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R</td>
<td>Sig</td>
<td>R</td>
<td>Sig</td>
<td>R</td>
</tr>
<tr>
<td>Freehold land</td>
<td>0.960</td>
<td>0.000</td>
<td>0.715</td>
<td>0.020</td>
<td>-0.891</td>
</tr>
<tr>
<td>Buildings</td>
<td>0.880</td>
<td>0.001</td>
<td>0.558</td>
<td>0.094</td>
<td>-0.692</td>
</tr>
<tr>
<td>Heavy commercial vehicles &amp; Quarrying equipment</td>
<td>0.140</td>
<td>0.700</td>
<td>0.359</td>
<td>0.309</td>
<td>0.198</td>
</tr>
<tr>
<td>Computer hardware, plant, machinery, motor vehicles, furniture and fittings</td>
<td>0.946</td>
<td>0.000</td>
<td>0.843</td>
<td>0.002</td>
<td>-0.830</td>
</tr>
<tr>
<td>Capital work in progress</td>
<td>0.947</td>
<td>0.000</td>
<td>0.631</td>
<td>0.050</td>
<td>-0.832</td>
</tr>
</tbody>
</table>
Table 4.2 shows the strength, direction, and significance of the relationship between each asset possessed by Bamburi and the various indicators of Bamburi’s financial performance. The strength and direction of the relationship is captured by the correlation coefficient (R), while the significance of the findings is captured by the p-value (Sig). At a confidence interval of 95 per cent, table 4.2 shows that the relationship between land and profits is strong (R=0.960>0.5), positive (R=0.960>0), and significant (P= 0.000<0.05). The table also shows that the relationship between land and EPS is strong (R=0.966>0.5), positive (R=0.966>0), and significant (P= 0.000<0.05). Likewise, the relationship between land and debt ratio is strong (R=0.715>0.5), positive (R=0.715>0), and significant (P=0.020<0.05). However, from table 4.2, it is also apparent that the relationship between land and asset turnover for ARM is negative (R=-0.891<0), strong (R=-0.891>-0.5), and significant (P=0.001<0.05).

Based on the nature of the relationship adduced, it would seem that the possession of freehold land at ARM increases the firm’s profits, shareholder value, and leverage, but reduces its management efficiency. The higher profitability can be associated with the Ricardian rents generated from the mineral reserves (specifically limestone and gypsum, which make up to 90 per cent of the finished cement product) which the firm extracts from the land for purposes of manufacturing its core product.

Additionally, once the mineral reserves are exhausted, the disposal of the land typically results into the funds generated from the disposal being booked as one-off capital gains, which are added to the net income, thus boosting the firm’s profitability. Unlike leasehold land which has some ownership restrictions, freehold land can be held in perpetuity, and therefore attracts higher prices in the market, not to mention that with the growth of the real estate in Kenya over the last decade, land has been an appreciating asset. The impact of freehold land on profitability is thus explained through the mineral reserves held in that land, as well as through the capital gains associated with the land (ARM, 2012; Graham &Smart, 2011). This ultimately has a favourable impact on shareholder value, as measured by the EPS. It would also seem that most of the freehold land is obtained through credit finance, thus explaining the reason why an increase in the amount of freehold land held by the firm results in an increase in the debt ratio. Additionally, the negative correlation between ARM’s profitability and its asset turnover ratio suggests that it has not optimised the amount of sales
or revenues it can generate from its freehold land and that the size of freehold land it has is increasing faster than its sales are growing.

At a correlation coefficient of 0.880, ARM’s buildings are positively (R>0), strongly (R>0.5) and significantly (P=0.001<0.05) correlated with its after-tax profits. ARM’s buildings are also positively (R=0.875>0), strongly (R=0.875>0.5) and significantly (P=0.001<0.5) correlated with its EPS. However, ARM’s buildings are negatively (R=-0.692<0), strongly (R=-0.692>-0.5), and significantly (P=0.027<0.05) correlated with its asset turnover ratio. This is also the case with ARM’s capital works in progress, as well as its computer, plants, machinery and furniture. As in the case of buildings, capital works in progress has a significant, positive, and strong correlation with profits (R=0.947, P=0.000) and EPS (R=0.906, P=0.000), but a negative, strong and significant relationship with asset turnover ratio (R=-0.832, P=0.003). This is the same case with ARM’s computer hardware, plants, machinery, motor vehicles, and furniture and fittings which have a significant, positive and strong relationship with profitability (R=0.946, P=0.000).

The more of these assets ARM has, the greater its profitability. These assets seem to contribute to improved profit performance through adding value at different levels of the value chain. For example, a key primary activity of the value chain is operations, and plants and machinery add value to this by transforming inputs (e.g. limestone and gypsum) into outputs (cement). Motor vehicles facilitate both inbound and outbound logistics (both of which are primary activities in the value chain), thus helping in the receipt of input materials, and in the transportation of finished products to the market. Computers are also useful in inbound logistics (e.g. inventory control), outbound logistics (e.g. some order fulfilment processes), service (e.g. customer support), as well as support activities such as procurement, human resource management, and activities classified under firm infrastructure (e.g. finance, management, etc.). Ultimately, this enhances shareholder value.

Capital works in progress capture assets under construction in which significant investment has been made, but whose completion is yet to be realized and therefore such assets are not yet productive. Since asset turnover by definition is equal to sales revenue over total assets, capital works in progress have the effect of increasing total assets and therefore reducing the asset turnover ratio (Khan & Jain, 2007). In sum, ARM’s tangible assets are seen as
increasing some aspects of the firm’s performance (profitability and shareholder value), while adversely affecting other aspects of the firm’s performance (management efficiency, and leverage).

No significant relationship exists between the remaining tangible assets and the various pillars of the firm’s financial health, since the p-value for the relationship between all these other assets and the various indicators of financial performance is greater than zero.

The extremely high scores for the positive and significant relationships between the various tangible assets possessed by ARM and its various financial indicators as highlighted can be attributed to the floor effect. The data obtained from the financial statements of ARM, and which has been used for analysis, displays some degree of positive skewness, where the bulk of the data is clustered to the left of the mean with some extreme values lying to the right of the mean. As a result, skewness>0, leading to the floor effect whose effect is to strengthen the correlation coefficient. The skewness is captured in appendix 4.

The value of all the listed tangible assets of ARM was calculated and also regressed against the various financial performance indicators, and the results are shown in table 4.3 below.

<table>
<thead>
<tr>
<th></th>
<th>Profits</th>
<th>Debt Ratio</th>
<th>Asset Turnover</th>
<th>EPS</th>
<th>Current Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>0.979</td>
<td>0.714</td>
<td>-0.835</td>
<td>0.972</td>
<td>0.015</td>
</tr>
<tr>
<td>Sig</td>
<td>0.000</td>
<td>0.020</td>
<td>0.003</td>
<td>0.000</td>
<td>0.968</td>
</tr>
</tbody>
</table>

At a significance level of 95 per cent, the results demonstrate a significant relationship exists between ARM’s total tangible assets and its profits, debt ratio, asset turnover ratio, and earnings per share. There is however no significant relationship between ARM’s tangible assets and its current ratio.

The relationship between ARM’s tangible assets and profits is positive, significant, and strong. Therefore, the more tangible assets the firm has, the higher its profitability. The relationship between ARM’s tangible assets and debt ratio is significant, positive, and strong, reflecting the fact that the acquisition of tangible assets is probably being financed by higher levels of debt at the firm. The relationship between ARM’s tangible assets and its asset turnover ratio is shown to be not only significant, but also negative and strong. This indicates
that an increase in the tangible assets of the firm has been accompanied by a less than proportionate increase in sales, indicating that the firm is not making efficient use of its assets to generate sales. Finally, ARM’s tangible assets are significantly, positively, and strongly correlated with its earnings per share (EPS). This corroborates the earlier established relationship between tangible assets and profitability, and confirms that the possession of tangible assets helps enhance profits and shareholder value, an indication that its tangible assets contribute to competitive advantage. However, the acquisition of such assets seem to increase the firm’s leverage and to reduce its efficiency, factors which potentially have an adverse effect on the firm’s competitive advantage. However, data relating to profits and EPS also displays some positive skew, pointing to floor effects that may have inflated the correlation coefficient scores (Xin, 2005). This is captured in appendix 4.

4.2.2 Correlation between Tangible Assets and Competitive Advantage for Bamburi

The correlation between the tangible assets possessed by Bamburi and its financial performance is summarised in table 4.4 below.

<table>
<thead>
<tr>
<th></th>
<th>Profits</th>
<th>Debt Ratio</th>
<th>Asset Turnover</th>
<th>EPS</th>
<th>Current Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R</td>
<td>Sig</td>
<td>R</td>
<td>Sig</td>
<td>R</td>
</tr>
<tr>
<td>Land &amp; Residential Buildings</td>
<td>-0.139</td>
<td>0.703</td>
<td>0.188</td>
<td>0.604</td>
<td>-0.247</td>
</tr>
<tr>
<td>Plant &amp; Machinery</td>
<td>0.794</td>
<td>0.006</td>
<td>0.450</td>
<td>0.192</td>
<td>-0.383</td>
</tr>
<tr>
<td>Office Equipment &amp; Tools</td>
<td>0.802</td>
<td>0.005</td>
<td>0.336</td>
<td>0.343</td>
<td>-0.624</td>
</tr>
<tr>
<td>Mobile plant</td>
<td>-0.216</td>
<td>0.549</td>
<td>-0.060</td>
<td>0.868</td>
<td>-0.355</td>
</tr>
<tr>
<td>Capital work in progress</td>
<td>0.364</td>
<td>0.336</td>
<td>-0.187</td>
<td>0.630</td>
<td>-0.940</td>
</tr>
</tbody>
</table>

At a confidence interval of 95 per cent, the findings in table 4.4 above show that the only significant findings relate to the following pairs of variables: plant and machinery versus profits; plant and machinery versus EPS; office equipment and tools versus profits; office equipment and tools versus EPS; and capital work in progress versus asset turnover which posted scores of R=0.794, P=0.006; R=0.794, P=0.006; R=0.802, P=0.005; R=0.778, P=0.008; and R=-0.940, P=0.000 respectively. The rest of the findings are not significant.

The relationship between plant and machinery on the one hand and profits on the other is not only significant, but is also positive and strong. The more machinery Bamburi has, the more its profits. This is to be expected given the role which plants and machinery play in
transforming inputs such as limestone and gypsum into cement and cement products for sale to the market.

The relationship between office equipment and tools and profitability is also significant, positive, and strong, suggesting that the deployment of more office equipment and tools has enhanced profitability at Bamburi. Theoretically, office equipment and tools are expected to increase the speed of work of Bamburi’s employees in the offices, and reduce errors associated with manual processes. Equipment and tools are expected to lead to the automation of some work processes, and therefore lead to lower labour requirements, which in turn should translate into significant manpower savings. They are expected to facilitate time savings, the ability to capitalize on more opportunities, and greater convenience for customers (Hirschey, 2008). Overall, this should lead to higher levels of profitability and efficiency, and explains the significant, strong, and positive correlation between these tangible assets and Bamburi’s profitability.

The EPS is defined as the net profit over outstanding shares, demonstrating why an increase in profitability due to the deployment of more plants and machinery to transform inputs into outputs, necessarily translates into higher earnings per share held by the firm’s investors. This also explains the positive correlation between office tools and equipment and Bamburi’s EPS.

The relationship between capital work in progress and asset turnover is also found to be significant, negative and strong. This is similar to the case at ARM. As explained, the capital work in progress captures assets under construction in which significant investment has been made, but whose completion is yet to be realized and therefore such assets are not yet productive. Since asset turnover by definition is equal to sales revenue over total assets, capital works in progress have the effect of increasing total assets and therefore reducing the asset turnover ratio (Graham & Smart, 2011). The different assets possessed by Bamburi were summed up, and their relationship with the various measures of financial performance assessed using regression analysis. The summary is given in table 4.5 below:
Similar to the case of ARM, the total tangible assets at Bamburi are seen as being significantly, positively, and strongly correlated to profitability (profits) and shareholder value (EPS). This indicates that Bamburi’s tangible assets have a role in enhancing competitive advantage. However, no significant relationship exists between the assets and the firm’s liquidity, leverage, and efficiency. It should also be noted that some slight skewness was manifested in the accounting data relating to Bamburi’s plant and machinery, and office equipment and tools. This could also explain the high correlation scores highlighted in tables 4.4 and 4.5. This skewness is captured in appendix 4.

4.2.3 Correlation between Tangible Assets and Competitive Advantage for East Africa Portland Cement Company (EAPCC)

The correlation between the tangible assets possessed by EAPCC and its financial performance is summarised in table 4.6 below.

Using a confidence level of 95 per cent, the results for the relationship between various tangible asset classes for EAPCC and various financial performance indicators show significant relationships for the following pairs of variables: freehold land versus debt ratio, freehold land versus current ratio; plant and machinery versus current ratio, capital works in progress versus current ratio.
progress versus profits, capital works in progress versus debt ratio, and capital works in progress versus EPS.

The relationship between freehold land and the debt and current ratios is negative and strong. This outcome can be explained variously. Firstly, EAPCC has vast land holdings. Most of this land is in Athi River and Kitengela. This land has held extensive limestone deposits, which the company has over the years extracted to produce cement. However, over 4,000 acres of this land currently lies idle, after the mineral reserves became exhausted (Wafula, 2014). In addition to not contributing any value to the firm’s profitability, the idle land also continues to incur costs for the firm. For example, parts of the land have been illegally annexed, leading to court cases that have increased legal costs for EAPCC. The firm also continues to incur other costs related to evicting the illegal squatters, and payment of land rates. In one of the notable cases, the firm has incurred liabilities of more than 145 million shillings in service charges, after it contracted a firm known as Syokimau Bright Homes to undertake security surveillance on that land. Additionally, this land is highly undervalued in the firm’s books, with the firm’s books showing a value of only 166 million shillings when the market cost of the land is currently estimated at between 20 to 40 billion shillings (EAPCC, 2012; Wafula, 2014; Marindany, 2013). The undervaluation of this asset seems to have significantly reduced the firm’s total assets. At the same time, the fact that the idle land continues to incur costs without generating any income seems to have had the effect of increasing the firm’s current and total liabilities. This would explain the adverse impact EAPCC’s land has on its current and debt ratios. Unlike private cement firms such as Athi River which have been able to dispose their exhausted land and increase profitability by booking the proceeds from such disposals as one-off capital gains, EAPCC has not been able to dispose its idle land due to on-going court cases related to the land, the strong public and political interest in the issue, and the efforts of powerful rent-seekers to benefit from the land (EAPCC, 2012; ARM, 2012; Wafula, 2014).

The other significant outcome in relation to EAPCC is that there is a significant, negative, and strong correlation between its plant and machinery and its current ratio. This can be explained by the huge financing costs that EAPCC has had to pay for a yen-denominated loan it took in 1990, whose maturity is in the year 2020, and whose annual cost of repayment...
has become extremely high due to the Kenyan shilling depreciating vis-à-vis the Japanese yen (Standard Reporter & Reuters, 2011).

EAPCC’s capital works in progress are shown to be negatively correlated to the firm’s profitability and EPS, but positively correlated to EAPCC’s debt ratio. As mentioned previously, capital work in progress capture assets under construction in which significant investment has been made, but whose completion is yet to be realized and therefore such assets are not yet productive (Khan & Jain, 2007). This means that costs are being incurred (i.e. cash outflows) without a corresponding inflow of revenues, thus bringing about losses (or declines in profitability), at least in the short term. Since the EPS is by definition net profits over outstanding shares, the reduction in profitability ultimately translates into reduced shareholder EPS. It would also seem, in view of the rising debt ratio, that the impact of such losses at EAPCC has in the short term been financed through borrowing.

The various tangible assets possessed by EAPCC were all summed up, and the total value of the assets regressed against the various indicators of the firm’s financial performance. The summary of the findings is shown in table 4.7 below:

<table>
<thead>
<tr>
<th></th>
<th>Profits</th>
<th>Debt Ratio</th>
<th>Asset Turnover</th>
<th>EPS</th>
<th>Current Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R</td>
<td>Sig</td>
<td>R</td>
<td>Sig</td>
<td>R</td>
</tr>
<tr>
<td>Tangible Assets</td>
<td>-0.478</td>
<td>0.162</td>
<td>-0.231</td>
<td>0.521</td>
<td>0.251</td>
</tr>
</tbody>
</table>

As depicted in table 4.7 above, the only significant finding is that between the firm’s tangible assets and current ratio. This is significant, negative, and strong, and reflects the huge losses suffered as a result of the yen-denominated loan which EAPCC took in 1990 and which was aimed at financing capital expansion (Standard Reporter & Reuters, 2011).

4.2.4 Tangible Assets for the Three Firms Jointly

The total value of the tangible assets jointly possessed by the three firms (ARM, Bamburi, and EAPCC) was regressed against the various measures of financial performance, and the outcomes are summarized in table 4.8 below:
Table 4.8: Correlation between tangible assets and Financial Performance

<table>
<thead>
<tr>
<th></th>
<th>Profits</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R</td>
<td>Sig</td>
<td>R</td>
<td>Sig</td>
<td>R</td>
<td>Sig</td>
</tr>
<tr>
<td>Tangible Assets</td>
<td>0.774</td>
<td>0.09</td>
<td>0.410</td>
<td>0.239</td>
<td>-0.639</td>
<td>0.047</td>
</tr>
<tr>
<td></td>
<td>0.499</td>
<td>0.142</td>
<td>-0.693</td>
<td>0.026</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As table 4.8 shows, there is a significant, negative but strong relationship between tangible assets for the three firms and the current ratio. All the other findings are not significant.

4.3 Role of Intangible Assets in Generating SCAs

Based on data from the secondary sources available, the intangible resources possessed by each of these firms are summarized in table 4.9 below:

Table 4.9: Intangible Assets (ARM, Bamburi and EAPCC)

<table>
<thead>
<tr>
<th>Athi River Cement Company</th>
<th>Bamburi Cement Company</th>
<th>East Africa Portland Cement Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer software</td>
<td>Computer software</td>
<td>Computer Software</td>
</tr>
<tr>
<td>Goodwill</td>
<td>Goodwill</td>
<td></td>
</tr>
</tbody>
</table>


Regression analyses for the intangible assets and financial performance of the three case study firms was also carried out and the results are presented in the sections that follow.

4.3.1 Correlation between Intangible Assets and Competitive Advantage for ARM

The correlation between the intangible assets possessed by ARM and its financial performance is summarised in table 4.10 below:

Table 4.10: Correlation between Intangible Assets and Financial Performance

<table>
<thead>
<tr>
<th></th>
<th>Profits</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R</td>
<td>Sig</td>
<td>R</td>
<td>Sig</td>
<td>R</td>
<td>Sig</td>
</tr>
<tr>
<td>Computer Software</td>
<td>0.897</td>
<td>0.000</td>
<td>0.572</td>
<td>0.084</td>
<td>-0.676</td>
<td>0.032</td>
</tr>
<tr>
<td>Goodwill</td>
<td>0.909</td>
<td>0.000</td>
<td>0.682</td>
<td>0.030</td>
<td>-0.799</td>
<td>0.006</td>
</tr>
</tbody>
</table>

At a confidence interval of 95 per cent, the findings in table 4.10 above show that for ARM, there is a significant relationship between the following pairs of variables: computer software and profits; computer software and asset turnover ratio; computer software and EPS; goodwill and profits; goodwill and debt ratio; goodwill and asset turnover; and goodwill and EPS. The rest of the findings are not significant.
That ARM’s software has been capitalised as part of the PPE (plants, property, and equipment) in its books, as opposed to being expensed implies that this software is deployed in a major part of the firm’s production process, and contributes to its profitability (Graham & Smart, 2011). The positive correlation between ARM’s computer software and its profits shows this to be the case, which by extension also exerts a positive impact on ARM’s EPS.

The relationship between computer software and asset turnover ratio is shown to be strong, significant, but negative. A further analysis of ARM’s asset turnover ratio shows that it has been declining over time from 0.78 in 2003 to 0.4 in 2012. This has occurred against a background of rising revenues, thereby leading to the conclusion that ARM may have overinvested in assets. More precisely, the figures allude to the possibility that ARM has added a lot of capacity (more software, more equipment, etc.) which is not being used, or that some of its assets are idle (e.g. cash in bank, or slow-selling inventory) (Graham & Smart, 2011).

The presence of goodwill in ARM’s books indicates that the firm is in possession of valuable differentiating attributes such as a strong brand, favourable customer and employee relations, and a solid customer base, among others. These differentiating attributes are useful in the generation of revenues, and explain the positive correlation between goodwill and profits (as well as EPS) as evidenced by the correlation coefficient (Sheeba, 2011). According to ARM’s annual report (ARM, 2012), a good portion of this goodwill is also generated through consolidation activities, when target firms are acquired by ARM at a premium. Examples of these include the stake of minority shareholders in ARM Tanzania Ltd, and the acquisition of Kigali Cement Company Limited. The acquisition of such target firms at premium prices involves excessive cash payouts so that even as goodwill consequential to such transactions has increased, the huge payouts associated with the transactions has had an adverse impact on ARM’s liquidity and leverage positions. This explains the negative correlation between goodwill and the firm’s current and debt ratios (ARM, 2012).

Finally, the regression analysis has also shown ARM’s computer software to be negatively, strongly, and significantly correlated to the current ratio. As the value of the firm’s software continues to increase, its current ratio continues to decrease. It would seem that the software
has resulted in a lot of efficiency gains, which have led to a leaner working capital cycle, that have in turn led to downward pressures on the current ratio.

4.3.2 Correlation between Intangible Assets and Competitive Advantage for Bamburi

The correlation between the intangible assets possessed by Bamburi and its financial performance is summarised in table 4.11 below.

Table 4.11: Correlation between Intangible Assets and Financial Performance

<table>
<thead>
<tr>
<th>Intangible Assets</th>
<th>Profits</th>
<th></th>
<th>Debt Ratio</th>
<th></th>
<th>Asset Turnover</th>
<th></th>
<th>EPS</th>
<th></th>
<th>Current Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R</td>
<td>Sig</td>
<td>R</td>
<td>Sig</td>
<td>R</td>
<td>Sig</td>
<td>R</td>
<td>Sig</td>
<td>R</td>
</tr>
<tr>
<td>Computer Software</td>
<td>0.491</td>
<td>0.150</td>
<td>-0.254</td>
<td>0.479</td>
<td>-0.347</td>
<td>0.325</td>
<td>0.463</td>
<td>0.178</td>
<td>0.552</td>
</tr>
<tr>
<td>Goodwill</td>
<td>-0.496</td>
<td>0.144</td>
<td>-0.336</td>
<td>0.343</td>
<td>-0.148</td>
<td>0.683</td>
<td>-0.492</td>
<td>0.149</td>
<td>0.327</td>
</tr>
</tbody>
</table>

The regression analysis for Bamburi with respect to its intangible assets and financial performance demonstrates no significant findings between any of the intangible assets on the one hand, and any of the financial measures used on the other.

4.3.3 Correlation between Intangible Assets and EAPCC’s Competitive Advantage

The correlation between the intangible assets possessed by EAPCC and its financial performance is summarised in table 4.12 below.

Table 4.12: Correlation between tangible assets and Financial Performance

<table>
<thead>
<tr>
<th>Intangible Assets</th>
<th>Profits</th>
<th></th>
<th>Debt Ratio</th>
<th></th>
<th>Asset Turnover</th>
<th></th>
<th>EPS</th>
<th></th>
<th>Current Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R</td>
<td>Sig</td>
<td>R</td>
<td>Sig</td>
<td>R</td>
<td>Sig</td>
<td>R</td>
<td>Sig</td>
<td>R</td>
</tr>
<tr>
<td>Computer Software</td>
<td>-0.536</td>
<td>0.110</td>
<td>0.204</td>
<td>0.572</td>
<td>-0.293</td>
<td>0.411</td>
<td>-0.533</td>
<td>0.113</td>
<td>-0.484</td>
</tr>
</tbody>
</table>

As in the case of Bamburi, no significant relationship exists between its intangible assets (computer software) and any of the measures of financial performance for EAPCC.

4.3.4 Intangible Assets for the Three Firms Jointly

The correlation between the intangible assets possessed by the three firms and their financial performance is summarised in table 4.13 below.

Table 4.13: Correlation between tangible assets and Financial Performance

<table>
<thead>
<tr>
<th>Intangible Assets</th>
<th>Profits</th>
<th></th>
<th>Debt Ratio</th>
<th></th>
<th>Asset Turnover</th>
<th></th>
<th>EPS</th>
<th></th>
<th>Current Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R</td>
<td>Sig</td>
<td>R</td>
<td>Sig</td>
<td>R</td>
<td>Sig</td>
<td>R</td>
<td>Sig</td>
<td>R</td>
</tr>
<tr>
<td>Intangible Assets</td>
<td>0.401</td>
<td>0.251</td>
<td>0.399</td>
<td>0.253</td>
<td>-0.627</td>
<td>0.052</td>
<td>0.106</td>
<td>0.771</td>
<td>-0.499</td>
</tr>
</tbody>
</table>
As depicted in table 4.13 above, there is no significant relationship between any of the intangible assets and any of the measures of financial performance, when the three firms are considered jointly.

4.3.5 Asset Combinations
As mentioned previously, the research study identified a number of resources (tangible and intangible assets) which are important in the cement industry in Kenya. These include: freehold land, buildings, heavy commercial vehicles, capital work in progress, mobile plant, office equipment and furniture and fittings, plant and machinery, goodwill, and computer software. The resource-based view of the firm views the competitive advantage of the firm as deriving from the bundles of resources possessed by the firm. Therefore, it is necessary to evaluate which resource combinations are likely to generate the highest level of competitive advantage for the firms evaluated (Makhija, 2003).

Of all the identified assets, some were demonstrated to have a significant relationship with the financial performance of the three firms. These include: freehold land; computer hardware, plants, machinery, motor vehicles, and furniture and fittings; and capital work in progress (for ARM). Others include plant and machinery, office equipment and tools, mobile plant, capital work in progress (for Bamburi), and freehold land, and plants and machinery for EAPCC. These resources which have a significant relationship with the firm’s performance were used to evaluate which resource combinations are potentially most advantageous to the cement firms with regards to their competitiveness. The resource bundle to be evaluated thus consists of six resources: freehold land, capital work in progress, mobile plant, computer hardware, plants, machinery, motor vehicles, and furniture and fittings, goodwill, and computer software. Mathematically, the number of combinations which can be obtained from any sample or population is derived using the formula \( n!/(n-r)!r! \) (Rosen, 2011), where \( n \) refers to the number of items to choose from (six resource types in our case), and \( r \) refers to the number of items chosen (Rosen, 2011). Adopting a bundle of at least three resources, twenty possible resource bundles were generated as shown in table 4.14 below.
<table>
<thead>
<tr>
<th>Combination</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combination 1</td>
<td>{Freehold land, mobile plant, computer hardware plants machinery motor vehicles and furniture and fittings}</td>
</tr>
<tr>
<td>Combination 2</td>
<td>{Freehold land, capital work in progress, computer hardware plants machinery motor vehicles and furniture and fittings}</td>
</tr>
<tr>
<td>Combination 3</td>
<td>{Freehold land, capital work in progress, goodwill}</td>
</tr>
<tr>
<td>Combination 4</td>
<td>{Freehold land, capital work in progress, and computer software.}</td>
</tr>
<tr>
<td>Combination 5</td>
<td>{Freehold land, capital work in progress, mobile plant}</td>
</tr>
<tr>
<td>Combination 6</td>
<td>{Freehold land, mobile plant, goodwill}</td>
</tr>
<tr>
<td>Combination 7</td>
<td>{Freehold land, mobile plant, and computer software.}</td>
</tr>
<tr>
<td>Combination 8</td>
<td>{Freehold land, computer hardware plants machinery motor vehicles and furniture and fittings, goodwill}</td>
</tr>
<tr>
<td>Combination 9</td>
<td>{Freehold land, computer hardware plants machinery motor vehicles and furniture and fittings, and computer software.}</td>
</tr>
<tr>
<td>Combination 10</td>
<td>{Capital work in progress, mobile plant, and computer software.}</td>
</tr>
<tr>
<td>Combination 11</td>
<td>{Freehold land, goodwill, and computer software.}</td>
</tr>
<tr>
<td>Combination 12</td>
<td>{Capital work in progress, mobile plant, computer hardware plants machinery motor vehicles and furniture and fittings}</td>
</tr>
<tr>
<td>Combination 13</td>
<td>{Capital work in progress, mobile plant, goodwill}</td>
</tr>
<tr>
<td>Combination 14</td>
<td>{Capital work in progress, computer hardware plants machinery motor vehicles and furniture and fittings, goodwill}</td>
</tr>
<tr>
<td>Combination 15</td>
<td>{Capital work in progress, computer hardware plants machinery motor vehicles and furniture and fittings, and computer software.}</td>
</tr>
<tr>
<td>Combination 16</td>
<td>{Capital work in progress, goodwill, and computer software.}</td>
</tr>
<tr>
<td>Combination 17</td>
<td>{Mobile plant, computer hardware plants machinery motor vehicles and furniture and fittings, goodwill}</td>
</tr>
<tr>
<td>Combination 18</td>
<td>{Mobile plant, computer hardware plants machinery motor vehicles and furniture and fittings, and computer software.}</td>
</tr>
<tr>
<td>Combination 19</td>
<td>{Mobile plant, goodwill, and computer software.}</td>
</tr>
<tr>
<td>Combination 20</td>
<td>{Computer hardware plants machinery motor vehicles and furniture and fittings, goodwill, and computer software.}</td>
</tr>
</tbody>
</table>
Each of the resource bundles was regressed against the performance of the firms (as mentioned previously, firm performance was adopted as the proxy measure for competitive advantage), and the correlation coefficients of the resource bundles is summarised in table 4.15 below.

<table>
<thead>
<tr>
<th>Resource Combination</th>
<th>Regression coefficient</th>
<th>Significance</th>
<th>R squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combination 1</td>
<td>0.778</td>
<td>0.008</td>
<td>0.605</td>
</tr>
<tr>
<td>Combination 2</td>
<td>0.771</td>
<td>0.009</td>
<td>0.594</td>
</tr>
<tr>
<td>Combination 3</td>
<td>0.606</td>
<td>0.064</td>
<td>0.367</td>
</tr>
<tr>
<td>Combination 4</td>
<td>0.601</td>
<td>0.066</td>
<td>0.362</td>
</tr>
<tr>
<td>Combination 5</td>
<td>0.599</td>
<td>0.067</td>
<td>0.358</td>
</tr>
<tr>
<td>Combination 6</td>
<td>0.522</td>
<td>0.122</td>
<td>0.272</td>
</tr>
<tr>
<td>Combination 7</td>
<td>0.501</td>
<td>0.141</td>
<td>0.251</td>
</tr>
<tr>
<td>Combination 8</td>
<td>0.781</td>
<td>0.008</td>
<td>0.61</td>
</tr>
<tr>
<td>Combination 9</td>
<td>0.780</td>
<td>0.008</td>
<td>0.608</td>
</tr>
<tr>
<td>Combination 10</td>
<td>0.583</td>
<td>0.077</td>
<td>0.340</td>
</tr>
<tr>
<td>Combination 11</td>
<td>0.636</td>
<td>0.048</td>
<td>0.404</td>
</tr>
<tr>
<td>Combination 12</td>
<td>0.768</td>
<td>0.009</td>
<td>0.590</td>
</tr>
<tr>
<td>Combination 13</td>
<td>0.587</td>
<td>0.074</td>
<td>0.345</td>
</tr>
<tr>
<td>Combination 14</td>
<td>0.769</td>
<td>0.009</td>
<td>0.592</td>
</tr>
<tr>
<td>Combination 15</td>
<td>0.781</td>
<td>0.008</td>
<td>0.610</td>
</tr>
<tr>
<td>Combination 16</td>
<td>0.591</td>
<td>0.072</td>
<td>0.349</td>
</tr>
<tr>
<td>Combination 17</td>
<td>0.775</td>
<td>0.008</td>
<td>0.601</td>
</tr>
<tr>
<td>Combination 18</td>
<td>0.777</td>
<td>0.008</td>
<td>0.603</td>
</tr>
<tr>
<td>Combination 19</td>
<td>0.150</td>
<td>0.679</td>
<td>0.022</td>
</tr>
<tr>
<td>Combination 20</td>
<td>0.779</td>
<td>0.08</td>
<td>0.606</td>
</tr>
</tbody>
</table>
As shown in table 4.15, the resource bundles that yield the highest level of competitive advantage for the cement firms are combinations 8 and 15. The resource bundle denoted by combination 8 consists of freehold land; computer hardware, plants, machinery, motor vehicles and furniture and fittings; and goodwill. The resource bundle denoted by combination 15 consists of capital work in progress; computer hardware, plants, machinery motor vehicles, and furniture and fittings; and computer software.

4.4 The Market Based View versus the RBV

The market shares of all the firms operating in the Kenyan cement industry were tabulated, with the intention of calculating the HHI index (which denotes the degree of market concentration), and are given in table 4.16 below:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bamburi</td>
<td>57</td>
<td>57</td>
<td>55</td>
<td>53</td>
<td>51</td>
<td>59</td>
<td>58</td>
<td>50</td>
<td>40.5</td>
<td>39</td>
</tr>
<tr>
<td>EAPCC</td>
<td>38</td>
<td>37</td>
<td>37</td>
<td>37</td>
<td>37</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>24</td>
<td>20</td>
</tr>
<tr>
<td>ARM</td>
<td>5</td>
<td>7</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td>11</td>
<td>12</td>
<td>10</td>
<td>15.5</td>
<td>18</td>
</tr>
<tr>
<td>Mombasa</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>Savannah</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>National</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>


As table 4.16 illustrates, Bamburi continues to have the market leadership position in the industry, followed by EAPCC and ARM. However, as new firms have got into the industry, the market shares of Bamburi and EAPCC have continued to decline. Based on the market shares of the six firms operating in the Kenyan cement industry, the HHI index for the industry was calculated, and is summarized as shown in table 4.17 below:
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bamburi</td>
<td>3249</td>
<td>3249</td>
<td>3025</td>
<td>2809</td>
<td>2601</td>
<td>3481</td>
<td>3364</td>
<td>2500</td>
<td>1640.25</td>
<td>1521</td>
</tr>
<tr>
<td>EAPCC</td>
<td>1444</td>
<td>1369</td>
<td>1369</td>
<td>1369</td>
<td>1369</td>
<td>900</td>
<td>900</td>
<td>900</td>
<td>576</td>
<td>400</td>
</tr>
<tr>
<td>ARM</td>
<td>25</td>
<td>49</td>
<td>64</td>
<td>100</td>
<td>144</td>
<td>121</td>
<td>144</td>
<td>100</td>
<td>240.25</td>
<td>324</td>
</tr>
<tr>
<td>Mombasa</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>169</td>
<td>225</td>
</tr>
<tr>
<td>Savannah</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>National</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>49</td>
<td>64</td>
</tr>
</tbody>
</table>

As table 4.17 above shows, as new firms have continued to get into the industry (i.e. Mombasa, Savannah, and National cement companies), the degree of market concentration has continued to decline. From a HHI of 4,718 in 2003, the market concentration in the industry had declined to 2,534 by 2012. Generally, a HHI of 1,800 is regarded as denoting a consolidated industry (Bikker & Haaf, 2002). Therefore, even though the degree of market concentration has continued to decline, the cement industry in Kenya remains a consolidated industry.

### 4.4.1 Contribution of Industry Structure to Competitive Advantage

To determine the impact which industry structure had on competitive advantage, the HHI was regressed against the financial performance of the three firms, and the results are summarized in table 4.18 below:

<table>
<thead>
<tr>
<th>Profits</th>
<th>Debt Ratio</th>
<th>Asset Turnover</th>
<th>EPS</th>
<th>Current Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>Sig</td>
<td>R</td>
<td>Sig</td>
<td>R</td>
</tr>
<tr>
<td>-0.457</td>
<td>0.184</td>
<td>-0.496</td>
<td>0.145</td>
<td>0.657</td>
</tr>
</tbody>
</table>

Based on the regression analysis output presented in table 4.18, it can be concluded that a significant relationship exists between market concentration on the one hand, and asset turnover ratio and current ratio on the other. However, no significant relationship exists between market concentration on the one hand, and profits, debt ratio, and EPS on the other hand.
The relationship between market concentration and asset turnover is not only significant (P<0.05), but is also positive and strong (R>0.5). A consolidated industry usually has one or a few players controlling the entire market. Erosion of entry barriers for whatever reason usually result into more firms getting into the industry, thus reducing the degree of concentration and transforming it into a more competitive market structure (e.g. monopolistic or a perfectly competitive market). In such an eventuality, the incumbents have to fight for market share with the new entrants, which results into all the firms in the market getting a smaller share of the market given that the market and market growth are finite. In the Kenyan cement market, three firms (ARM, Bamburi, and EAPCC) controlled 100 per cent of the market share in 2003. By 2012, at least three more entrants (Mombasa, Savannah, and National Cement) had got into the market, reducing the share enjoyed by these three firms to just 77 per cent. Over the same period, the market concentration as measured by the HHI had declined from 4,718 to 2,534. By definition, the asset turnover is given as sales revenues over total assets. With the three firms evaluated under this study continually expanding their asset bases over this period, and new firms capturing market share and sales from these three incumbents, the ability of the three firms to generate revenues from their assets was constrained, thus explaining the positive correlation observed between the degree of market concentration and the asset turnover ratio. With the entry of more firms into the Kenyan cement industry, there has also been a huge increase in capacity (e.g. regional capacity following the entry of new firms saw installed capacity rise from 5.8 million tonnes in 2008 to 9.5 million tonnes in 2009 and has grown by 78 per cent over the last five years) (Njiraini, 2011; Thiong’o, 2013), thus rendering some of the capacity possessed by the incumbents idle, and this also explains the negative correlation observed between the degree of market consolidation and the asset turnover ratio (which proxies the efficiency with which firms can generate revenues from their assets).

The relationship between market concentration and current ratio is also significant, positive and strong. Porter’s five forces model states that the degree of rivalry in the market is determined by, among others, the number of firms in the industry. When the number of competitors is large, the degree of market rivalry is likely to be intense. Under such circumstances, current and potential competitors engage in a variety of market-seeking actions such as competitive price cuts, intensive expenditure on promotional activities such
as advertising, and huge spending on innovation and on research and development (R&D) (Porter, 2008). Evidence of this in the Kenyan cement industry is well documented, especially with the entrance of new firms. For example, National Cement and Mombasa Cement have engaged in continuous price wars, which have depressed the prices of cement in the local industry. For example, by offering their 50kg cement product at 650 shillings, they have been able to undercut the 700 shillings price offered by more established firms thus keeping prices low. This has been made possible, in part through innovative practices such as blending cement with pozzolana, thus reducing its cost (Were, 2011). As Porter’s five forces model notes, such activities end up driving up costs and reducing profitability. Higher costs entail an excessive cash burn rate, which affects the firm’s liquidity, and therefore accounts for the positive correlation established between market concentration and the current ratio.

4.5 Measurement of Competitive Advantage

As indicated, financial performance was adopted as the proxy measure for competitive advantage. This was evaluated using a number of accounting ratios, including: the current ratio (for measuring liquidity), after-tax profits (for assessing profitability), the asset turnover ratio (efficiency), the debt ratio (for assessing leverage), and the earnings per share (for assessing shareholder value). These measures are presented in the sections that follow.

4.5.1 Liquidity

Current ratio, which is defined as current assets over current liabilities, is a key measure of a firm’s liquidity. It indicates the ability of the firm to settle its short-term obligations as they fall due. Generally, the higher it is the better, and a current ratio of at least 2:0 is regarded as being ideal for most industries (Graham & Smart, 2011). The liquidity of ARM, Bamburi, and EAPCC, as measured by the current ratio, are given in table 4.19 below:

<table>
<thead>
<tr>
<th>Table 4.19: Liquidity of the case study firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURRENT RATIO</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>2003</strong></td>
</tr>
<tr>
<td>Bamburi</td>
</tr>
<tr>
<td>ARM</td>
</tr>
<tr>
<td>EAPCC</td>
</tr>
<tr>
<td>AVERAGE</td>
</tr>
</tbody>
</table>
Table 4.19 illustrates worsening liquidity position for all the three firms across the ten-year period. This could be due to dipping sales, delayed payments by key customers, or a large stock of idle assets. Bamburi, which is the market leader, is the only one of the three firms, whose current ratio is above the “ideal” level of 2.0, indicating a high ability for the firm to meet its current short-term obligations.

4.5.2 Profitability

The profitability of the three case study firms, as measured by their after-tax profits, is given in table 4.20 below:

Table 4.20: Profitability of the case study firms

| TOTAL INDUSTRY PROFITS (‘000,000 shillings) |
|-------------------------------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Bamburi | 1,153 | 1,901 | 2,155 | 2,799 | 3,810 | 3,412 | 6,970 | 5,299 | 5,859 | 4,882 |
| ARM   | 131.2 | 116.7 | 199.5 | 264.6 | 421.7 | 503.5 | 645.8 | 1,075.3 | 1,151 | 1,246 |
| EAPCC | 226.1 | -191.7 | 607.9 | 411.8 | 764.1 | 536.7 | 1,834 | -284.05 | 1.717 | -822 |

With the exception of EAPCC which has experienced losses over the ten – year period (due to factors such as huge foreign exchange arising from its yen-denominated loan); ARM and Bamburi have continued to consistently register profits. However, while ARM’s profits have been on a consistently upward trajectory, Bamburi’s profits rose sharply until 2009, when they peaked and have been reducing since. This is attributed to a combination of factors, among which include: increased competition in the industry, industry overcapacity, cheaper exports from Asia, and rising production costs (Thiong’o, 2013). The profitability trends for the three firms are depicted in table 4.20 above.

4.5.3 Efficiency – the Asset Turnover Ratio

The efficiency of the three case study firms, as measured by the asset turnover ratio, is presented in table 4.21 below.
Table 4.21: Efficiency of the case study firms

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bamburi</td>
<td>0.68</td>
<td>0.83</td>
<td>0.94</td>
<td>0.90</td>
<td>1.07</td>
<td>0.97</td>
<td>0.93</td>
<td>0.84</td>
<td>0.001</td>
<td>0.87</td>
</tr>
<tr>
<td>ARM</td>
<td>0.79</td>
<td>0.81</td>
<td>0.68</td>
<td>0.61</td>
<td>0.86</td>
<td>0.73</td>
<td>0.42</td>
<td>0.36</td>
<td>0.40</td>
<td>0.42</td>
</tr>
<tr>
<td>EAPCC</td>
<td>0.51</td>
<td>0.56</td>
<td>0.69</td>
<td>0.68</td>
<td>0.72</td>
<td>0.79</td>
<td>0.67</td>
<td>0.78</td>
<td>0.75</td>
<td>0.61</td>
</tr>
</tbody>
</table>


In demonstrating how well the firm generates revenues from its assets, the asset turnover ratio is considered a key indicator of a firm’s operational efficiency. A higher asset turnover ratio indicates that the firm is able to generate more revenues from its assets, and is preferable to a lower asset turnover ratio (Khan & Jain, 2007). Table 4.21 shows that Bamburi- the market leader- is the most efficient in generating revenues from its asset base. The table also shows that while Bamburi and EAPCC’s asset turnover ratios have risen over the ten-year period under review, ARM’s asset turnover ratio has been decreasing over the same period.

4.5.4 Leverage

The debt ratio indicates the extent to which a firm relies on debt to finance its growth or operations. A lower debt ratio indicates that the firm relies less on debt, and is to be preferred to a high one, since too much debt translates to excessive risk exposure to investors (Sheeba, 2011). The debt ratio for the three firms over the ten-year period is presented in table 4.22 below:

Table 4.22: Leverage of the case study firms

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bamburi</td>
<td>25.14</td>
<td>29.21</td>
<td>26.42</td>
<td>25.80</td>
<td>27.24</td>
<td>41.16</td>
<td>34.79</td>
<td>35.07</td>
<td>27.84</td>
<td>28.29</td>
</tr>
<tr>
<td>ARM</td>
<td>38.80</td>
<td>48.71</td>
<td>62.64</td>
<td>67.69</td>
<td>60.66</td>
<td>66.51</td>
<td>65.99</td>
<td>71.97</td>
<td>70.30</td>
<td>73.58</td>
</tr>
<tr>
<td>EAPCC</td>
<td>71.19</td>
<td>75.87</td>
<td>70.81</td>
<td>66.01</td>
<td>59.65</td>
<td>55.62</td>
<td>49.30</td>
<td>52.64</td>
<td>57.85</td>
<td>65.66</td>
</tr>
</tbody>
</table>

As table 4.22 shows, there has been a rapid increase in the leverage ratios of all the three firms, indicating the increased take-up of debt to finance capital investments such as clinker plants across the industry.

4.5.5 Shareholder Value - Earnings per Share

The shareholder value of the case study firms, as measured by the EPS, is presented in table 4.23 below.

Table 4.23: Shareholder value of the case study firms

<table>
<thead>
<tr>
<th></th>
<th>EARNINGS PER SHARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bamburi</td>
<td>2.94</td>
</tr>
<tr>
<td>ARM</td>
<td>1.04</td>
</tr>
<tr>
<td>EAPCC</td>
<td>2.51</td>
</tr>
</tbody>
</table>


The EPS references the proportion of the firm’s profits which is allocated per ordinary share. It is the key variable in the determination of the share price, and is therefore an important indicator of shareholder value for the firm (Graham & Smart, 2011). As attested to by table 4.23, shareholder value for ARM has been consistently rising throughout the period of review. For Bamburi, shareholder value increased consistently between 2003 and 2009, before it began declining. EAPCC’s EPS was negative for 2012.

4.5.6 Competitive Advantage of the Three Cement Firms

Based on the analysis of the figures adduced in the preceding section, it is apparent that the competitiveness of all the three firms studied has been declining over the period of review. With the exception of Bamburi’s leverage position and ARM’s shareholder value and profitability (which have shown improvements); the performance of all the three firms along all the other performance measures used have been broadly declining. This broad decline in the three firms’ leverage, liquidity, profitability, efficiency and shareholder value denotes declining competitiveness in the industry.

Of the three firms, Bamburi has consistently outperformed both EAPCC and ARM across all the five performance measures used, that is: liquidity, efficiency, profitability, shareholder
value, and leverage. This indicates that Bamburi possesses competitive advantage relative to the other firms in the industry. However, that all its performance indicators (with the exception of its leverage position) have been declining over the years; shows that what Bamburi has may not be sustainable over the long term. In other words, even the market leader in the Kenyan cement industry does not possess a sustainable competitive advantage.

4.6 Chapter Summary

This chapter has focussed on identifying the various tangible and intangible assets possessed by firms in the cement industry, with a focus on ARM, EAPCC, and Bamburi. The assets in possession of the three firms include: freehold land, computer hardware, plants, machinery, motor vehicles, and furniture and fittings, capital work in progress, goodwill, computer software, office equipment and tools, mobile plant, and buildings.

The value of the assets was regressed against the financial performance of each of the firms, separately, and then jointly. For ARM, significant relationships were reported between the following pairs of variables: freehold land and profits, freehold land and current ratio, computer hardware, plants, machinery, motor vehicles, and furniture and fittings and profits, capital work in progress and asset turnover, and computer hardware, plants, machinery, motor vehicles, and furniture and fittings and current ratio. No significant relationship was found to exist between the remaining tangible assets and the various pillars of the firm’s financial health. In sum, in the case of ARM, freehold land is seen to enhance the firm’s profitability but to reduce its liquidity. Computer hardware, plants, machinery, motor vehicles, and furniture and fittings are seen to enhance both the firm’s profitability and liquidity. Finally, by reducing the firm’s asset turnover ratio, capital works in progress are shown to reduce the efficiency with which the firm deploys its assets.

When the tangible assets of ARM are summed together, the results demonstrate a significant relationship exists between ARM’s total tangible assets and its profits, debt ratio, asset turnover ratio, and earnings per share. There is, however, no significant relationship between ARM’s tangible assets and its current ratio.

For Bamburi, the only significant findings relate to the following pairs of variables: plant and machinery versus profits; office equipment and tools versus profits; office equipment and
tools versus asset turnover; office equipment and tools versus current ratio; mobile plant versus debt ratio; and capital work in progress versus asset turnover. The rest of the findings are not significant. Similar to the case of ARM, the total tangible assets at Bamburi are seen as being significantly, positively, and strongly correlated to profitability (profits) and shareholder value (EPS), but no significant relationship exists between the assets and the firm’s liquidity, leverage, and efficiency.

The results for the relationship between various tangible asset classes for EAPCC and various financial performance indicators show significant relationships for the following pairs of variables: freehold land versus profits; freehold land versus current ratio; and plants and machinery versus asset turnover ratio. When EAPCC’s tangible assets are summed up, the only significant finding is that between the firm’s tangible assets and current ratio. This is significant, positive, and strong.

When the tangible assets for the three firms are considered jointly, there is a significant, negative but strong relationship between the tangible assets and the current ratio. All the other findings are not significant. For intangible assets, the findings show that for ARM, there is a significant relationship between the following pairs of variables: computer software and asset turnover ratio; computer software and current ratio; goodwill and profits; and goodwill and current ratio. The rest of the findings are not significant. The regression analysis for Bamburi with respect to its intangible assets and financial performance demonstrates significant findings in relation to asset turnover and the current ratio. Although there is a positive and significant relationship between computer software and asset turnover ratio, this relationship is extremely weak. There is also a significant, positive and strong relationship between the firm’s goodwill and current ratio.

For EAPCC, no significant relationship exists between its intangible assets (computer software) and any of the measures of financial performance. There is also no significant relationship between any of the intangible assets and any of the measures of financial performance, when the three firms are considered jointly. The results also demonstrate that a significant relationship exists between market concentration on the one hand, and asset turnover ratio and current ratio on the other. However, no significant relationship exists between market concentration on the one hand, and profits, debt ratio, and EPS on the other.
hand. Finally, the results show that the competitiveness in the industry has been declining. Although Bamburi enjoys competitive advantage relative to the other firms, its performance across all dimensions examined has been declining.
CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summative review of the entire research project. The aim is to offer an in-depth discussion of the findings made, with a view to satisfying the research objectives, drawing substantive conclusions regarding each of the research objectives, and make useful recommendations that can aid future studies. The chapter begins by providing a summary of the major findings made. It then delves into a detailed discussion of the findings made in relation to each research objective, before drawing conclusions and making a raft of recommendations.

5.2 Summary of the Major Findings

The research has identified that the cement firms evaluated possess a number of tangible and intangible assets. The tangible assets include: freehold land, computer hardware, plants, machinery, motor vehicles, and furniture and fittings, capital work in progress, office equipment and tools, mobile plant, and buildings. The intangible assets include: goodwill and computer software. The contribution of these tangible and intangible assets to the competitive advantage of the firms was evaluated with respect to various financial indicators, including: the current ratio, after-tax profits, the asset turnover ratio, earnings per share, and debt ratio.

Based on regression analysis, some of the tangible assets are seen as making a positive contribution to the firms’ performance, and others are seen as negatively and adversely affecting the firms’ performance. In other words, some tangible assets are value-creating, while others are value-destroying. Analysis of these findings based on the VRIO framework shows that most of the tangible assets are common across all the three firms, and thus, they do not satisfy the rarity criterion of the VRIO framework. Others are easily inimitable. None of the assets satisfies all the four criteria of the VRIO framework. It is thus concluded that the tangible assets have been useful in creating competitive parity, competitive advantage, or competitive disadvantage, but none of the tangible assets has been useful in generating sustainable competitive advantage.
As in the case of the tangible assets, some of the intangible assets are seen as making a positive contribution to the firms’ performance, and others are seen as negatively and adversely affecting the firms’ performance. Put differently, some intangible assets are value-creating, while others are value-destroying. Analysis of these findings based on the VRIO framework shows that most of the intangible assets are common across all the three firms, and thus, they do not satisfy the rarity criterion of the VRIO framework. None of the assets satisfies all the four criteria of the VRIO framework. It is thus concluded that the intangible assets have been useful in creating competitive parity, competitive advantage, or competitive disadvantage, but none of the intangible assets has been useful in generating sustainable competitive advantage.

With respect to the contribution of the market based view, the market shares of all the six firms in the Kenyan cement industry were obtained and used to compute the HHI index, which was adopted as the independent variable for the relationship between industry structure and firm performance. The market share data shows that Bamburi continues to have the market leadership position in the industry, followed by EAPCC and ARM. However, as new firms have got into the industry, the market shares of Bamburi and EAPCC have continued to decline. Therefore, even though the degree of market concentration has continued to decline, the cement industry in Kenya remains consolidated.

When the HHI index was regressed against the financial performance of the three firms, the results demonstrate that a significant relationship exists between market concentration on the one hand, and asset turnover ratio \((r=0.657, p=0.039, \text{positive, strong})\) as well as current ratio on the other hand \((r=0.657, p=0.039, \text{positive, strong})\). However, no significant relationship exists between market concentration on the one hand, and profits \((p=0.184>0.05)\), debt ratio \((p=0.145>0.05)\), and EPS \((p=0.742>0.05)\) on the other hand. As such, the study also concludes that privileged market position in the cement industry has helped ARM, Bamburi, and EAPCC to improve their competitive positions through enhancing their liquidity and efficiency levels. Using various indicators of financial performance as earlier outlined, the findings also show that the competitive advantage possessed by EPACC and Bamburi has generally tended to weaken as new competitors such as Mombasa, Savannah, and National
Cement companies have entered the industry. For ARM, the results have been mixed, with some indicators worsening, and other improving.

5.3 Discussion

5.3.1 The Role of Tangible Assets in Generating Sustainable Competitive Advantage in Consolidated Industries

The findings made indicate that the various tangible assets were useful in generating competitive parity, competitive disadvantage, or temporary competitive advantage; but none was useful in generating sustainable competitive advantage. The inability to help generate SCAs is attributed to the fact that none of the assets possessed by the cement firms studied satisfied all the criteria of the VRIN framework.

These findings are consistent with a number of prior studies detailed in the literature review section. For example, they dovetail with the findings of Wang et al (2009), who found that while tangible assets may be valuable, non-substitutable, and rare; they often are more prone to imitation than intangible assets. This makes tangible assets less useful in the generation of sustainable competitive advantages.

That some of the tangible assets are found to be value-destroying is also consistent with the findings made by Soumadi & Hayajneh (2011), whose study concluded that financial assets (a type of tangible asset) of 76 listed Jordanian firms were negatively and significantly correlated to the performance of those firms. The findings also align with the findings made by Julienti et al. (2010), whose study showed that the contribution of tangible assets to firm performance is minor, as well as with the findings of Inmyxai & Takahashi (2010), who found only partial support for the relationship between tangible assets and firm performance. Similarly, in their study of Irish SMEs, Mac an Bhaird (2012) demonstrated that, while financial assets (a type of tangible asset) is important in the performance of the firm, the mere possession of this tangible asset cannot by itself lead to the generation of sustainable competitive advantages in a firm. This is because value creation from these assets is contingent on their effective and efficient management. As such, Mac an Bhaird (2012) concludes that competencies related to the management of financial resources are more important than the mere possession of the financial resources. This broadly agrees with the
findings of this study. The findings are also in agreement with the position taken by Evans & Price (2012), who argued that while tangible assets were the most critical determinants of firm performance during the Industrial Age, creation of value in the knowledge economy to which the world has transitioned makes it impossible to generate value through an exclusive focus on these assets.

The findings made in this study however contradict other prior studies carried out in the area. For example, Cater & Cater (2009) have demonstrated that financial assets positively impact a firm’s cost structure and differential position, thus facilitating the pursuit of either low cost or differentiation strategies which ultimately create and sustain superior performance relative to other firms. The findings of this study can also be contrasted with those of Ray et al (2008), who showed that firms which have more tangible assets tend to leverage their IT assets to enhance their degree of vertical specialisation, while those which have more intangible assets tend to leverage their tangible IT assets to enhance the degree of their horizontal diversification. Either way, the assets are expected to enhance the firm’s performance. The findings of this study also contradict those of Bruque-Cámara et al (2005) who showed that technological assets such as robots and computers have a favourable impact on the conditions in which production occurs. Consequently, they help to enhance production economics, increase value chain efficiency, and generate superior performance.

It would therefore seem that tangible assets, in the short run, have the ability to enhance a firm’s performance, when they meet all the criteria of the VRIN framework. However, tangible assets lack isolating mechanisms, making them prone to imitation. In the long-run therefore, these assets may not lead to the generation of SCAs.

5.3.2 The Role of Intangible Assets in Generating Sustainable Competitive Advantage in Consolidated Industries

The findings indicate that some of the intangible assets possessed were useful in the generation of competitive parity, while others contributed to the generation of competitive disadvantage. However, none of the intangible assets was associated with the generation of SCAs. This again is attributed to the fact that none of the intangible assets satisfied all the four criteria of the VRIN framework.
Costa & Evangelista (2008) regard intangible assets as the ultimate source of an organisation’s competitive advantage. Other researchers such as Ticha (2008) and Lerro et al, (2012) contend that intangible assets are considered more favourably than the traditional tangible assets in the process of pursuing organisational competitive advantage. According to Grimaldi and Cricelli (2009), it is the intangible assets which determine the strategic as well as cultural specificity of business organisations. Unlike the tangible assets, intangible assets are viewed as being highly firm-specific, and therefore as possessing isolating mechanisms which prevent them from being imitated by competitors (Wang et al, 2009). As Villalonga (2004) explains, intangible assets are likely to make major contributions to a firm’s sustainable competitive advantage given that they are generally tacit, not easily codifiable, highly complementary, inimitable, harder to obtain and amass, and are bought/sold in imperfect markets. This underscores the key reasoning behind the position taken by these studies. The findings made in this study therefore contradict this position. The findings are also inconsistent with the other studies evaluated in the literature review section, including those of Steenkamp & Kashyak (2010), Boujelben & Fedhila (2011), Durst (2008) Salamudin et al (2010), Edvardsson and Oskarsson (2011) Chareonsuk & Chansa-ngavej (2010), Mnzava (2013), Brown and Kimbrough (2011), and Mathur et al (2007).

However, the findings agree with those of Ramirez and Hachiya (2008) who found that the creation or sustenance of the firm’s competitive advantage cannot be explained through the strategic resources possessed by the firm. The findings also seem to agree with the assertions made by Villalonga (2004) that commitment to the core capabilities possessed by the firm may lead to rigidities, which may in turn erode competitive advantages. Based on the fact that this study associated intangible assets with competitive parity or competitive disadvantage but not competitive advantage; its findings also agree with those of Durst (2008), who demonstrated that intangible assets are only moderately important in the organisations’ quest for competitiveness. As Villalonga (2004) asserts, the inability of intangible assets to lead to the generation or sustenance of SCAs may be explained variously. Firstly, commitment to core capabilities possessed by the firm may lead to rigidities, which may in turn erode competitive advantages. Secondly, adoption of radical innovation is likely to erode the utility of the capabilities hitherto existent in the firm. Thus, it is not a given that
the possession of intangible assets will generate sustainable competitive advantages. These justifications could be used to support the position arrived at by this study.

It must however be stressed that only two types of intangible assets were evaluated in this study. These were goodwill and computer software. The use of only two intangible assets in an industry where very many intangible assets exist is problematic, given that small sample sizes are usually associated with low explanatory power for the findings, unreliability of the findings, and type II errors. Consequently, the findings made in regards to the role of intangible assets are inconclusive.

5.3.3 The Role of Market Structure in Generating Sustainable Competitive Advantage in Consolidated Industries

With respect to the role of the industry structure in generating SCAs, the study finds that no significant relationship exists between market concentration on the one hand, and profits, debt ratio, and EPS on the other hand. However, the study finds that there exists a positive and significant correlation between the degree of market concentration and the asset turnover and current ratios of the cement firms. As such, there is evidence to conclude that privileged market position arising from the consolidated structure of the market has helped improve the efficiency with which firms generated sales revenues from their assets, as well as their liquidity position.

The findings regarding the relationship between market structure and profits seem inconsistent with the findings made by most studies reviewed in this research. While this study adduces insignificant findings, the seminal works of Bain (1951, 1956), Comanor & Wilson (1967), and Collins & Preston (1969) adduce the existence of a positive and significant relationship between market structure and firm profitability. These differences can however be attributed to methodological differences between this and the other studies. While this study deployed net profits as a proxy measure, Bain (1951, 1956) used the firms’ Return on Equity (ROE), Comanor & Wilson (1967) used the ratio between after-tax profits and shareholder equity, while Collins & Preston (1969) used the price-cost margin. These seminal studies are unanimous that the more concentrated an industry is, the higher firm profits are likely to be. Nevertheless, the positive correlation between market structure and
current ratio and asset turnover demonstrated by this study provides evidence to conclude that privileged market position arising from the consolidated structure of the market has helped improve the efficiency with which firms generated sales revenues from their assets, as well as their liquidity position.

Triangulating these findings with the findings made earlier on in regards to the role of tangible and intangible assets (where these assets were demonstrated as having led to competitive disadvantage or parity but not competitive advantage); it can be concluded that the good performance of the cement firms in Kenya over the years has been due to the market structure, rather than any assets they possessed. Specifically, this has been due to efficiency and liquidity gains arising from the consolidated industry. This then points to the dominance of the market-based view over the resource-based view, as attested to, by among others, Schmalensee (1989), Scherer and Ross (1990), Hay and Morris (1991), Weiss (1991) and Martin (2002). These studies are unanimous that the competitive advantage of the firm derives from the market structure rather than from the internal resources possessed by the firm, and endorse the SCP paradigm. However, the findings made contradict other studies which find that the RBV has a more dominant role in explaining firm performance, including the studies of Cubbin & Geroski (1987), Jacobsen (1988), and Rumelt (1991). Additionally, these findings contradict those of Brahma & Chakraborty (2011), who conduct comparative analyses of the impact of the firm-level factors vis-à-vis the impact of the industry-level factors, and demonstrate that the RBV has a more dominant role to play in explaining the competitive advantage of firms.

5.4 Conclusions

The research study has associated the intangible assets (goodwill and computer software) possessed by the cement firms with a number of outcomes, including generation of competitive parity, generation of competitive disadvantage, and generation of temporary competitive advantage. The study finds no evidence that the tangible assets have contributed to sustained competitive advantage in the Kenyan cement industry. This is attributed to the fact that none of the assets identified satisfies all of the four criteria of the VRIO framework (value, rarity, inimitability, and organisation).
The research study has associated the goodwill and computer software possessed by the three cement firms evaluated with a number of outcomes. At the individual firm level, this includes: the generation of competitive disadvantage by some intangible assets (e.g. adverse impact on liquidity for Bamburi), and the generation of competitive parity by some assets (e.g. improved profitability for ARM). As such, the research concludes that the intangible assets have some role to play in as far as the competitive advantage of the case study firms at the firm level is concerned. At the aggregate level, the study finds no evidence that the intangible assets have contributed to sustained competitive advantage in the Kenyan cement industry. Again, this is attributed to the fact that none of the assets identified satisfies all of the four criteria of the VRIO framework (value, rarity, inimitability, and organisation).

The research study has demonstrated that erosion of the competitive barriers arising from the hitherto consolidated structure of the Kenyan cement industry has led to declining efficiency (for example due to idle capacity) and worsening liquidity position among the incumbents (for example due to rising costs arising from competitive pressures). The privileged market positions enjoyed by the incumbents (EAPCC, ARM, and Bamburi) before the new entrants came in (Savannah, Mombasa, and National cement companies) helped enhance the efficiency with which firms generated sales revenues from their assets, as well as their liquidity position. With more entrants getting into the industry, the incumbents’ financial performance with respect to these two financial indicators has continued to deteriorate. It is the position of this research study therefore that the market based view, where the competitive advantage of the firm derives from privileged market position, also has a role in explaining the competitive advantage of firms in the Kenyan cement industry. In summary, privileged market positions arising from the competitive barriers in an industry help to enhance firm performance.

5.5 Recommendations

5.5.1 Recommendations for Improvement

5.5.1.1 Role of Tangible Assets

In view of the fact that the tangible assets possessed by the three cement firms have been demonstrated to drive competitive disadvantage, competitive parity and temporary
competitive advantage but not sustained competitive advantage; the three firms need to look for new ways through which they can recombine/reconfigure the existing assets in order to create new value for customers. In particular, the study recommends that the firms recombine their resources according to two resource bundles. The first combination consists of freehold land; computer hardware, plants, machinery, motor vehicles and furniture and fittings; and goodwill. The second resource bundle consists of capital work in progress; computer hardware, plants, machinery motor vehicles, and furniture and fittings; and computer software.

5.5.1.2 Role of Intangible Assets
Although the findings regarding the role of intangible assets are inconclusive, the findings made demonstrate that the reconfiguration of existing intangible assets can help boost the competitive advantage of the cement firms. In particular, goodwill should be bundled with freehold land; computer hardware, plants, machinery, motor vehicles and furniture and fittings. Computer software can also help improve competitive advantage when it is bundled with capital work in progress; computer hardware, plants, machinery motor vehicles, and furniture and fittings.

5.5.1.3 Role of Industry Structure
From the perspective of the market-based view, incumbents can enhance their market positions and therefore competitive advantage by reducing the bargaining power of their suppliers, reducing the threat posed by new entrants, reducing the bargaining power of buyers, and reducing the degree of rivalry in the industry. These can be achieved through: enhancing product differentiation, reducing cement prices to gain transient advantage, diversifying their sales by looking for new markets and new market niches, encouraging consumption in existing markets, integrating forward into distribution, building significant buyer switching costs through differentiation and loyalty programmes, and exporting to other countries. Additionally, the cement firms should consider: diversifying their supply sources, integrating backwards in order to control supply sources of inputs, developing patents and proprietary knowledge in order to generate entry barriers, adopting entry-deterring pricing practices, and generating massive scale economies in order to create entry barriers.
5.5.2 Recommendations for Further Studies

This study has relied predominantly on secondary data from annual reports of the case study firms. While data from annual financial statements is considered objective and credible due to the fact that such statements are audited; most of the balance sheet entries on assets fail to disaggregate all the assets possessed by the firm. The financial statements also bundle some assets together in one category, thus making it impossible to identify the exact value of each asset. Moreover, financial statements are only able to quantify the value of some assets (e.g. tangible assets such as equipment and intangible assets such as goodwill) but are not in a position to quantify the value of capabilities and skills. As such, evaluating skills and capabilities based on secondary data presented in financial statements is not possible. Additionally, the nature of the data presented in the secondary reports used only allows for the quantitative aspects but not for the qualitative aspects.

Future research studies therefore need to supplement the use of secondary data with other (primary) data sources. For example, surveys can be administered to the top managers of the cement firms who are well versed with strategic issue of the firm to help fill some of the gaps in the available data. Moreover, future studies can obtain more valid findings by using a larger number of firms, as well as studying the phenomena of interest for a longer time period; say 15 to 20 years. Moreover, even though the use of financial/accounting ratios is well established in RBV studies, such ratios have been criticized for their inability to capture all the dimensions of a firm’s performance. As such, future studies should consider using more holistic performance measurement techniques such as the balanced scorecard method.

This study has failed to arrive at conclusive findings with regards to the role of intangible assets in generating SCAs in the Kenyan cement industry due to the few types of intangible assets used. As mentioned previously, findings generated from small sample sizes are associated with low significance, low explanatory power, high unreliability, and type II errors. In view of this, future research studies need to incorporate the use of many types of intangible assets in assessing the role of intangible assets in generating SCAs in consolidated industries. Moreover, given the floor effects arising from the positive skewness of some of the data used, future research studies need to carry out transformations to reduce the positive skewness of their data.
REFERENCES


Hoque, Z. (2013). *Celebrating 20 years of the Balanced Scorecard: relevance lost or relevance gained and sustained?* Melbourne: La Trobe University.


APPENDICES

7.1 Appendix 1: Coefficients of Determination - Market Concentration

<table>
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<tr>
<th>Profits Vs. HHI</th>
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<th>Asset turnover Vs. HHI</th>
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7.2 Appendix 2: Coefficients of Determination - Total Tangible Assets

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7.3 Appendix 3: Coefficients of Determination - Total Intangible Assets

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7.4 Appendix 4: Skewness Statistics

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### Bamburi Tangible Assets Skewness

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### Bamburi Joint Tangible Assets Skewness

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