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THE RELATIONSHIPS BETWEEN DIVERSIFICATION STRATEGIES AND FINANCIAL PERFORMANCE AND GROWTH AMONGST ESTABLISHED SOUTH AFRICAN CONTRACTING FIRMS

BY

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A research report submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Science in Building

Johannesburg, 2012

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DECLARATION

I declare that this research report is my own unaided wok. It is being submitted for the Degree of Master of Science to the University of the Witwatersrand, Johannesburg. It has not been submitted before any degree or examination to any other University.

.....

(Signature of Candidate)

..... day of .....year .....

Day *month* *year*

ABSTRACT

Globalization, which has created a fairly free access for foreign firms to compete locally and low entry barrier in the construction industry have increased the competition in the construction industry in South Africa. The study investigated the relationship between diversification strategies employed by contracting firms and their financial performance and growth.

Level 9 contracting firms on the Construction Industry Development Board (CIDB) database (as at September 2008) were classified into undiversified, moderately diversified and highly diversified firms. Two (2) separate questionnaires were administered to undiversified and diversified firms to solicit information which assisted in the understanding of the strategies of these firms. Financial information was also requested from the firms in order to calculate financial ratios from audited financial statements for five years (2004 – 2008). The result from the study did not establish any particular pattern in terms of performance and growth.

When the performances of the two independent samples of firms (undiversified and diversified) were compared, the outcome of the study reveals that, on the average, undiversified firms perform better than diversified ones on Return on Capital Employed (ROCE), Return on Equity (ROE) and Return on Total Asset (ROTA). Diversified firms however have better performance on Profit Margin (PM). The result of test of hypothesis on ROCE, ROTA and PM supports the null hypothesis that there is no significant difference in the performances and growth of undiversified and diversified firms. However, on the ROE, the null hypothesis is rejected.

When the three independent samples of firms (undiversified, moderately diversified and highly diversified) were compared, the results suggest that undiversified firms had the highest average on ROCE and ROE, followed by moderately diversified and highly diversified firms respectively. On ROTA, moderately diversified firms had the highest average, followed by undiversified and highly diversified firms respectively. Highly diversified firms had the highest average on PM, followed by undiversified firms, which is closely followed by moderately diversified firms. The results of test of hypothesis on ROCE and PM show that the null hypothesis that there is no significant difference in the performance and growth of contracting firms is supported by the data. The null hypothesis is not supported in terms of ROTA and ROE.
It should be noted that the empirical study occurred in 2009 and was submitted for assessment in 2011.

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LIST OF ABBREVATIONS

BEE	Black Economic Empowerment
BRT	Bus Rapid Transport
CIDB	Construction Industry Development Board
CSIR	Council for Scientific and Industrial Research
ECDM	Emerging Contractor Development Model
EPWP	Expanded Public Works Programme
FDI	Foreign Direct Investment
FIFA	Fédération Internationale de Football Association
GDFI	Gross Domestic Fixed Investment
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
HAIs	Historically Advantaged Individuals
HDIs	Historically Disadvantaged Individuals
IRCs	Important Resources and Competences
NIMS	National Infrastructure Maintenance Strategy
PM	Profit Margin
PPP	Public Private Partnerships
RBV	Resource Based View
ROCE	Return on Capital Employed
ROE	Return on Equity
ROTA	Return on Total Asset
SACEM	South African Construction Excellence Model
SAFCEC	South African Federation of Civil Engineering Contractors
SIC	Standard Industry Classification
SIC	Strategic Business Unit
SPSS	Statistical Package for Social Sciences

GLOSSARY

Competitive Advantage is the potential of a firm to expand its stock of strategic assets rapidly than rivals.

Core competencies are the pool of experience, knowledge and systems, etc. that exists elsewhere in the same corporation and can be deployed to reduce the cost or time required to either create a new strategic asset or expand the stock of an existing one (Markides et al, 1994).

Standard Industry Classification (SIC) is a United States government system for classifying industries by a four-digit code.

Strategic Assets are assets that underpin a firm's cost or differentiation advantage in a particular market and that are imperfectly imitable, imperfectly substitutable and imperfectly tradable.

Strategic Business Unit (SBU) is understood as a business unit within the overall corporate identity which is distinguishable from other business because it serves a defined external market where management can conduct strategic planning in relation to products and markets (Wikipedia, 2008).

Strategic Management is a system for producing strategies within an organizational infrastructure, Fellows et al (2003).

Strategy is defined as a long term plan of action designed to achieve a particular goal (Wikipedia, 2008).

CHAPTER ONE: INTRODUCTION

1.1 Background

The 1994 democratically elected government of South Africa has brought, amongst other things, an upturn in government spending on infrastructure. This is evident in the increase in Gross Domestic Fixed Investment (GDFI) (Merrifield, 1999). GDFI (now GFCF – Gross Fixed Capital Formation) is the flow of expenditure on (additions to) a country's total fixed capital stock. This increase in government spending at the time revived the economy which had experienced a recession in job creation, training and skills development, local business enterprise development and economic growth (ibid). In 1998 however, this upsurge in infrastructure spending experienced a downturn as capacity utilization in the construction industry declined to less than 80%, which was the industry's long term norm at the time (Merrifield, ibid).

Based on industry records in 1997 (CSS, 1997), there were 12,386 construction firms in South Africa, out of which 14% were responsible for more than 75% of the total construction output. By 2004, eight (8) listed companies in the construction industry accounted for about 23% of South Africa's total output (CIDB, 2004b).

The Construction Industry Development Board (CIDB) was established by an act of parliament (Act 38 of 2000) to lead the construction industry development in South Africa by providing strategic leadership and a regulatory framework. Part of its aims is to achieve national transformation objectives by ensuring that the construction industry offers access to mainstream economy for those disadvantaged by policies of apartheid. One of the mandates of the board is to establish the registration of projects and contractors, and other suppliers, to systematically regulate and monitor the performance of the construction industry and its stakeholders (CIDB, 2004a).

The CIDB's register of contractors has grown tremendously over the years. According to CIDB (2007), in December 2004, there were 1,500 contractors registered on the database. By December 2005, this number had increased to 7,500. At the end of 2006, it further increased to 25,000 contractors. By the end of March 2007, 32,264 contractors were registered with the CIDB. The CIDB had captured a total of 63,148 contractors on its database by the end of March 2008 (CIDB, 2008). The latter figure represents an almost 100% increase in registered

contractors from March 2007. 48,236 of these contractors were active at the time. It should be noted that an active contractor on the CIDB register implies a contractor whose registration is still valid with the board. The active status does not inform on the level of activity or frequency at which the registered entity is involved in a contract.

The statistics shown in Table 1.1 show expenditure towards new construction works in the South African construction industry between the years 2001-2007.

Table 1.1: Actual capital expenditure on new construction works by the public sector

Year	Expenditure
2001	19,223,590,000
2002	20,252,961,000
2003	36,485,231,000
2004	31,427,335,000
2005	37,515,186,000
2006	47,728,578,000
2007	58,053,342,000

Source: Statistics SA (2008: 93)

According to Table 1.1, South Africa enjoyed a 3 year boom in the construction economy from 2005. As a result, Davis Langdon (2005) predicted that demands for strategic materials, skilled labour, construction plant and machinery, and management resources would exceed supply in the industry. The CIDB (2005) reported that in more than a decade, building and construction materials suppliers were utilising more than 50% of previous installed capacity in the period 2003-2004. CIDB (2008) also reported that grade 9 contractors on the CIDB database had doubled their order books in the year 2007, mainly from the booming construction sector in South Africa and also from diversified portfolios in other parts of the world.

Construction growth in recent times was driven by infrastructural development in preparation for the hosting of the Fédération Internationale de Football Association (FIFA) world cup competition in 2010 and the government's commitment to infrastructure development for a better South Africa. The national infrastructure maintenance strategy (NIMS) programme, approved in August 2006 is a coordinated programme of actions that is essential to government's vision of delivering infrastructure services to all. This programme is expected to

contribute to the predicted growth in the industry and government's aim of attaining GFCF of 25% of Gross Domestic Product (GDP) by year 2014. *GDP is the total market value of all final goods and services produced in a country in a given year*. The GFCF was at 14% of GDP in the late 1990's, 16% in 2004 and 17% in 2005. The figure increased to 18.6% in 2006, 21.2% in 2007 and 24% by the third quarter of 2008 (Venter, 2009).

Consequently, there is an accelerated programme for the development of transportation infrastructure – the Gautrain rapid rail link, Bus Rapid Transport (BRT) system, train stations, dam construction, airport expansions, roads rehabilitations and replacements, sea port construction, energy infrastructure and sports facilities nationwide. The hosting of the FIFA 2010 world cup and infrastructure projects was forecasted to drive and sustain economic growth beyond year 2010.

From the foregoing, one can conclude that the growth potential of the South African economy is high. The effects of the global economic meltdown from 2009 on the economy of South Africa and specifically, the construction industry could however not be ascertained at the time of this study. Constraints such as low and unstable rates of profitability, high risk, competition, high rates of business failure, and inadequate supply of skilled personnel continue to characterise the South African construction economy (CIDB, 2004b). The high rate of liquidations and enterprise failure, particularly among the emerging contractor sector is a poor indicator of sustainability and impacts negatively on industry growth (CIDB, 2004a).

Growing globalization in the South African economy has had impacts on the construction industry. Large South African firms have had to be more competitive by expanding into offshore markets in order to grow revenues, spread their risks and match the level of performances of their counterparts operating in international markets (Dlungwana et al., 2002). According to (CIDB, 2004b), one of South Africa's top contracting firms was ranked 93rd in the world, in a top global contractors' list, for their total construction contracting revenue in 2002 (home and abroad). The same firm was ranked 43rd for revenue generated outside of their home country (amounting to 53% of total turnover).

The composition of contractors in the South African construction industry is distorted. The industry comprises formal and informal sectors. The former consisting of more established, highly capitalised and recognised firms (i.e. large firms), and the latter, consisting of emerging

contractors (i.e. small firms) (Nyembe, 1994, cited in Ofori et al., 1996). CIDB (2004a) acknowledged that the South African construction industry presents unique challenges of narrowing the gap and raising overall performance between these two sectors.

Various programmes that are being implemented by government in an effort to mitigate the imbalances of the past include promulgating legislation such as the Employment Equity Act 55 of 1998; Preferential Procurement Policy Framework Act 5 of 2000 and Broad Based Black Economic Empowerment Act 53 of 2003. These legislations give preference to previously disadvantaged, yet qualified individuals and organisations, mainly with respect to access to employment, more equitable distribution of income, preference on evaluation of and award of government tenders, ownership of productive assets and possession of advanced skills. These are practical initiatives by the government to address the supply-side constraints and stimulate access to market by historically disadvantaged enterprises (CIDB, 2004a).

Targeted enterprises, owned by Historically Disadvantaged Individuals, HDIs, can participate in public procurement in a number of ways. These include either directly as prime contractors or as joint venture partners or indirectly as sub-contractors, suppliers, service providers and manufacturers to a prime (main) contractor in the supply chain. Targeted labour can be engaged as either employees or contract (project specific) workers. It would seem that one of the outcomes expected from procurement policies targeted at the HDIs is the unbundling or unpacking of contracts into smaller bits to make them accessible to these groups. The implication of this is that firms in the construction industry will have to reduce their reliance on capital-intensive technologies and increase the labour component. This is the main objective of labour-intensive programme, driven under the auspices of the expanded public works programme (EPWP) established in 2004 at national and provincial levels in the Department of Public Works. Other similar initiatives which support the development of small and medium size contractors include the emerging contractor development model (ECDM) and the South African construction excellence model (SACEM) which are frameworks drawn up to develop the management capacities of small and medium size contractors respectively. These models were researched and developed by the Council for Scientific and Industrial Research (CSIR).

In contrast with the above paragraph, this implied that less government contracts were made available to previously favoured firms, which are predominantly white-owned. While it may be true that preferential procurement policy has reduced the amount of public sector projects

available to white-owned firms, the problem could also be attributed to oversupply due to low entry barriers in the industry e.g. the collaboration between HDIs or firms and historically advantaged individuals (HAIs) or firms. This appears to be an indication of diversification in the operations of established contracting firms. In addition, it could be an indication of a solution to the problem of integration between the two sectors (formal and informal) in the construction industry.

In order to remain competitive, established contractors, who were previously advantaged, have had to adopt business strategies which enable them take advantage of preferential procurement policy, which has prioritised the empowerment of the HDIs. This reality must also be managed with the consciousness of the country securing the hosting rights for the 2010 FIFA world cup. The FIFA hosting right, has singularly attracted foreign contracting firms into the country, competing for projects. It is therefore not strange that the use of more flexible contractual practices (such as joint ventures, concessions, partnerships, etc) by contracting firms in South Africa is an indication of some level of diversification in the operations of established contractors.

For these established contractor, it had become imperative to adopt innovative business management techniques which would improve their effectiveness and efficiency; develop strength in core business areas; and build and maintain competitive advantage in order to achieve a reasonable level of financial performance and growth for all stakeholders.

Governments in many parts of the world have gradually withdrawn their active participation in the provision of housing and infrastructure but have employed innovative procurement arrangements which would enable national development objectives to be achieved in a rapid manner without undue and unsustainable strain on public financial resources. These innovative approaches are now gaining wider acceptance and better popularity in other parts of the world (Ofori and S.M Chong, 1994). Recent tender advertisements in South Africa, calling for Public Private Partnerships (PPP) in the provision of housing and transport infrastructure attest to this assertion. It is a matter of time before these procurement approaches, including others such as build-operate-and-own and build-operate-and-transfer, become the norm in infrastructure development in South Africa. It is therefore necessary for contracting firms to be prepared in their business operations and strategies.

1.2 Need for the Study

Many factors have contributed to the need for contractors to be more competitive and diversified e.g. the ease of registering a business entity; the easy and frequent entry of many emerging and multinational firms into the industry; and dynamism and high competition in the industry. In a personal communication with Mr. Henk Langenhoven, the executive director of the South African Federation of Civil Engineering Contractors (SAFCEC), Merrifield (1999) wrote that tender lists on civil engineering projects alone indicated the presence of more than 4,000 new tendering entities between 1998 and 1999 alone. This could serve as an indication of the number of new entrants and the level of competition that exists in the industry. Possibly, the challenges faced by construction firms in general, especially in terms of survival, business growth and competition for market share in the industry could be solved by diversification.

Diversification is defined by Pearce and Robinson (2000) as a firm's distinct departure from existing operations through acquisition or internal establishment of separate business that are able to provide synergy with the original firm by counter-balancing strengths and weaknesses of the two businesses.

In their article on the issue of diversification around a firm's core business (concentric diversification), Rijamampianina, Abratt and February (2003) remarked that diversification is one solution to the challenge of sustainable business growth. Therefore, the consequences of diversification can be observed for an individual firm with regards to long term financial performance and growth.

Murray and Appiah-Baiden (2000) suggest that big construction companies in South Africa have internationalized their operations by venturing into neighbouring countries, Central and West Africa and in some cases, outside Africa. They attribute this decision to the decline in contracts due to the Affirmative Action policy being implemented by the South African government. This challenge (evidenced by shrinking market share) is presumably aggravated by high competition from large foreign firms, on large and complex projects for which emerging contractors, due to the nature of these projects (e.g. high technicalities, highly skilled human and financial resources), are unqualified for. The influx of foreign contracting firms can be attributed to the low entry barriers into the industry. Some of these foreign firms submit bids that are economically unrealistic in order to achieve market penetration.

The diversification-performance relationship has been the focus of considerable research in corporate strategy. In spite of the vast amount of research done, Ramanujam and Varadarajan (1989), in an extensive review of research in this area, concluded that the findings of studies attempting to demonstrate the effects of diversification on performance and growth remain inconclusive. Rumelt (1974) concluded that diversified firms in general, and related diversifiers in particular, outperformed others. Similarly, Michel and Shaked (1984), and Montgomery and Wilson (1986) concluded that firms diversifying into unrelated areas have been able to generate superior performance over those with related businesses.

In contrast to the above, Capon et al. (1988) argue that since each market/industry require different skills for success, firms that concentrate in one market area should have superior financial performance. Their empirical tests with a sample of manufacturing firms support this relationship. Hill and Hansen (1991) in their longitudinal study of the US pharmaceutical industry found that diversification resulted in lower performance. Stimpert and Duhaime (1990) validate the view that results of research in this area were conflicting after they studied firms experiencing especially high or low levels of performance. Their findings revealed that the level of diversification, in itself, does not have a significant effect on performance.

A research conducted by Palich, Cardinal and Miller (2000) developed three models to explain the relationship that exists between diversification, financial performance and growth. The first model, which is theoretical, is based on the premise that the level of diversification and performance are linearly and positively related. The second model, a curvilinear model, with two alternatives (inverted U and intermediate) recognise that moderate levels of diversification are better than none, but vary in their forecasts of performance as firms move from related towards unrelated levels of diversification.

The motivation above informs the need for an exploratory and country specific study to investigate the relationship between diversification strategies employed by established contracting firms in order to sustainably grow their businesses and maintain a competitive advantage over sister firms, and the financial performance and growth that results from these strategies.

In this study, undiversified or focused firms are firms which are registered for general building or civil engineering works. Moderately diversified firms are those which are registered for either of

these two categories or both, and up to three categories of work. Highly diversified firms on the other hand are those that are registered for either of the two categories and more than three. These definitions apply only to level 9 contracting firms which are registered on the CIDB's register of contractors as at September 2008.

1.3 Aim and Objectives

The aim of the study is to investigate the relationship between diversification strategies adopted by established contractors in South Africa and the financial performance and growth in these firms due to these strategies. By investigating the relationship that exists between diversification strategies and financial performance and growth, emerging firms will be provided with a tool that will assist them in strategically steering their firms towards sustainable growth.

The following are the objectives of the study:

1. To classify all South African contracting firms on the CIDB (level 9) database based on the categories of work registered for, using globally accepted diversification categories.
2. To measure the financial performance and growth of each of the firms classified above using robust financial indices.
3. To explore the relationships that exist between diversification and financial performance and growth in order to determine the marginal growth differences between undiversified, moderate and highly diversified established contracting firms within the construction industry.

1.4 Limitation of Study

In this study, the effect of diversification on financial performance and growth was studied. The study covered public and private contracting firms operating in the South African construction industry, with at least five years of work experience in the country. The study researches firms with at least five years of work experience so as to make reasonable inferences from the data collected. The study did not seek information on other business activities that the companies are involved in, apart from the works registered for, on the CIDB database. The study however analysed all incomes, assets and investments, including non-construction interests reported on the companies' financial statements, where this is applicable. This study did not attempt to

differentiate between related and unrelated diversifiers among the sampled firms. It is limited to investigating the relationship between diversification strategies and financial performance and growth but does not provide models for predicting the likely outcome of future diversification decisions.

1.5 Research Question

The study seeks to find an answer to the research question: *Does diversification bring about better financial performance and growth in established contracting firms in South Africa?*

1.6 Research Hypothesis

Different researchers have either found support for different forms of the diversification-performance and growth relationship, or have concluded that diversification has a negative or no impact on performance. The relationship between diversification and financial performance and growth remains an open-ended and inconclusive debate amongst scholars and business managers.

The hypotheses for this research work, which take a cue from the linear model proposed by Palich et al. (2000), are set as follows:

- **Hypothesis (H1):** The financial performance of diversified firms is better than that of undiversified ones
- **Hypothesis (H2):** The financial performance of established contracting firms (undiversified, moderately diversified and highly diversified) is linearly related to their diversification strategies.

1.7 Research Methodology

A thorough review of literature was undertaken in order to develop the theoretical framework for this topic. As a result of distinct sample sizes from the target population (i.e. level 9 established contractors) extracted from the CIDB database, a selective sampling method was adopted.
Level 9 firms were chosen because these firms have the organisational structure and resources to diversify meaningfully. Each of the selected firms has had at least five years of work experience in the construction industry in South Africa. Two different questionnaires

(Appendices B1 & B2) were designed and administered to senior management personnel of the undiversified and diversified firms respectively.

Financial performance was measured using conventional ratios for growth and profitability i.e. return on equity (ROE); return on total assets (ROTA); return on capital employed (ROCE); and profit margin (PM). These measures have been used to measure firm performance in the construction industry (Akintoye and Skitmore, 1991).

The data collected was analysed using computer-based statistical software Statistical Package for Social Sciences (SPSS) and Microsoft Excel®. Relationship between diversification strategies and financial performance and growth was explored. Profitability ratios of the firms were compared (diversified and undiversified). A combination of parametric and non parametric tests were carried out, based on the nature of the data collected.

Inferences drawn on the results of the analysis formed the basis for conclusions reached. Finally, syntheses of the findings were done towards facilitating future direction in research and management of diversification strategy in contracting firms in South Africa.

1.8 Benefits of Study

The results of the study may find relevance and application in other developing countries by making necessary adjustments to accommodate disparity in experience, technology, peculiarity and culture. The study will also serve the need of the emerging contracting firms in South Africa and beyond which are planning for successful diversification or already in the process of diversifying.

1.9 Structure of the Research Report

There are 5 chapters in this research report. Chapter 1 contains the background, need for the study, aim and objectives, delimitation of study, research question and hypothesis, summary of the research methodology and benefits of study.

Chapter 2 contains literature review on the subject, discussing definitions which are relevant to the study e.g. nature of the construction industry, strategic assets and competitive advantage,

modes of competition in the construction industry, diversification, resource based views, diversification and firm value, diversification strategies, directions of diversification, reasons for diversifying, product diversification, international diversification, environment-specific influences on diversification outcomes, and measure of firm performance and growth.

The third chapter explains the various research methods and procedures employed in the study. The chapter discusses sampling design, categorization of samples, instruments used in the study, scales of measurement, data types, data collection and data analysis.

The fourth chapter focuses on the analysis of data and interpretation of results. This chapter records the results of the analysis of responses received from the questionnaires and the outcomes of the analyses carried out on the financial data.

Chapter 5 comprises the summary of the study, conclusions reached from the findings, limitations of the study, and recommendations for future study. The findings from the study are tied back to literature in this chapter.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

'The importance of studying issues in corporate strategy has been considerably affected by the lack of clear-cut research results. The mixed research results reported over the years should however not be allowed to diminish the importance of corporate strategy related decisions and other strategic moves organizations make to diversify their activities' (Mukherji, 1998). The lack of clarity and incoherence of research results, it appears, has deprived business managers of making informed and educated decisions on diversification strategies. Further, this challenge should not lessen the importance of adequate planning before strategic decisions are made.

Arndt (2011) asserts that strategic management is simply the formation and sustainability of competitive advantage. The reviews of literature on the subject of strategic management in the construction industry reveal that the subject requires more attention and empirical studies. Kim and Reinschmidt (2011) are of the opinion that this study area has recently gained some attention.

Research into strategic management started in the 1960's (Rumelt et al., 1994), with substantial progress achieved between then and the time of this study. Strategic management in the construction industry in particular, has not received much attention, despite other industries such as biotech, finance, automobile, information technology, organizational sociology, political science and cognitive psychology undertaking substantial studies in this area. Cheah and Chew (2005) remarked that management studies, building on either empirical or anecdotal evidence related to the construction industry appear to be lacking. Cheah et al (2004) suggests therefore that the construction industry can learn and benefit from applying selected strategic management concepts and tools that have been developed in other industries.

Strong development of the field of strategic management in the 1960's in some western countries has helped industrial corporations strive under diverse business environments (Rumelt et al., 1994). But in contrast, the application of strategic management to construction remains lacking (Chinowsky, 2000). The lack of interest in strategic management in the construction industry, according to Cheah and Chew (2005), could be due to the following three reasons;

1. *"The fragmented nature of the industry and multiple-party contractual arrangements in any given project procurement system. The complexities involved might have raised the barriers for researchers of a more generalist nature to conduct insightful studies;*
2. *Construction is sometimes portrayed as a "low-growth, low-tech" industry, thus lessening its appeal as a researchable context;*
3. *The relatively limited information available on individual firms, compared to other industries such as pharmaceutical, adds to the difficulty of conducting management studies on construction firms".*

There are six (6) schools of thought on strategic management, identified by Fellows et al. (2003): strategic planning; strategy-structure; power-culture; competitive advantage; instrumentalists and synthesis schools. This study focuses on diversification strategies employed by established contracting firms and their relationships with financial performance and growth. Therefore much of the discussion below is within the strategy-structure and competitive advantage schools of thought, as they are the most applicable to the study.

The strategy-structure school proposed a hypothesis that the organizational structure of a firm responds to its business strategy at any given point in time. This group of researchers believe that business strategy, which is the process of formulating strategic plans and management, cannot take place in a vacuum. Therefore, their conclusion that business strategy and organization structure must be interrelated. The competitive advantage scholars believe that a firm can attain a position of superior performance by rapidly developing strategic assets than its competitors. This study, is an attempt to study the relationship between diversification strategies and financial performance and growth in established contracting firms in the South African context.

2.2 The Nature of Construction Industry

In a study undertaken by Cheah and Garvin (2004) which combined a study of 24 international engineering and construction firms with established theories of strategy development introduced a new conceptual model for corporate strategy in the construction industry. The study proposed that seven strategic fields (business, operational, information technology, marketing, technology, human resource and financial strategies) and two organizational mechanisms

(organizational structure and corporate culture) should function together with external dynamics in order to improve strategic outlook of a construction firm. The management of construction firms will need skills from these different strategic fields in order to achieve a successful corporate strategy. This suggests that successful corporate strategy is a conscious and deliberate amalgamation of various factors and aspects of an organization.

Construction business is inherently risky and highly competitive. Many of the projects in the industry are secured through competitive bidding processes. Contractors have to compete with their peers within the industry to secure projects. In order to submit competitive bids, contracting firms sometimes have to reduce their profits substantially. The nature of the construction industry is such that there are no certainties with respect to future projects. Construction firms are not able to create demands for their products and services, unlike other sectors. Most of the projects in the industry are by derived demand. Contractors only compete for available projects in the market.

The risky nature of construction business compels contractors to have subconscious risk attitudes, which informs their bidding decisions (Kim and Reinschmidt, 2011). Park et al. (2010) identified factors such as the dynamic nature of the construction industry; fast pace of changes in the global construction markets; and lowest price bidding as some challenges in the industry. Ibrahim et al. (2009) emphasised that construction company executives face challenges in making strategic decisions in a volatile and an uncertain construction market.

Kim and Reinschmidt (2011) concluded that the competition within the construction industry has an impact on the profit margin of construction firms. In essence, the level of competition in the construction industry has a consequence for financial performance and growth of contracting firms.

Business enterprises employ the corporate strategy of diversification for growth and risk management. Contracting firms may diversify their project portfolios in order to have a repertoire of negatively correlated projects in order to form a balanced portfolio for business stability and sustainability. For this reason, diversified firms may choose to secure projects in diverse sectors. One may be right to assume that diversified firms should have a better chance of survival than their undiversified counterparts. However, this needs to be empirically proven. Chung and Cheah (2006) are of the opinion that diversified firms may have their portfolio

comprise of high-margin works in order to balance the ones with lower margin ones. They further assert that as firms grow, they develop the capacity to shift their competitive strategy from focus to broadly targeted. This claim is supported by Kim and Reinschmidt (2011) who commented that larger firms tend to be more diversified than smaller ones. They opined that diversified strategy would benefit such diversified firms since it would lessen the risk of fluctuating business cycles experienced by an undiversified firm.

To further buttress the portfolio strategy used by construction firms, Ravanshadnia et al. (2010) explained that a single project held in isolation has a different risk profile to the same project held in a portfolio. It is understood that the management of construction firms do carry out periodic portfolio selection sessions. The selected portfolio of projects is expected to serve the strategic objectives of the organization, while keeping a balance among available capacity, resources and project commitments.

2.3 Strategic Assets and Competitive Advantage

Markides and Williamson (1994) demonstrated that firms that compete across markets where certain types of strategic assets are important outperform the ones that compete where these strategic assets are less important. The study further argued that if a competing firm could purchase a strategic asset in an open market, it would not have competitive advantage over its competitors for long, as they would quickly achieve similar market position by acquiring such an asset.

Wiggins and Ruefli (2002) defined competitive advantage as a capability (or set of capabilities) or resource (or set of resources) that gives a firm an advantage over its competitors, which, *ceteris paribus*, leads to higher relative performance. According to Porter (1980), a firm should be able to offer customers a set of benefits at lower cost which its rivals cannot match, to have a competitive advantage in any market. Barney (1986) and Dierickx and Cool (1989), remarked that strategic assets on which long term competitive advantage critically depend are those that are imperfectly imitable and imperfectly substitutable. A deduction can then be made that readily tradable assets are not strategic assets and therefore cannot act as sources of long term competitive advantage for a firm.

According to Smallbone et al. (1995), the following are categories of strategic assets; customer assets (brand recognition, customer loyalty and installed base); channel assets (established channel access, distributor loyalty and pipeline stock); input assets (knowledge of imperfect factor markets, loyalty of suppliers and financial capacity); process assets (proprietary technology, product or market-specific functional experience and organizational systems) and market knowledge assets (accumulated information on the goals and behaviours of competitors, price elasticity of demand or market response of the business cycle).

Creating strategic assets, it seems, is not an end in itself, as the long term competitive advantage market position of a firm depends largely on its ability to continuously improve and adapt its strategic assets to meet market-specific demands and to create new strategic assets that it can exploit in existing or new markets. One could reasonably infer that strategic assets are the building blocks of competitive advantage, which consequently results in higher economic performance and growth, in a normal market environment.

Barney (1991) and Conner (1991) have speculated that factors that sustain competitive advantage will generate superior economic performance that persists over time. Jacobson (1992) and Brown and Eisenhardt (1997) assert that temporal dynamics, resulting from factors such as imitation, entry and the introduction of substitutes will erode almost all competitive advantages and thus prevent superior economic performance from persisting.

Ofori and Chan (2000) wrote that persistent superior economic performance has been argued theoretically and found empirically to be rare. Result of a study of 6,772 firms in 40 industries, over a time period of 25 years has shown that only a very small minority exhibit superior economic performance and it rarely persists for a long time. This reinforces the need for firms to continuously build and create new strategic assets which respond to market demands in order to remain competitive and operate at an advantage over rival firms.

Competitive advantages include cost or differentiation advantage (Porter, 1985); physical capital (Williamson, 1975); human capital (Becker, 1964); technological opportunities and learning (Teece, 1986); Organizational capital (Tomer, 1987) and institutional context (Oliver, 1997).

Wiggins and Ruefli (2002) however, concluded in their study that sustained superior economic performance is rare. They cautioned that superior economic performance and growth can only be achieved by skilfully implemented business strategies.

2.4 Modes of Competition in the Construction Industry

Competitive advantage is a position of superior performance which can be attained through cost leadership, differentiation or focus strategies (Porter, 1985). Modes of competition refer to a firm's method of developing competitive advantage. Cheah et al. (2007) developed a conceptual model which showed that competitive strategies, important resources and competences (IRCs) represent two major sources of competitive advantage for the Chinese construction industry.

Porter (1980) listed cost leadership, differentiation and focus as competitive strategies. He further explained that cost leadership entails management's focusing its attention on competing on cost. Cheah et al. (2007) listed the following as components of cost leadership strategy for construction firms: procurement costs of materials and equipment, manpower costs, costs during construction, administrative costs and subcontracting costs. According to Cheah et al (ibid), the differentiation strategy is concerned with creating something that is perceived by the buyers as unique. Components of differentiation strategy could include having a good reputation, involvement with high quality projects, use of advanced technology, building relationships and connections and being involved in project financing. This seems to be the preferred strategy for large and influential companies with more resources and competences. They prefer to adopt differentiation strategies to secure revenue and profit growth, rather than the cost leadership strategy. A focus strategy implies that a company would compete on only limited functions or market segments. This relates to the breadth of developing competitive advantage. According to Cheah (2002), the focus strategy is divided into three dimensions: *market or product, geography and function.*

In construction, the *market or product* dimension would mean the type of project that the firm would want to be involved in. This could mean focussing on a specific type of projects. For instance, construction of residential or commercial buildings, civil structures, infrastructure projects, etc. The dimension of *geography* relates to the geographical area that the firm would want to compete in. This could mean diversification into different domestic, regional and international markets, depending on the economic benefits in doing so. The dimension of *function* relates to vertical integration of different functions within a value system. For a

contractor, this could mean backward vertical integration into the functions of engineering design, construction materials, equipment or forward vertical integration into real estate development and project financing (Cheah et al, 2007).

In their study of five competitive strategies (cost leadership, differentiation, market or product, geography, and vertical integration), Cheah et al. (ibid) discovered that only differentiation and market or product could contribute directly towards the competitive advantage in terms of revenue and profit growth. The study suggests that market or product competitive strategy helps to reduce business risks which are faced by firms competing with focus strategy, which target only one market segment. In the study of IRCs (relationships and connections, project management competencies, financial capabilities, technological and innovative capabilities and reputation), only financial capabilities, technological and innovative capabilities and relationships and connections significantly contribute towards competitive advantage in terms of revenue growth.

2.5 Diversification

A diversified firm can be considered as one having operations in more than a single industry. Some scholars believe that these operations must be in synergy for diversification to be meaningful. Ofori and Chan (2000) identified diversification as one of three business growth paths (apart from concentration and acquisition). There appears to be two schools of thought on the subject of diversification strategy as it relates to financial performance and growth of a firm; industrial organization and strategic management group (Palepu, 1985):

a. Schools of thought (e.g. Gort, 1962; Arnould, 1969 and Markham, 1973) which conclude that there is no significant relationship between diversification strategy and a firm's financial performance and growth.
b. Schools of thought (e.g. Rumelt, 1974; Rumelt, 1982, Montgomery, 1982; and Christensen and Montgomery, 1981) which conclude that a systematic relationship exists between a firm's diversification strategy and financial performance and growth.

2.5.1 Diversification, financial performance and growth

There are inconclusive arguments on the subject of performance and growth as it relates to diversified and undiversified firms. Some earlier studies claim that specialized firms outperform

diversified ones. Hill and Hansen (1991) found out in their study within the pharmaceutical industry in the US that undiversified firms performed better than diversified ones.

Hitt et al. (1996) alleges that the lower performance of diversified firms is partly due to less innovation in diversified firms, especially those that have diversified through acquisition. Hall (1990) demonstrated that firms with low research and development (R&D) investments are more likely to diversify than firms with higher R & D expenditures. It is note-worthy that reduction in R&D could be a strategic action, and not an inefficient investment. Perhaps a lack of innovative ideas could lead to less investment in R&D by firms.

From previous studies, higher levels of diversification increases managerial, structural and organizational complexity, incurs greater coordination and integration costs, strains top management resources (Grant et al., 1988); limits organizational attention (Ocasio, 1997) and inhibits firms' ability to respond to major external changes (Donaldson, 2000).

Diversification inefficiencies also arise from conflicting dominant logistics between businesses, internal capital market conflicts, increased control and effort losses due to shirking (Markides, 1992). Graham, Lemmon and Wolf (2002) claim that diversification through acquisition introduces changes in accounting that could cause bias or influence performance results. On the issue of poor financial performance and growth, Miller (2004) explained that many diversifying firms have inferior financial performance prior to diversifying. It also emerged from the same study that performance trends before diversification – either positive or negative, persists, even after diversification. The findings support the claim that the performance problems of diversification would have been inherent in the firm before a diversification move.

Palich et al. (2000) on the other hand suggests that focused firms are unlikely to generate above average profit. They are of the opinion that focused firms cannot exploit between-unit synergies or 'the portfolio effects' which are available to moderately or highly diversified firms. Their study was an attempt to bring a degree of clarity to the diversification-performance literature by reviewing, critiquing and synthesizing three decades of research into this linkage. There are three theoretical models established during the review.

i. Linear Model

The linear model is based on the assertion that diversification and performance are linearly and positively related. This assumption is founded on market power theory; such as predatory

pricing, reciprocal buying and selling; and internal market efficiency arguments; cross-subsidization of business units and access to internal capital market and critical resources. The assertion under this model is that the more diversified a firm is, the more it can build and develop market power advantages over rivals. Under this model, the tax benefits of diversification and the possibility of exploiting resources that would have been non-performing are noted.

Curvilinear Models

The research claims that a number of researchers have postulated theory that could be interpreted as a curvilinear relationship on the diversification-performance linkage. The curvilinear models support the assertion that higher levels of diversification may not be accompanied by higher financial performance. The curvilinear models are briefly explained below:

ii. Inverted U Model

The study revealed that moderate diversification yielded better performance than lower and higher levels of diversification. Therefore, the curvilinear model supports the claim that performance increases as firms shift from single business strategies to related diversification, but performance decreases as firms change from related diversification to unrelated diversification.

An earlier study, Markides (1995) wrote that as much as 50% fortune 500 firms were refocusing in the 1980s. Denis et al. (2002) wrote that increased competition has forced companies to focus on their core lines of business. These assertions seem to support the notion that focused firms may have superior performances than diversified ones.

iii. Intermediate model

The intermediate model of Palich et al (2000) which purports that diversification yields positive but diminishing returns beyond some point of optimization, supports a study by Markides (1992) which claim that as a firm increases in diversification, it moves further away from its core business, and the benefit of diversification at the margin declines.

Inverted U and intermediate models of curvilinear relationship between diversification and performance and growth posit that a moderate level of diversification is better than none, but

they differ in their predictions of performance as firms move toward higher levels of diversification.

Although most of the results of the test in the study support an inverted U pattern, caution and careful industrial studies should be undertaken in order to make sense of diversification-performance and growth relationships, as the subject seems to be industry or environment-specific. Indiscriminate use of heterogeneous data from multiple industries may produce misleading research results on the subject. Industry effects and cross sectional studies that do not adjust for industry effects may bias the findings of the diversification-performance relationship.

2.6 The Resource Based View (RBV)

The resource based view (RBV) theory is a dominant theory which challenges the subject of diversification. The RBV states that resources owned by a firm forms the basis of its strategy and constitute the determinants of its competitive advantage. According to Theuven (2004), RBV is a theoretical approach in the field of strategic management that considers strategies like diversification or vertical integration as a way of finding new uses for existing resources or of filling gaps in an organization's resource base.

Andreu et al. (2008) remarks that the perspective of the RBV is that the growth of a firm requires a balance between the exploitation of existing resources within a firm and the development of new ones. A firm's decision and its future success depend on the specific characteristics of the resources available to it.

2.7 Diversification and Firm Value

Denis et al (2002) claim that on average, diversified firms are valued at a discount when compared to undiversified ones. This assertion stems in part, from inefficient investment policies by diversified firms. It is a general belief that these poor investment decisions benefit corporate managers, many of whom are more interested in building increased power and prestige for themselves rather than protecting shareholders' investments.

Jensen (1986), an agency theory researcher, claims that poor financial management which allows managers to finance acquisitions from free cash flows remains an agency problem. Tosi

et al. (2000) remarked that managerial compensation and incentives are tied to firm size rather than performance, which influences bad investments by managers. Miller (2004) advised that agency problems related to innovation can be reduced by active, institutional owners. His study alludes to an agency theory that managerial decisions about risky investments are usually aligned with the governance provided by boards, incentive contracts and active shareholders.

Lamont and Polk (2001) in their study concluded that diversification destroys firm value. Miller (2004) went further to ask the question whether a diversified firm creates more value than an undiversified one, if it had not diversified at all. Villalonga (2002) argues that it may not be the act of diversification that destroys value, but the underlying trait that determines diversification and economic performance and growth.

Matsusaka (2001) investigated value-adding strategy in diversification, revolving the notion of organizational capabilities. His view is that a firm consists of organizational capabilities, i.e. skills and abilities of top and middle management, which are to some degree transferable across products and industries. He claims that firms would rather apply these recourses to new products or industries than to go out of existence. Since it is uncertain and challenging to find a business that matches the organizational capabilities, diversification effort therefore becomes a trial and error or experimentation. He submits that diversified firms trade at discounts because they do not have a good match for their organizational capabilities.

Doukas and Lang (2003) revealed that Foreign Direct Investment (FDI) outside the core business of a firm are associated with a loss in shareholder value, whereas the core-related FDI are found to be value increasing. The study, however warned that such corporate activities might lead to diversification discount on firm value, if care is not taken.

2.8 Diversification Strategies

There are two types of diversification strategies identified in the literature on the subject - related and unrelated diversification. Relatedness in this regard translates to the fit between the existing operations of a firm and the diversified operations (Choi and Russel, 2004).
Related diversifiers are involved with various businesses that can take advantage of a common pool of corporate resources (Nayyar, 1992). In essence, related diversifiers run a portfolio of businesses that enhance operational synergies and are mutually benefitting.

Gary (2005) warns that a diversification effort could fail, despite substantial opportunities for a firm, if not properly implemented. He further emphasizes the need to properly manage the implementation strategy and process mechanisms.

2.8.1 Modes of diversification

Pawaskar (1999) identified two ways by which diversification could be achieved in an enterprise; internal capacity expansion or mergers and acquisitions. In essence, mode of diversification is the extent to which a firm relies on internal business development relative to external acquisitions or mergers as a means of venturing into new business activities (Ramanujam and Varadarajan, 1989).

2.9 Directions of Diversification

2.9.1 Vertical integration

Fan and Lang (2000) stated that two businesses are vertically integrated if one can employ the other's products or services as input for its own production or supply output as the other's input. A vertically integrated company would provide a set of services or goods through its business units (in-house) in a single value chain. In this instance, integrated firms will transfer all of their relevant goods and services to adjacent, in-house business units.

A construction firm will be said to be vertically integrated if, for instance, it provides in-house engineering design or real estate services. Vertical integration is a decision in a make-or-buy situation. Roger (2001) alleged that firms may favour vertical integration when the cost of relying on the market is higher than in-house production. Firms sometimes make this move in order to reduce uncertainty in their business environment.

2.9.2 Horizontal integration

Horizontal integration results when a firm merges with another one in the same market, or when a firm diversifies into a market related to its existing business due to the existence of common types of outlets or because of common resources, or when a firm diversifies into a totally unrelated business.

This definition of horizontal integration suggests that a construction firm acquiring a ready-mix concrete or brick-making business can be said to be involved in horizontal integration. Makarfi (2005) believes that horizontal integration is undertaken to increase the stability of profits by spreading risks or reducing the proportion of high risk businesses in the portfolio of a firm. In addition, a firm could diversify horizontally to compensate for barriers to expansion in existing markets and to take advantage of the outcome of an unanticipated occurrence in the business (Hillebrandt and Cannon, 1989).

2.10 Reasons for Diversifying

One of the main objectives of a business is to make profit and increase the value of the shareholders' investments. Miller (2004) suggests that diversification could be an option for failing firms in the sense that a diversifying firm can apply existing resources and/or knowledge into the production of other products or industries.

Pawaskar (1999) concludes in his study that diversification, which could be through internal capacity expansion or external expansion by merger and acquisition, is essentially a means of growth. According to Rijamampianina (2003), firms diversify for the following reasons; increased stock value of the firm; increased growth rate of the firm; better use made of funds than internal investment; revenue growth; improved stability of earnings; increased efficiency and profitability. Chakrabarti et al (2007), in their study conducted on 3,117 firms across six Asian countries, in different institutional environments, claim that diversification could be driven by a range of perceived benefits; greater market power; more efficient allocation of resources through internal capital markets; utilization of excess productive factors; more efficient utilization of existing resources in new settings, or reduced performance variability by virtue of a portfolio of imperfectly correlated set of businesses.

2.10.1 Conditions for successful diversification

Two critical factors have been highlighted to affect a firm's success. One is initial conditions, noted by Levinthal and Myatt (1994), and the other is the importance of core competencies and strategic assets (Markides and Williamson, 1996).

Core competencies are the pool of experience, knowledge and systems, etc. that exists elsewhere in the same corporation and can be deployed to reduce the cost or time required to

either create a new strategic asset or expand the stock of an existing one (Markides and Williamson, 1994).

In his studies on the relationship between prior successful performance and diversification, Mukherji (1998) conclude that industries with prior high performance tend to have successful diversification. He established that firms in this category consistently out perform firms from lesser performing industries, whether they were diversified or undiversified.

According to Duhaime and Stimpert (1994), other variables influence performance and growth in a diversified firm, such as industry profit levels, expenditure on research and development, capital outlay and efficiency levels. Mukherji (1998) asserts that the most important factor in diversification is the strategic relatedness between assets and competencies and the ability to create and sustain competitive advantage through these two.

While individual firms do not have control over industry performance, it appears that initial business conditions influence the outcome of diversification. The implication is that diversification move alone may not be the way to solve the problem of poor performance.

Mukherji (ibid) claims that the creation of competitive advantage through acquisition of strategic assets, development of successful routines and possession of core competences are prerequisites for a successful diversification effort.

In essence, the success of diversification efforts not only depend on industry performance, but on the firm's capability to master other variables internally. It could be reasonably inferred that successful performance is as a result of initial favourable conditions and continuous development and proper management of strategic assets and core competencies.

The line of argument being built here is that early success has a decisive impact on a firm's continued economic performance and growth, and that diversification efforts of successful firms are likely to be significantly different when compared to those of poorly performing firms.

This suggests that a firm needs to first be successful in its current operations, i.e. have favourable initial conditions, own sufficient strategic assets, possess core competencies, and create conditions of competitive advantage before it can achieve success in diversified business

activities. Therefore, diversification exercise from a position of weakness is likely to be rewarded by lower levels of success in new businesses.

2.11 Product Diversification

Heinrich (2001) wrote that product diversification is one of the most difficult ways to expand a corporate enterprise. This, he attributed to the challenge of choosing new product lines that would enable the diversifying firm to branch into new markets that would bring value to the company in order to achieve economic performance and growth.

Any kind of diversification effort (internal capacity expansion, merger or acquisition) involves considerable investment. Diversification requires a firm to change its structure and mode of operation (central to a decentralized system), as the new product would require expertise that lies beyond the purview of the traditional management system (Rumelt, 1986). This will further reduce head office costs.

In the construction industry, possible construction related products include civil engineering, building, property development, estate development and construction product development (Langford and Male, 2001). According to Hillebrandt and Cannon (1990), construction firms are involved in activities such as time share, form work, healthcare, waste disposal, mechanical and electrical engineering and mining. Hillebrandt (1996) further identified material production and housing development as some activities into which large construction firms were involved.

Failure to adjust management structure to suit diversification strategy has caused the failure of many promising diversification efforts. Heinrich (2001) cautions that traditional marketing techniques could be a failure when used for diversification. If not well planned, corporate structure of diversified firms could create constraints on capital flow and allocation for other divisions of diversified firms.

2.12 International Diversification

Capar and Kotabe (2003) defined international diversification as a firm's expansion beyond the borders of its home country across different countries and geographical regions. In their study of international diversification and performance of firms from four industries in Germany - retail/wholesale, utility, information technology services and tourism, Capar and Kotabe (ibid)

stated that international diversification is a growth strategy employed by firms. They claim that service and manufacturing firms undertake international diversification for similar reasons – reduced labour costs, market access and resources, among others. It is yet to be tested or proven if construction firms do diversify internationally for the same reasons.

Buhner (1987) suggests that international diversification offers prospective market opportunities for greater growth, in addition to the benefits of internalization in international markets, such as economies of scale, scope and learning and sharing core competencies among different business segments and geographic markets (Hamel, 1991).

Internationalization is believed to lead to exploitation of tangible and intangible resources which is expected to lead to higher economic performance and growth, Hymer (1976). It is a known fact that multinational firms, with greater bargaining power due to increased size, exploit market imperfections such as less competitive environment and cross-border transactions when they diversify internationally.

It has been argued that higher levels of international diversification, especially combined with product diversification and expansion into markets that are physically and culturally distant, greatly enhances transaction costs and information processing demands (Erramilli, 1991; Hitt et al., 1994).

Factors such as logistics, trade barriers and cultural diversity are likely to increase the cost of operations in a firm that is internationally diversified. Environmental factors such as government regulations, trade laws and currency fluctuations contribute to the complexity of their operations.

Doukas and Lang (2003) presents evidence that geographic diversification increases shareholder value and improves long-term economic performance and growth, when firms engage in core-related foreign direct (Greenfield) investments. The same study states that non-core-related foreign investments are found to be associated with both short-term and long-term losses. The study applauds the purchase of foreign assets, formation of joint venture, alliances and partnerships in pursuit of international diversification.

Graham et al. (2000) however warns that purchase of foreign assets may be associated with poorly managed assets and that joint ventures and alliances may involve poor performers, to the detriment of the diversifying firm.

The study alludes that removal of cross-border restrictions on international capital flows (globalization) has increased the growth of FDI activity. Also, the relaxation of capital controls by many nations has stimulated cross-border investments.

2.13 Environment-Specific Influences on Diversification Outcomes

Questions about the effect of country differences on antecedents and consequences of firm diversification outcomes might have been raised by strategy research in different market economies (Chang and Hong 2002; Hoskisson et al., 2000; Wan and Hoskisson, 2003).

Chakrabarti et al (2007) in their study found positive outcomes in underdeveloped institutional environments and negative in developed institutional environments. This might lead to an argument on the resource capacity of firms in less developed institutional environments to undertake and manage the complexities associated with diversification, which are considered to lack managerial talent, financial and information efficiencies. The study also revealed that diversification does not generally alleviate the impact of an economy-wide shock on performance and neither does it provide substantial spreading of risks benefits for firms facing systemic or economy-wide shifts in economic conditions.

The results of the study made it apparent that the outcomes of diversification efforts are dependent on stability in the economic environment. The study concludes that outcomes of diversification are influenced by institutional environments, economic stability and business group affiliation.

Kogut et al. (2002) remarked that nation-specific conditions may prevent convergence on specific diversification outcomes. Ahmadjian and Robbins (2005) and Guillen, (2001) believe that institutional and country heterogeneity will persist on the study diversification. Aoki (2001) and Peng (2002) are of the opinion that closer attention to contextual, institutional and country characteristics is required.

One could then propose that diversification strategy study should be contextualised in future researches. It is however not clear if strategy research has improved managerial understanding of firm specific, complex and conditional issues that influence business decisions.

2.14 Measure of Firm Performance and Growth

Construction contractors can be distinguished by factors such as the size of annual turnover, capacity and capability. Ofori and Chan (2000) are of the opinion that the best strategy for an enterprise is dependent on the company's performance, strengths, weaknesses and opportunities and threats in its specific environment. These variables are bound to change with time, as the company undergoes different stages of development.

Greenley (1989) wrote that growth can be achieved in a number of ways such as internal resources and personnel development, external acquisition, merger, joint venture and other strategic alliances. Financial growth can also be achieved by improving efficiency, financial control and increasing turnover. Construction firms usually look into other areas of activity in the value chain in order to improve their performance. This may be the reason why some construction firms venture into other areas in the industry, such as property development to grow their business.

Firm economic performance and growth could be measured on the basis of assets, corporate turnover, share prices, sales revenue, volume of output, share of market, profit, number of employee and branches and extent of geographical spread.

Financial statements on their own are of limited use, they need to be interpreted in order to gain additional information from them. There are variety of ratios that could be calculated, depending on the need of the user of such information. In the interpretation of financial ratios, the following group of ratios could be calculated; profitability ratios; liquidity ratios; long term financial stability ratios and investor ratios.

This study is limited to the calculations and analyses of return on equity (ROE); return on total asset (ROTA); return on capital employed (ROCE) and profit margin (PM). These ratios measure a firm's use of its assets and control of its expenses to generate an acceptable rate of

return. These measures have been employed by researchers such as Akintoye and Skitmore (1991) and Ibrahim and Kaka (2007), among others to assess firm performance.

- ROTA: It is also called net asset turnover. This is the ratio of sales revenue to the capital employed (net assets) and is expressed as the following:

$$ROTA = \frac{\text{Sales revenue}}{\text{Capital employed (net assets)}} \times 100\% = \text{ times per annum (ACCA, 2008)}$$

or

$$ROTA = \frac{\text{Profit before finance charges and tax}}{\text{Average total assets}} \times 100 \text{ (Sowden-Service, 2009)}$$

- ROE: This is the ratio of net income (income available to common stockholders) to stockholders equity. It is a measure of company performance from the viewpoint of shareholders. It is essential in the calculation of the ROE to use the profit for ordinary shareholders, which is the profit after tax and after interest charges (Weetman, 2003). It is expressed as:

$$ROE = \frac{\text{Profit After Tax}}{\text{Share Capital} + \text{Reserves}} \times 100\% \text{ (Weetman, ibid)}$$

or

$$ROE = \frac{\text{Profit after tax and preference dividends}}{\text{Average ordinary shareholders' equity}} \times 100\% \text{ (Sowden-Service, 2009)}$$

- PM: This ratio is also called operating profit margin. It is the ratio of profit before interest and tax (PBIT) to sales revenue. It is calculated as:

$$PM\,(net) = \frac{\text{Profit before interest and Tax}}{\text{Sales revenue}} \times 100\% \text{ (ACCA, 2008)}$$

or

$$PM\,(net) = \frac{\text{Profit before finance charges and tax}}{\text{Net sales}} \times 100\% \text{ (Sowden-Service, 2009)}$$

- ROCE: This is the ratio of profit to capital employed. It is expressed as :

$$ROCE = \frac{\text{Profit}}{\text{Capital employed}} \times 100\% \text{ (ACCA, 2008)}$$

or

$$ROCE = \frac{\text{Profit before finance charges and tax}}{\text{Average capital employed}} \times 100\% \text{ (Sowden-Service, 2009)}$$

ROCE for the current year should be compared to; ROCE of the prior year; a target ROCE; the cost of borrowing; other companies' ROCE in the same industry.

Please note:

Capital employed = Shareholders' equity + Non-current liabilities

or

Capital employed = Total assets – current liabilities.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out the various statistical methods undertaken in the study. Effort was made to explain and justify the appropriateness of the statistical procedures used. Though effort was made to obtain the required information from each sampled firm which met the criteria for final selection requirements, the firms whose information are used in the study are those which responded to the questionnaire and made requested financial data available for the study.

This chapter starts by explaining the sampling design adopted for the study and how the final sample firms were selected after some conditions were applied, in order to achieve the objectives of the study. These included consolidation of the original list of level 9 contractors on the CIDB register, applying the minimum requirements that must be met before a firm could be selected and further categorization of sample firms. The basis for further categorization of the firms is explained and the reasons for constraint on geographical area for the study are also stated. Assumptions are listed, explained and justified. Definitions of terms and concepts are given and further explanations stated where considered important.

3.2 Sampling Design

A sample is defined by Cooper and Schindler (2008) as part of the target population, carefully selected to represent that population. The basic idea of sampling is that by selecting some of the elements in a population, we may draw conclusions about the entire population.

The global population for this study comprises all registered contracting firms registered on the register of contractors of the CIDB, as at September 2008. The target population are registered level 9 contracting firms. Level 9 contracting firms on the CIDB register of contractors are the

highest class of contracting firms in South Africa. These firms have no limits on the value of projects they can undertake. They are considered to have the organizational structure, human capital, strategic assets and the financial resources to be able to diversify meaningfully.

As at the said date (September 2008), there were 83 registered entities on the CIDB as level 9 contracting firms. Please refer to Appendix D1 for the list of level 9 contracting firms. It was discovered that some level 9 contracting firms registered different business units on the same register. This was considered a duplication of data and potential source of error on the study. The initial list of 83 was therefore consolidated into 48 in order to address this challenge. Please refer to Appendix D2 for the consolidated list of level 9 contracting firms for details. The consequences of this consolidation were accordingly addressed in the analysis done on financial statements of the affected firms. The 48 firms were later reduced to 17 after some other conditions were applied to select the final study sample group (see section 3.2.1).

3.2.1 Sample selection process

The composition of the CIDB register of contractors lends itself to the stratified sampling method, which is adopted in this study. This approach involves stratifying the population into mutually exclusive sub-populations or strata (see Table 3.1 for a summary of sampling methods). The approach is useful when studying characteristics of certain population sub-groups, which in this particular circumstance, is the established contracting firms on level 9. According to Leedy and Ormrod (2005), stratified random sampling has the advantage of guaranteeing equal representation of each of the identified strata. This assertion should however be tested in future studies on this subject.

The CIDB register is in different strata (levels 1-9). Therefore, by choosing level 9 contracting firms, the study employed the stratified sampling method for the first selection of the target population. Within the selected stratum, other conditions for selection which were further applied were:

- A firm must have a minimum of five years' work experience in the construction industry in South Africa;
- a firm must be actively operating its business in South Africa;
- a firm must have an administrative office in South Africa;
- a firm must have its head office in Gauteng, South Africa.

These conditions were applied to ensure that the study focused only on firms which are actively operating in the construction industry and have physical presence in the country at the time. The study was restricted to Gauteng because it is the nerve centre of economic activities in South Africa. Furthermore, constraints on time and resources had their impacts on the decision to keep the study within the Gauteng Province. Since most of the data for the study would eventually have been publicly published by the head offices of these firms, the criteria listed above are justified. After these criteria were applied, the firms sample size reduced from 48 to 17 entities.

3.2.2 Selection of respondents within sample firms

The selection of the representatives of the sample firms was not according to a particular formulated process. However, the principle of the approach was consistent. The Gauteng headquarters of the final list of sample firms were first approached via telephone calls. This was done to inform the firm that there was a research being undertaken at the University and that some form of assistance was needed with respect to data.

The experience was that the staff member responding to the call asked few questions about the study and clarified what specific information was needed for the research. At this stage, verbal responses were provided by the student. The personnel then requested for the questionnaire to be sent via an electronic mail or a fax line. The staff member took it upon him or herself to get the questionnaire completed by a representative best qualified to do so. This was then followed by several follow-up phone calls until the requested information was made available by the organization.

Table 3.1: Comparison of probability sampling designs

Type	Description	Advantages	Disadvantages
Simple random	Each population element has an equal chance of being selected into the sample. Sample drawn using random number table/generator.	Easy to implement with automatic dialing (random digit dialing) and with computerized voice response systems.	Requires a listing of population elements. Takes more time to implement. Uses larger sample sizes. Produces larger errors. Expensive.
Systematic	Selects an element of the population at a beginning with a random start and following the sampling fraction selects every *kth* element.	Simple to design. Easier to use than the simple random. Easy to determine sampling distribution of mean or proportion. Less expensive than simple random.	Periodicity within the population may skew the sample and results. If the population list has a monotonic trend, a biased estimate will result based on the start point.
Stratified	Divides population into sub-populations or strata and uses simple random on each strata. Results may be weighed and combined.	Researcher controls sample size in strata. Increased statistical efficiency. Provides data to represent and analyze sub-groups. Enable use of different methods in strata.	Increased error will result if sub-groups are selected at different rates. Expensive. Especially expensive if strata on the population have to be created.
Cluster	Population is divided into internally heterogeneous sub-groups. Some are randomly selected for further study.	Provides an unbiased estimate of population parameters if properly done. Economically more efficient than simple random. Lowest cost per sample, especially with geographic clusters. Easy to do without a population list.	Often lower statistical efficiency (more error) due to sub-groups being homogenous rather than heterogeneous .
Double (sequential or multiphase)	Process includes collecting data from a sample using a previously defined technique. Based on the information found, a sub-sample is selected for further study.	May reduce costs if first stage results is enough data to stratify or cluster the population.	Increased costs if used indiscriminately.

Source: Copper and Schindler (2008)

3.3 Further Categorization of Samples

There was a need to further categorize the level 9 contractors in order to successfully undertake this study which set out to examine the relationships between diversification strategies and financial performance and growth among established South African contracting firms. At the time, there were six (6) categories of work that could be registered for, on the CIDB register; general building (GB); civil engineering (CE); mechanical engineering (ME); electrical engineering (EE); building excavations, shaft sinking and lateral earth support (SC) and structural steelwork fabrication and erection (SL).

Three categories of sample classification were introduced for the purpose of this study: undiversified, moderately diversified and highly diversified. The basis for further categorization was the registration for either GB or CE categories on the CIDB register. These two categories are considered the fundamental core construction activities on the register. If a firm was registered for either of two categories, it was qualified as undiversified. If a firm was registered for either of the two or both and additional categories, up to three in total, it was classified as moderately diversified. If a firm was registered for either of those two categories, both, and more than three categories, it was qualified as a highly diversified firm. The table below summarizes the criteria for further categorization of the firms;

Table 2.2: Classification of level 9 contracting firms

Category of registration on CIDB register	**Diversification classification**
General building or civil engineering only	Undiversified
General building or civil engineering or both, with an additional category up to three categories.	Moderately diversified
General building or civil engineering or both, and additional categories, more than three.	Highly diversified

3.4 Development and Administration of Questionnaires

Two separate questionnaires (Appendices B1 & B2) were developed and administered to senior management personnel of the undiversified and diversified firms respectively. This was done to gather additional information (apart from financial) which assisted in the analysis, comparison and detailed study of the strategies and business operations of the sampled firms, such as the

company's strategy on expansion; assessment of the firm's strength and weaknesses; assessment of factors influencing growth in the firm; challenges and threats to growth in the firm; barriers to diversification; company's diversification strategies and management structure. +Due to challenges experienced in gathering financial information from private firms included in the research, a table of ratios (Appendix C1) was prepared in order to overcome the challenge of requesting sensitive financial data.

3.4.1 Questionnaire structure

The questionnaires administered in the study have the following subdivisions;

- **Section A**: This section was used to solicit information on the background, experience and position of the personnel completing the questionnaire on behalf of the contracting firm.
- **Section B**: This section was used to solicit information on the profile of the contracting firm.
- **Section C**: This section solicits information on the firm's strengths and weaknesses.
- **Section D**: This section solicits information on the challenges and threats to the growth of the firm.
- **Section E**: This section solicits information on diversification in the firm.

3.5 Scales of Measurement

Measurement scales have a direct influence on the types and sophistication of the statistical procedure that would be used during data analysis for a study. Table 3.3 is a summary of the characteristics of different measurement scales.

Marczyk et al., 2005 consider nominal and ordinal data as non-metric data, and interval and ratio data as metric data. The first three scales were employed in this study. The first two scales (nominal and ordinal) were adopted in the questionnaires while the interval scale was employed in the section on financials.

Table 3.3: A summary of measurement scales, their characteristics, and their statistical implications

Measurement Scale	Characteristics of the Scale	Statistical possibilities of the Scale
Nominal scale	A scale that measures in terms of names or designations of discrete units or categories.	Enables one to determine the mode, percentage values, or the chi-square.
Ordinal scale	A scale that measures in terms of such values as more or less, larger or smaller, but without specifying the size of the intervals.	Enables one to determine the median, percentile rank, and rank correlation.
Interval scale	A scale that measures in terms of equal intervals or degrees of difference but whose zero point, or point of beginning, is arbitrarily established.	Enables one to determine the mean, standard deviation, and product moment correlation; allows one to conduct most inferential statistical analyses.
Ratio scale	A scale that measures in terms of equal intervals and an absolute zero point of origin.	Enables one to determine the geometric mean and the percentage variation; allows one to conduct virtually any inferential statistical analysis.

Source: Leedy and Ormrod, 2005.

3.6 Data Types

3.6.1 Primary and secondary data

Primary data are data collected for the first time and specifically for the project at hand. These are data generated for a specific project, either via questionnaires, interviews, surveys, experimentation, observation, etc. Primary data does not exist unless it has been generated in the process of a research project.

Secondary data are data that already exist in one form or the other, but which are not primarily collected for the purpose of the project at hand. Lancaster (2005) is of the opinion that no new

data should be collected until existing data are examined. In most cases, secondary data are usually the starting point of data collection. Secondary data could include reports, information on the internet, registers, government surveys, reports, articles, academic publications i.e. Journals, essays, web pages, government publications, online indexes and catalogues, commercial research organizations, company annual reports, conference papers, industry publications, etc. The secondary data used in this study are the financial statements of the participating firms.

3.6.2 Quantitative and qualitative data

The distinction between quantitative and qualitative studies is based on the kind of information used to study a phenomenon. Quantitative relies on numbers and figures while qualitative base their accounts on qualitative information; words, sentences and narratives. Quantitative data is data which can be expressed numerically or classified by some numerical value. Qualitative data, on the other hand are easily applicable to phenomena which cannot be or difficult to quantify and measured. Therefore, they cannot be numerically analysed (Ghosh and Chopra, 2003).

In this study, quantitative data were extracted from audited financial statements of companies for analysis. The outcomes to be measured; management performance, are phenomena which are measurable via numerical data which can be quantified and analysed by using quantitative data from financial statements.

3.7 Data Collection

Data was collected for the study in two ways; primary data collected through the distribution of self-administered questionnaires via electronic mails and secondary data collected in the form of five (5) year audited financial statements from the different firms, reports, journal articles, textbooks, etc.

The financial data collected were five year financial statements (2004-2008). The communication approach in this study included electronic mail messages and direct contact (collection of financial statements). Follow ups were done via telephone and electronic mails. Some firms declined to participate due to the confidentiality of the requested financial data,

while others were not interested in assisting with the research. One of the sampled firms however, assisted with the questionnaire but did not provide financial data because the management the data sensitive.

3.8 Data Analysis

3.8.1 Descriptive and inferential statistics

According to Fellows and Liu (2008), there are two classifications of statistics: descriptive and analytical statistics. Descriptive statistics are used to express the important features of a population (population parameters), intended sample or sample obtained (samples statistics) numerically; they include percentages and other numerical descriptors of the distribution under examination. Descriptive statistics include mean, median mode, variance, standard deviation, percentiles, etc.

Analytical or inferential statistics on the other hand allow one to make inferences from the data obtained in a study. Please refer to Table 3.4 for some statistical tests available to researchers. Kolmogorov Smirnov test for normality was carried out on the four sets of data used in the study. This was done to establish the distribution of the data. The consistency of the questionnaires was assessed by reliability analysis to estimate the extent to which a measurement taken with multiple-item scale (questionnaire) reflects mostly the true score of the dimension that is to be measured, relative to the error. The internal consistency of the questionnaires was measured by Cronbach's alpha coefficient. The range of the alpha is from 0 to 1. As a rule of thumb the alpha of a scale that equals 0.70 or greater is acceptable for items to be reliable. This assessment is based on the correlations between the individual items or measurements that make up the scale, relative to the variances of the items.

Combinations of parametric and non parametric tests were used on four different data sets in the study. These data sets represent data on return on capital employed; return on equity; return on total asset and profit margin. A test of normality of these data revealed that some of the data represent normal distribution while others are not normally distributed. In instances where the data are normally distributed, parametric tests were carried out and non-parametric tests undertaken where normality is not established.

According to Naoum (1998), normality is a major requirement of the application of parametric tests. Non-parametric tests on the other hand are distribution-free and flexible in application, according to Fellows and Liu (2008).

The t-statistic is a parametric test which is used to compare the means of two samples. According to Pagano (1981), the two fundamental assumptions underlying the use of the t-test are: normality of distribution and homogeneity of variances. In order to counter the effect of the assumption of homogeneity of variance, the statistic employed is the two independent samples t-statistic that assumes unequal variances. The Mann-Whitney U test on the other hand was adopted for the analysis of two independent samples where normality of data is not established.

Performance differences across the undiversified, moderately diversified and highly diversified firms were analysed using one way analysis of variance (ANOVA), which, according to Fellows and Liu (2008), is used to analyse the differences among the means of categorised groups. The ANOVA is used where homogeneity of variances are established and K-samples Kruskal-Wallis one-way ANOVA where homogeneity of variances was not established.

3.8.1.1 Principal Components Analysis

In statistical analysis, variables are sometimes combined in order to simplify data analysis and interpretation. Factor analysis is a multivariate method which analyses relationships among correlated variables which are difficult to interpret, in terms of a few conceptually meaningful, relatively independent factors, each of which represents some combination of original variables (Comrey and Lee, 1992).

One of the several ways of conducting factor analysis is principal component analysis, which was adopted in this study. Component analysis was carried out on the variables measured on the questionnaires in order to group them and simplify the interpretation. Components are interchangeably called factors in this report. The main applications of component analysis techniques are to reduce the number of variables and detect structure in the relationships between variables, i.e. to classify variables. It should be noted that these variables must be inter-correlated before a component analysis is run, because they are supposed to be measuring the same latent construct.

The procedure was used to create a correlation matrix among the original variables. This was done to check if the variables are not measuring the same thing. Highly correlated variables would mean that the variables are measuring the same thing and can be combined. Low correlation on the other hand would mean that the variables are measuring distinctively different things. In this case, separate components can be created for each variable. When the original matrix is created, the variables are standardized and the initial total variance is equal to the number of variables. This is because each standardized variable has a variance equal to 1, for a correlation matrix created.

Communalities of the variables show the proportion of each variable's variance that can be explained by the principal components (see Appendices G1, G5, G9, G13 and G17).These are Appendices for different sections of the questionnaires. The general criterion is that with less than 30 variables, the average communality after extraction should be greater than 0.7. Eigenvalues are the variances of the principal components. The first component always accounts for the most variance. Therefore, it will have the highest eigenvalue. The next component accounts for most of what is left of the total variance and so on. This translates that each successive component accounts for less and less variance. *Extraction and rotation sums of squared loadings* are determined by the number of principal components with eigenvalues with value of 1 or greater, which the study was interested in retaining. Please refer to Appendices G2, G6, G10, G14 and G18 for *extraction and rotation sums of squared loadings* for the created components for different sections of the questionnaires.

The variables with the highest correlations to a particular component which forms a lateral construct is grouped together under a component. That component explains the common characteristics that are supported by the variables which are significantly correlated to that component. In essence, the principal components explain a set of observed variables.

Component loadings are the values which explain how the variables are closely related to each one of the components discovered. The matrix structure of the correlations between the variables and created components were rotated about their axes without changing the relative locations of the points to each other. However, the coordinates of the points (component loadings) had to change. This was done to establish a clear pattern of component loadings of the variables Please see Appendices G3 and G4; G7 and G8; G11 and G12; G15 and G16; and G19 and G20 for *initial and rotated component matrices* for different sections of the questionnaires. Rotation has the effect of optimizing the component structure and the relative

importance of the components is equalized. Such as components that are marked by high loadings for some variables and low loadings for others.

The component loadings in the relevant Appendices are the correlations between the variables and the components, which can have values ranging from +1 to +1.Absolute values of the loadings are normally considered in the interpretation of a component.

The variances explained per section are recorded in the relevant Appendices for each section. It should be noted that components are not correlated to each other. Component analysis was carried out on the questionnaire data under sections C, D and E.

Table 3.4: Recommended statistical techniques by measurement level and testing

Measurement Level	One-Sample case	Two-Samples case		K-Samples case	
		Related samples	Independent samples	Related samples	Independent samples
Nominal	• Binomial • X^2 One-test sample	• McNemar	• Fisher exact • X^2 Two-samples test	• Cochran Q	• X^2 for K samples
Ordinal	• Kolmogorov-Smirnov one-sample test • Runs test	• Sign test • Wilcoxon matched-pairs test	• Median test • Mann-Whitney U • Kolmogorov-Smirnov • Wald-Wolfowitz	• Friedman two-way ANOVA	• Median extension • Kruskal-Wallis one-way ANOVA
Interval and ratio	• t-test • Z-test	• t-test for paired samples	• t-test • Z test	• Repeated measures ANOVA	• One-way ANOVA • n-way ANOVA

Source: Cooper and Schindler (2008):

3.8.2 Test of hypothesis

In the words of Leedy and Ormrod (2005), a hypothesis is a logical supposition, a reasonable guess or an educated conjecture. It is a speculation on how the study will turn out. Christensen, (2001) asserts that a hypothesis attempts to explain, predict and explain the relationship between two or more variables being studied. The following are the two hypotheses tested in this study;

- **Hypothesis (H1):** The financial performance of diversified firms is better than that of undiversified ones

H_O : $\mu 1 = \mu 2$

H_A : $\mu 1 \neq \mu 2$

Where:

$\mu 1$ = sample $mean_1$

$\mu 2$ = sample $mean_2$

H_o = null hypothesis

H_A = alternative hypothesis

- **Hypothesis (H2):** The financial performance of established contracting firms (undiversified, moderately diversified and highly diversified) is linearly related to their diversification strategies. It is expressed as follows;

H_O : $\mu 1 = \mu 2 = \mu 3$

H_A : $\mu 1 \neq \mu 2 \neq \mu 3$

Where:

$\mu 1$ = sample $mean_1$

$\mu 2$ = sample $mean_2$

$\mu 3$ = sample $mean_3$

H_o = null hypothesis

H_A = alternative hypothesis

- **Note**: If the p value is less than the significance level (0.05 for this study), the null hypothesis is rejected (if p < α, reject null). If p is greater than or equal to the significance level, the null hypothesis is not rejected (if p ≥ α, don't reject null).

A hypothesis could be a one or two-tailed tests. According to Cooper and Schindler (2008), a one-tailed test or directional test places the entire probability of an unlikely outcome into the tail specified by the alternative hypothesis while the two-tailed test, or non-directional test considers two possibilities. The two hypotheses tested in this study are one-tailed tests.

In hypothesis testing, two kinds of hypotheses are used; null and alternative hypotheses. The null hypothesis is a statement based on empirical fact (if available) or logical assumption or the standpoint of a researcher between a parameter and the statistic being compared to it. Therefore we test a claim from the information from the sample under investigation. A hypothesis enables one to make inferences on population parameters. The null hypothesis is either rejected or fails to be rejected, based on the sample data collected.

It is considered worthwhile to briefly mention likely errors that could be inherent in hypothesis testing. Marczyk et al. (2005) record that type I error (α) is committed when a true null hypothesis is rejected. The α value is called the level of significance and is the probability of rejecting the true null (probability of type I error). A type II error (β) on the other hand is committed when one fails to reject a false null hypothesis.

3.8.3 Tests of significance

There are two major types of tests of significance that can be used to test hypotheses for a study; parametric and non-parametric tests (Fellows and Liu, 2008). It is important that an appropriate test be chosen before a test of hypothesis is carried out.

3.8.4 Probability values (p values)

The p-value represents the probability of chance error in determining whether a finding is valid and thus representative of the population (Marczyk et al., 2005). In essence, this represents the probability of a type I error that must be assumed if the null hypothesis is rejected.

In interpreting the hypothesis tests, the p value is compared to the significance level (α), which dictates whether the null hypothesis is either rejected or not rejected. If the p value is less than the significance level, the null hypothesis is rejected (if $p < \alpha$, reject null). If p is greater than or equal to the significance level, the null hypothesis is not rejected (if $p \geq \alpha$, don't reject null).

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION OF RESULTS

4.1 Introduction

This study aims to investigate the relationships between diversification strategies adopted by established contractors in South Africa and the financial performance and growth in these firms. The study seeks to answer the following research question: *does diversification bring about better financial performance and growth in established contracting firms in South Africa?* This chapter presents the outcome of the analyses carried out on the questionnaires administered to the sampled firms and financial information received from them.

Each subsection of the questionnaires was analysed and comparisons were made between undiversified, moderately diversified and highly diversified. Firms' financial performance and growth is measured by ROCE, ROE, ROTA and PM. These measures were tested to determine if they differ significantly, on average, among diversified and undiversified companies, using t test, Mann Whitney test, one way analysis of variance (ANOVA) and Kruskal-Wallis test.

Data entry and capturing on this study was done with Microsoft Excel 2003. All the analyses were carried out using the Statistical Package for Social Sciences (SPSS) version 13.

4.2 Analysis of Primary Data (Questionnaires)

Questionnaires were administered to a consolidated list of 17 firms. Nine (9) of these firms returned the questionnaires. These translate to a response rate of 53% on the questionnaires. The breakdown is shown in the following Table.

Table 4.1: Summary of questionnaire administration and response

Category	Administered Questionnaires		Returned Questionnaires	
	(No.)	(%)	(No.)	(%)
Undiversified	8	47.06	3	17.647
Moderately diversified	6	35.29	3	17.647
Highly diversified	3	17.65	3	17.647
Total	17	100	9	52.941

As noted earlier in the report, there are two separate questionnaires which were designed and administered, i.e. for undiversified and diversified firms. However, the explanations of the analyses follow the order of different sections of the questionnaires in order to have a better mental tracking of the analyses and interpretation of results. It should be noted that some sections and subsections apply specifically to undiversified firms and others to diversified firms. In order to avoid confusion in the analyses that follow in this section of the research report, the following table was prepared to indicate the group that each section applies.

Table 4.2: Breakdown of questionnaire analysis

Questionnaire sections and subsections	Title	Relevant group(s)
A	General information	All sampled firms
B	Company profile	All sampled firms
C (comprising C1 and C2)	Assessment of company's strengths and weaknesses	All sampled firms
D	Challenges and threats to the growth of the firms	All sampled firms
E (subsections E1-E6)	Diversification in company	Separate analyses for undiversified and diversified firms
E7	Motivation of firm's diversification strategy	All sampled firms
E8	Post diversification experience	Diversified firms only
E9	Barriers to diversification strategy	All sampled firms
E10	Factors influencing decision not to diversify	Undiversified firms only

4.2.1 Test of reliability

Cronbach's Alpha is a coefficient (a number between 0 and 1) that is used to rate the internal consistency (homogeneity) or the correlation of items in a test or questionnaire. It assesses the degree to which a set of items measures a single undimensional latent construct. If a test has a strong internal consistency, most measurement experts agree that it should show only moderate correlation among items (0.70 to 0.90).

The Cronbach's Alpha coefficients are at least 0.70 (70%) for all the sections except subsection E8 with an alpha coefficient of 0.005 (0.5%). This shows that the questions consistently assessed the concept in each of the respective sections and subsections except in section E8. This means that variables under section E8 are not sufficiently inter-correlated to combine to yield a latent construct, i.e. a factor. Details of the results of reliability are contained in Appendix E.

4.2.2 Section A: General information

Subsection A (1) on the questionnaires solicit information on the rank or position of the personnel completing the questionnaire on behalf of the firm. Out of total of nine (9) questionnaires returned, three (3) were completed by top level managers and six (6) by middle level managers, which represent 33.33% and 66.67% of total response received respectively.

Subsection A (2) solicits information on the status of the personnel completing the questionnaire; owner, joint owner or an employee. There were seven (7) responses received under this subsection and all of them were employees. This represents 77.78% of response received. There was no response to this subsection from two of the sampled firms.

4.2.3 Section B: Company profile

Subsection B (1) of the questionnaires was used to classify the firms based on their areas of specialisation in the industry. The breakdown of the responses in Appendix F1 revealed that 100% of respondents specialise in Civil Engineering; 77.78% specialise in General Building

works and 55.57% specialise in Mechanical Engineering. These three highest percentages are distributed among the three categories; undiversified, moderately and highly diversified firms respectively. These are the three areas of specialisations where the undiversified firms provided information. The undiversified firms registered two responses under 'others'; infrastructure (pipelines) and rail track projects.

Subsection B (2) requested information on the corporate registrations of the sampled firms. Appendix F2 reveals that all the undiversified firms are privately owned, while all the moderately and highly diversified firms are public owned and registered with the Johannesburg Stock Exchange (JSE). None of them is registered as a close corporation.

Subsection B (3) solicits information on the expansion strategies adopted by the firms to grow their businesses. Appendix F3 shows that all the respondent firms responded that they use internal capacity expansion as their strategy. One of the moderately diversified firms however chose mergers as one of its strategies for expansion. Acquisitions and joint ventures are also common across the three categories of firms.

Subsection B (4) solicits information on the international operations of the firms. Appendix F4 shows that all the three categories of firms responded that they had operations outside the boarders of South Africa. Moderately and highly diversified firms have the highest responses with a score of 33.34% each, with undiversified firms with the lowest score of 22.23%. 11.12% of the respondents, from the undiversified group responded that they did not have international operations.

Subsection B (5) requests information on the international operations of the firms, with respect to the number of countries in which they have international operations. Appendix F5 shows the following firms with the highest number of international operations; Murray and Roberts (highly diversified firm) operates in ten (10) countries; Stefanutti Stocks Holding (moderately diversified firm) operates in nine (9) countries and Wilson Bayly Holmes-Ovcon (WBHO) (moderately diversified firm) operates in seven (7) countries. Only Trencon (undiversified firm) does not have operations outside the borders of South Africa.

4.2.4 Section C: Assessment of company's strengths and weaknesses

4.2.4.1 Subsection C1: Current status of the firms

Subsection C1 was used to obtain information on the firm's current strengths and weaknesses. Appendices G1 to G4 show the outcome of factor analysis for this section. The result reveals that the variables explained a total of 95.5% of the variance. The average communality after extraction in this subsection is 0.96.

The results show that the following variables with the associated component loadings are correlated to independent lateral constructs:

- component 1: '*use information and communication technologies'(-0.897); 'adoption of black economic empowerment' (-0.891); 'high quality of products and services' (0.854); 'skilled and competent management staff' (0.634);* and *'ability to access and retain highly qualified subcontractors and specialist labour' (0.533)*;
- component 2: *'goodwill and brand name of the enterprise' (0.843); 'professionalism (ethical practices) and reputation' (0.826); 'fixed asset base' (0.753); 'sound financial management practices' (0.722); 'project delivery to budget and time' (-0.694); and* 'a*dequate plant and equipment' (0.689);*
- component 3: *'flexibility in operation and company organization structure' (0.989); 'avoidance of adversarial postures during contract execution' (0.818); 'ability to build long term relationships with customers' (-0.679);* and *'high overhead costs' (0.626);*
- component 4: *'provision of after sale services and support to clients' (0.875);* and '*creativity and innovation in project delivery process' (0.875);*
- component 5: *'skilled and competent technical staff' (0.932); 'highly trained operatives' (0.811)* and '*age of company and experience*' *(-0.609);*
- component 6: *'access to credit and finance (suppliers, banks, stock market, subcontractors, etc)' (0.928);* and '*financial base and ability to support client financially' (0.771).*

The results of the component analysis of section C1 reveal that some variables are positively correlated, while others are inversely correlated. The minus sign indicates an inverse or a negative relationship and the absence of a sign indicate a direct or positive

relationship. The positively correlated variables are interpreted as strengths, while the negatively correlated variables are interpreted as weaknesses.

The structures of component loadings in Appendix G2 reveal that component 1 has the maximum variance of 37.96% and 19.75% of the total variance explained, before and after rotation respectively. Based on the variables that are loaded to component 1, the theme explained can be summarised as: information technology; implementation of BEE policy; and quality of products, services and human resources. It can be inferred that lack of use of information and communication technologies and inability to adopt black economic empowerment policy are weaknesses experienced by the firms, as shown under component 1 due to the inverse correlations.

Component 2 has the next highest variance of 20.36% and 19.67% of total variance explained, before and after rotation respectively. Based on the variables that are correlated to component 2, the underlying theme explained by component 2 can be summarised as: goodwill and reputation; fixed asset base and financial management practices; and adequate machinery. Inability to deliver projects to budget and time is identified as a weakness under component 2 due to the inverse correlation identified.

Component 3 has the next highest variance of 12.67% and 16.51% of total variance explained, before and after rotation respectively. Based on the variables that are correlated to component 3, the theme explained by component 2 can be summarised as: flexibility in operations and organisational structure; favourable disposition during contract execution, long term relationships with clients and high overhead costs. Due to inverse correlation, inability to build long term relationships with customers is identified as a weakness under component 3.

Component 4 has a variance of 10.48% and 13.47% of total variance explained, before and after rotation respectively. The underlying theme identified in the variables that are correlated to component 4 are: innovation and customer care.

Component 5 has a variance of 8.33% and 13.19% of total variance explained, before and after rotation respectively. The common themes of the variables which are correlated to component 5 are: skills level and training of staff; and age and experience of the firm. The

age and experience of the firm was identified as a weakness under component 5 due to the inverse correlation.

Component 6 has a variance of 5.72% and 12.94% of total variance explained, before and after rotation respectively. The common theme of the variable which are correlated to component 6 is access to finance.

4.2.4.2 Subsection C2: Factors that have influenced firm growth

Subsection C2 was used to extract information on the influence of variables on the growth of the contracting firm. Appendices G5 to G8 are the results of factor analysis for this section. The result reveals that the variables explained a total of 94.3% of the variance. The average communality in this subsection is 0.94.

The results show that the following variables with the associated component loadings are correlated to independent lateral constructs:

- component 1: '*adequate plant and equipment' (0.946); 'project delivery to budget and time' (0.938); 'financial base and ability to support client financially'(0.804); 'access to credit and finance (suppliers, banks, stock market, subcontractors, etc) (0.794) ; 'creativity and innovation in project delivery process' (0.707); provision of after sale services and support to clients' (0.698); 'skilled and competent management staff' (0.681)'* and '*fixed asset base' (0.589);*
- component 2: *'adoption of joint venture and alliances with other companies' (0.920); 'use of information and communication technologies' (0.878); 'adoption of black economic empowerment policy' (0.875); 'avoidance of adversarial postures during contract execution' (0.762); 'professionalism (ethical practices) and reputation' (0.669);* and **'***high quality of products and services' (-0.632)*;
- component 3: *'ability to access and retain highly qualified subcontractors and specialist labour' (0.897); 'sound financial management practices' (0.878);* and *'ability to build long term relationships with customers' (0.700)*;
- component 4: *'highly trained operatives' (0.980); 'skilled and competent technical staff' (0.842);* and *'flexibility in operation and company organizational structure' (0.764);*

- component 5: *'goodwill and brand name of the enterprise' (0.800)* and *'age of company and experience' (0.656);*
- component 6: '*high overhead cost' (0.929).*

The structure of component loadings in Appendix G6 reveals that component 1 has the maximum variance of 38.39% and 23.59% of the total variance explained, before and after rotation respectively. Based on the variables that are loaded to component 1, the common themes explained can be summarised as: adequacy of required construction plant; efficiency and innovation in project delivery; access to finance; availability of skilled management staff; and customer care.

Component 2 has a variance of 21.44% and 20.66% of total variance explained, before and after rotation respectively. The underlying themes of the variables that are correlated to component 2 are: alliances with other firms; use of information and communication technologies; adoption of government's BEE policy; favourable disposition during contract execution; reputation; and high quality of products and services. The variable, *'high quality of products and services'* has an inverse correlation to component 2. This translates that this variable does not directly contribute to the growth of a firm.

Component 3 has a variance of 11.76% and 15.60% of total variance explained, before and after rotation respectively. The themes of the variables that are correlated to component 3 are: quality of human resources; and financial and relationship management.

Component 4 has a variance of 9.60% and 13.80% of total variance explained, before and after rotation respectively. The themes of the variables that are correlated to component 4 are: staff competence; and flexibility in operation and organizational structure.

Component 5 has a variance of 8.03% and 10.84% of total variance explained, before and after rotation respectively. The themes of the variables that are correlated to component 5 are: reputation; and age and experience of firm.

Component 6 has a variance of 5.11% and 9.85% of total variance explained, before and after rotation respectively. The only variable correlated to component 6 is high overhead costs.

4.2.5 Section D: Challenges and threats to the growth of the firms

Section D was used to assess both challenges and threats to the growth of a contracting firm, as a basis for ameliorating them. The results reveal that the variables explained a total of 86.5% of the variance in this section. The average communality for this section is 0.87. The results of this section are contained in Appendices G9 to G12.

The results show that the following variables with the associated component loadings are correlated to independent lateral constructs:

- component 1: *'government's policy of black economic empowerment' (0.944); 'adoption of targeted preferential procurement system' (0.921); 'projects geographically dispersed' (0.8676); 'globalization (allows entry of bigger and better equipped firms as competitors)' (0.874); 'adoption of joint ventures and alliances with other companies' (0.822); 'fluctuating demand and project types' (0.816); 'low flexibility in operation and company organization structure' (0.754); 'low financial base and access to credit and finance (suppliers, banks, stock market, subcontractors, etc.)' (0.684); 'over specialization in operation and market already saturated' (0.682);* and *'high establishment cost to maintain branches' (0.651);*
- component 2: *'lack of technical skills for certain types of projects' (0.929); 'high overhead cost: makes some projects unprofitable' (0.887); 'lack of access to adequate plant and equipment' (0.807);* and *'young company and inexperienced – clients unwilling to commit projects to us' (0.647);*
- component 3: *'low entry barrier and use of lowest bid competitive tendering' (0.968)*.

Component 1 has a variance of 60.22% and 45.90% of total variance explained, before and after rotation respectively (see Appendix G10). The themes of the variables that are correlated to component 1 are: policy on HDI; industry alliances; saturation and high competition in the market; uncertainty in the industry (demand, project types and location); lack of access to finance; low flexibility in operation; and high establishment costs.

Component 2 has a variance of 16.37% and 25.21% of total variance explained, before and after rotation respectively. The themes of the variables that are correlated to component 2 are: lack of required skills; high overhead costs; lack of access to required construction plant; and lack of experience.

Component 3 has a variance of 9.87% and 15.35% of total variance explained, before and after rotation respectively. The underlying theme of the variable that is correlated to component 3 is lack of entry barrier and lowest bid tendering approach.

4.2.6 Section E: Diversification in company

Subsections E1- E6 in the questionnaires were used to solicit specific information that is peculiar to undiversified and diversified firms respectively. Therefore, the discussions of these results are separated, starting with undiversified firms.

4.2.6.1 Subsection E1 – E6: Diversification in company (undiversified firms)

Subsection E1 obtained information on the interest of undiversified firms in diversification. Two (2) out of the three undiversified firms responded positively while the third firm registered no interest, as shown in Appendix F6.

Subsection E2 was used to extract information on the status of diversification. As shown in Appendix F7, the response reveals that 2 out of the 3 undiversified firms were not interested in diversification now and in the near future and 1 responded that the discussion about diversification had just been initiated at the senior management level of the firm.

Subsection E3 obtained information on the likely type of diversification that the undiversified firms might want to implement. Appendix F8 shows that 1 of the 3 respondents responded in favor of addition of new products – related to current business; movement into new markets (expansion of client base) – same products (existing); and shareholding in other businesses (without active participation).

Subsection E4 was used to solicit information on the mode of diversification that the firms would likely adopt if they diversify i.e. internal organic growth; external and both internal and external. Appendix F9 shows that 2 out of 3 responses were in favor of capacity building within the firms' core competence (internal organic growth); 1 response was in favor of

product diversity and move to new markets; both of which are under internal organic growth category. 1 response was in favor of acquisition and joint venture/alliance.

Subsection E5 obtained information with respect to how undiversified firms intend to achieve diversification. Appendix F10 shows that 2 out of 3 undiversified firms intend to use both internal and external human resources to achieve diversification. 1 of the respondents was not interested in diversification at present and in the near future.

Subsections E 6a and 6b were used to solicit information on the current management structures in the undiversified firms and the likely structures after the firms might have diversified. The breakdown in Appendix F11 reveals the following; 1 out of 3 of the sampled undiversified firms was not interested in diversification now and in the near future; the two management structures (functional and divisional) remain unchanged in 1 of the 3 sampled firms, as the current structure in undiversified firms and as likely structures after the firms might have diversified.

4.2.6.2 Subsection E1 – E6: Diversification in company (diversified firms)

Subsection E1 solicits information on the type of diversification existing in the firms. Appendix F12 shows that 3 of the 6 diversified firms responded in favor of movement into new markets (expansion of client base) – existing products and shareholding in other businesses (without active participation). 2 of 6 firms responded in favor of addition of new product(s) – related to current business.

Subsection E2 was used to solicit information on the options that best suits the firms in terms of the existing type of diversification, ranked in the order of importance. Appendix F13 reveals that 3 of 6 diversified firms responded that movement into new markets (expansion of client base) – existing products best suits their type of organization, followed by 2 of 6 firms responding in favor of addition of new products – related to current business and 1 of the 6 firms responding in favor of shareholding in other businesses (without active participation). On the other hand, 4 of 6 firms responded that retailing in related and unrelated goods least suit their type of organization, followed by 1 of 6 firms responding that

addition of new products (manufacturing) – unrelated to current business least suits their type of organization.

Subsection E3 solicits information on the mode of diversification adopted by the diversified firms; internal organic growth; external or both internal and external. As shown in Appendix F14, under the internal organic growth mode, 5 of 6 firms responded in favor of move to new markets and capacity building within firm's area of core competence while 3 of 6 responded in favor of product diversity. Under the external mode of diversification, all 6 firms responded in favor of joint venture/alliance as their mode of diversification, followed by 1 of 6 favor of merger and acquisition. There was no response for both internal and external.

Subsection E4 solicits information on how the diversification process was achieved; through internal management staff; external professional staff only or both internal and external staff. The responses (Appendix F15) reveals that 3 of 6 responded in favor of internal management staff of the firms and the other 3 of 6 responded in favor of both internal and external staff to achieve diversification.

Subsections E 5a and 5b were used to solicit information about the management structure of diversified firms before and after diversification. The breakdown in Appendix F16 reveals the following; the use of functional structure in the firms decrease from 3 to 2 of 6 after diversification; the use of regional administration in the firms remains unchanged in 2 of 6; the use of divisional structure increased from 2 to 3 of 6 after diversification.

Subsection E6 extracted information on the financial reporting structure of the diversified firms. All of the 6 sampled firms responded positively to the question; they all use a central financial reporting system. This is shown in Appendix F17.

4.2.6.3 Subsection E7: Motivation of firm's diversification strategy

Subsection E7 was used to obtain information on the factors that motivate a firm's diversification strategy. The results in Appendices G13 to G16 reveal that the variables explained a total of 84.8% of the variance in this section of the questionnaire. . The average communality for this section is 0.85. There are three (3) components from the list of twelve (12) variables being measured in this section.

The results show that the following variables with the associated component loadings are correlated to independent lateral constructs:

- component 1: *'hope to enjoy economy of scale through operational efficiencies' (0.941); 'hope to enjoy economy of scope through building of synergies in asset utilization' (0.921); 'attracted to more profitable business(es)' (0.903); 'need to engage unutilized resources' (0.901); 'desire to create a monopoly in the market' (0.684);* and *'present market is saturated-stiff competition' (0.600)*;
- component 2: *'cyclical and fluctuating demand in present market' (0.971); 'diversified companies appear to be doing better than us' (0.821); 'bandwagon effect – others are doing it' (0.818);* and *'need for growth (increase turnover and profit)' (0.650)*;
- component 3: *'improve the stability and survival of the company' (0.936);* and '*the need to spread risk-risk aversion' (0.866).*

Component 1 has a variance of 49.50% and 39.04% of total variance explained, before and after rotation respectively. This is shown in Appendix G14. The themes of the variables that are correlated to component 1 under subsection E7 are: anticipation of increased efficiency and profit; value extraction from unutilized resources; pursuit of higher market share; and better competition in the marketplace.

Component 2 has a variance of 24.06% and 24.20% of total variance explained, before and after rotation respectively. The themes of the variables that are correlated to component 2 are: uncertainty in existing business; favourable perception of diversification; conformity to business trend; and other reasons except growth. It is noteworthy that firms decide to diversify not because they are interested in the growth of the business. This is shown in inverse correlation of *'need for growth'* to component 2.

Component 3 has a variance of 11.26% and 21.57% of total variance explained, before and after rotation respectively. The themes of the variables that are correlated to component 3 are: stability; and risk balancing for the firm.

4.2.6.4 Subsection E8: Post diversification experience (diversified firms)

Section E8 was used to extract information regarding post diversification experience of diversified firms. The result of the reliability test carried out shows that the variables are not sufficiently inter-correlated to form a factor, with 0.5% score on reliability from this section of the questionnaire. It is suspected that the few responses received for this section may be responsible for the low score on reliability. Furthermore, for ease of reference during analysis, E8 was omitted from the questionnaires for undiversified firms. The details of the analysis for this section are found in Appendix F18. The following points could be deduced from the frequency table generated from the responses:

- 3 of 6 and 2 of 6 respondents agree and strongly agree, respectively, that the firm experienced steady growth in sale volume after diversification;
- 3 of 6 respondents agree that there was steady growth in overall profitability after the firm diversified;
- 3 of 6 respondents neither agree nor disagree that improvement in the utilization of resources was realized after diversification;
- 3 of 6 and 2 of 6 respondents neither agree nor disagree and strongly agree, respectively, that a boost in the corporate image of the firm was achieved, after diversification;
- 2 of 6 respondents disagree and agree that their firms achieved an edge over competitors, post diversification;
- 2 of 6 respondents agree and strongly agree that the firm's management structure had to change after diversification;
- 3 of 6 respondents neither agree nor disagree that more professionals and skilled staff have to be employed, after the firm diversified;
- 2 of 6 respondents disagree and agree that at a point, the firm had to divest its interest in some business to refocus its operation due to failure in such businesses, post diversification;
- 2 of 6 respondents disagree and neither agree nor disagree that the company did not enjoy economy of scope – build synergies in asset utilization, after diversification;
- 2 of 6 respondents disagree that it was not possible to achieve economy of scale because of production type – usually customized products, post diversification;

- 2 of 6 respondents strongly disagree and agree that their firms were unable to create a monopoly in the market, after diversification.

The responses in this subsection suggest that the implementation of diversification strategy may improve sales volume, increase overall profitability, boost corporate image and change a firm's management structure. The responses are in support of the notion that economy of scale can be achieved with customized products and that a monopoly can still be created post diversification.

The analyses show that there may be no significant changes to: the utilization of resources; edge over competitors; employment of professional and skilled staff; and business failures due to the implementation of diversification strategy. The responses reveal that there might be no benefit of economy of scope, i.e. synergies in asset utilization post diversification.

4.2.6.5 Subsection E9: Barriers to diversification strategy

Subsection E9 obtained information on barriers to achieving diversification in the construction industry. The result reveals the total variances explained to be 84.5%. There are three (3) components created from the list of twelve (12) variables being measured in this section. Appendices G17 to G20 show the details of the results.

The results show that the following variables with the associated component loadings are correlated to independent lateral constructs:

- component 1: *'there was not enough attention and investment to new business(es)' (0.964); 'inadequate planning before diversification was implemented' (0.956); 'unable to build sufficient synergy for profitable growth' (0.883); 'management has poor knowledge of new business environment' (0.860);* and *'too many peripherical activities unrelated to main business' (0.835)*;
- component 2: '*insufficient information about new market and customer preferences' (0.944); 'customers were reluctant to try out new products' (0.944); 'lack of transferable knowledge and technology and skills' (0.906); 'unaware of market restrictions through legislations against foreign firms' (0.817)* and **'***stiff competition in the new market and product' (0.634);*

- component 3: **'***need of services of professional consultants to help with the development of the strategy plan' (0.929)* and *'business was acquired by mistake' (0.541).*

Component 1 has a variance of 40.89% and 36.24% of total variance explained, before and after rotation respectively (see Appendix G18). The themes of the variables that are correlated to component 1 under subsection E9 are: management's lack of interest and knowledge on other businesses and poor planning and implementation of diversification strategy.

Component 2 has a variance of 32.17% and 33.20% of total variance explained, before and after rotation respectively. The themes of the variables that are correlated to component 2 are: management's and client's insufficient knowledge on diversification, management's lack of knowledge of government's protection of local firms against foreign firms and high competition in the new market.

Component 3 has a variance of 11.45% and 15.07% of total variance explained, before and after rotation respectively. The theme of the variables that are correlated to component 3 is: lack of the involvement of professional consultants on strategy development and business acquisition.

4.2.6.6 Subsection E10: Factors influencing decision not to diversify

The results from the analysis of this subsection, according to Appendix F19, show that:

- 2 of 3 respondents strongly agree that they are satisfied with the present level of growth in their companies.
- 1 of 3 agree that they consider diversification process to be too difficult and involving; they have inadequate resources (human, technical and financial); present market is not saturated and there are more opportunities; there is high cost involved in diversification; they prefer to be focused and specialized in present business; diversified companies are not doing better;
- 1 of 3 disagree that: they have insufficient knowledge of other types of businesses; present market is not saturated; there is high cost involved in diversification; prefer to be focused and specialized in present business; diversified business are not doing better.

- 1 of 3 strongly disagree that: they have insufficient knowledge of other types of businesses; they consider diversification process too difficult / involving; they have inadequate resources (human, technical and financial).

The responses in this subsection suggest that undiversified firms may have decided not to diversify due to the satisfaction with the current level of growth in their firms.

4.2.6.7 Subsection E11: Additional comments from respondents

This subsection obtained general observations and comments from the respondents that could help improve the study, which was not covered. One of respondents from a moderately diversified firm remarked that, '*over a certain size, large companies reach critical mass and cannot expand without a merger or acquisition'*. He further stated that *'mergers and acquisitions cannot work unless it is very carefully planned, managed, and done with a very high level of communication*'. There was a comment from one of the undiversified firms which is a specialist firm on rail track construction and maintenance that *'the industry they operate in, is small and dependent on decisions at Trans-Freight environment'*. There was another remark that *'the relevance of questions on the questionnaires be checked'*.

4.3 Analysis of Secondary Data (Financial Ratios)

Financial data was requested from a consolidated list of 17 firms. Eight (8) out of these 17 firms provided the requested information. One (1) of the firms declined the request for financial information, which it considered too sensitive to be released. This translates to 47.06% response rate on financial information. The breakdown of the response is provided in the following Table 4.3:

Table 4.3: Breakdown of firms that supplied financial data

Category	Administered questionnaires		Returned questionnaires	
	(No.)	(%)	(No.)	(%)
Undiversified	8	47.06	2	11.76
Moderately diversified	6	35.29	3	17.65
Highly diversified	3	17.65	3	17.65
Total	17	100	8	47.06

The details of the financial ratios are contained in section 2.13 and Appendix C2.

4.3.1 Descriptive statistics on financial data

Appendix H1 is the group statistics of the financial ratios for two independent groups of samples; undiversified and diversified firms, calculated from five year audited financial statements (2004 – 2008). Over this period (see figure 4.1), one can deduce from figure 4.1 that undiversified firms, on the average, have higher performance on three financial ratios out of four, than their diversified counterparts. The average ROCE, ROE and ROTA for undiversified firms are 38.38%, 62.7% and 5.14% respectively. These figures are higher than the corresponding average for the same financial ratios calculated from the financials of diversified firms which are 30.21%, 25.57% and 4.91% respectively, in the same financial periods. Diversified firms however have a higher average on the PM, with an average of 7.37% when compared to 6.76% by undiversified firms.

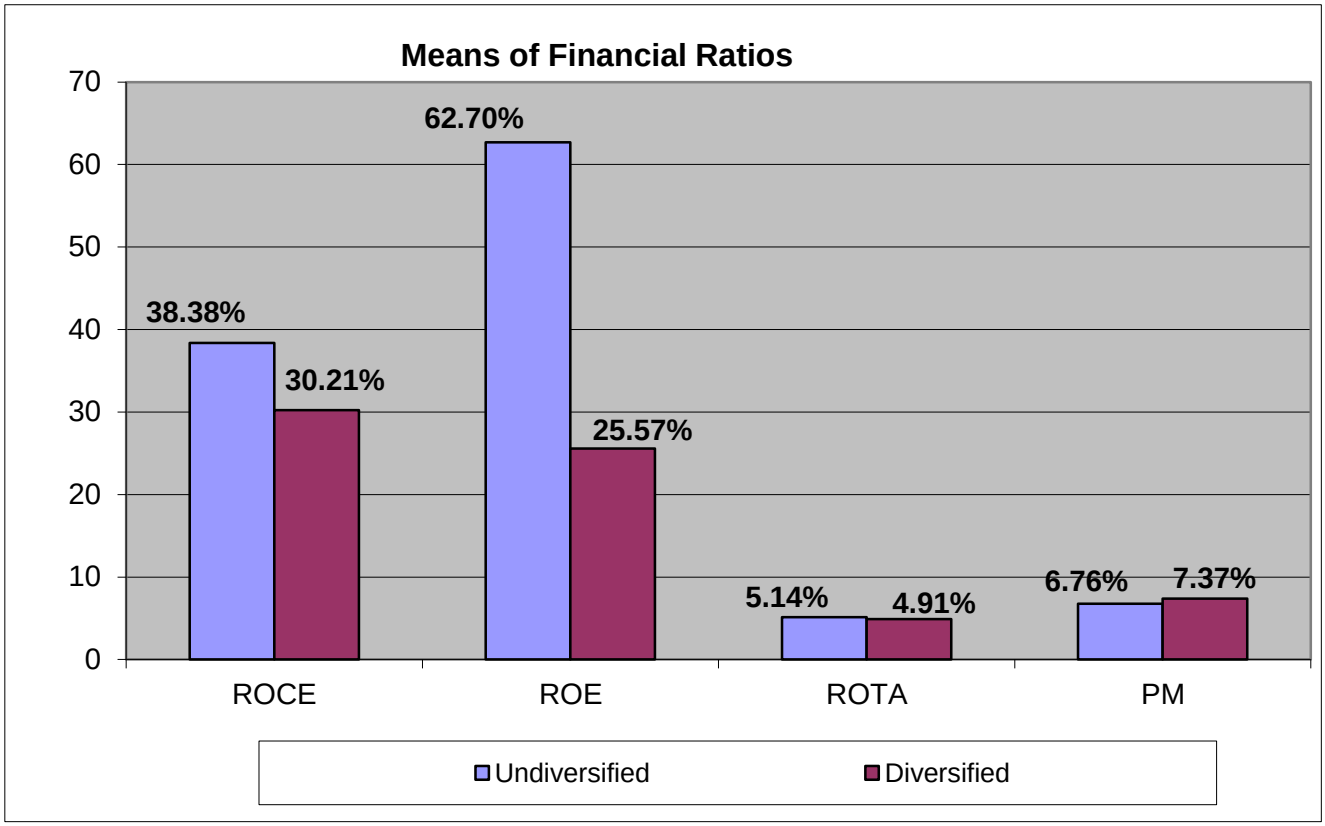

Figure 1: Graphical representation of the means of financial ratios for two independent samples

Appendix H2 is the group statistics of the financial ratios for three independent groups of samples; undiversified, moderately diversified and highly diversified firms, calculated from five year audited financial statements (2004 – 2008). Over this period (see figure 4.2), undiversified firms had the highest ROCE and ROE, followed by moderately diversified and highly diversified firms respectively. On ROTA, moderately diversified firms had the highest average, followed by undiversified and highly diversified firms respectively. Highly diversified firms had the highest average on PM, followed by undiversified firms, which is closely followed by moderately diversified firms.

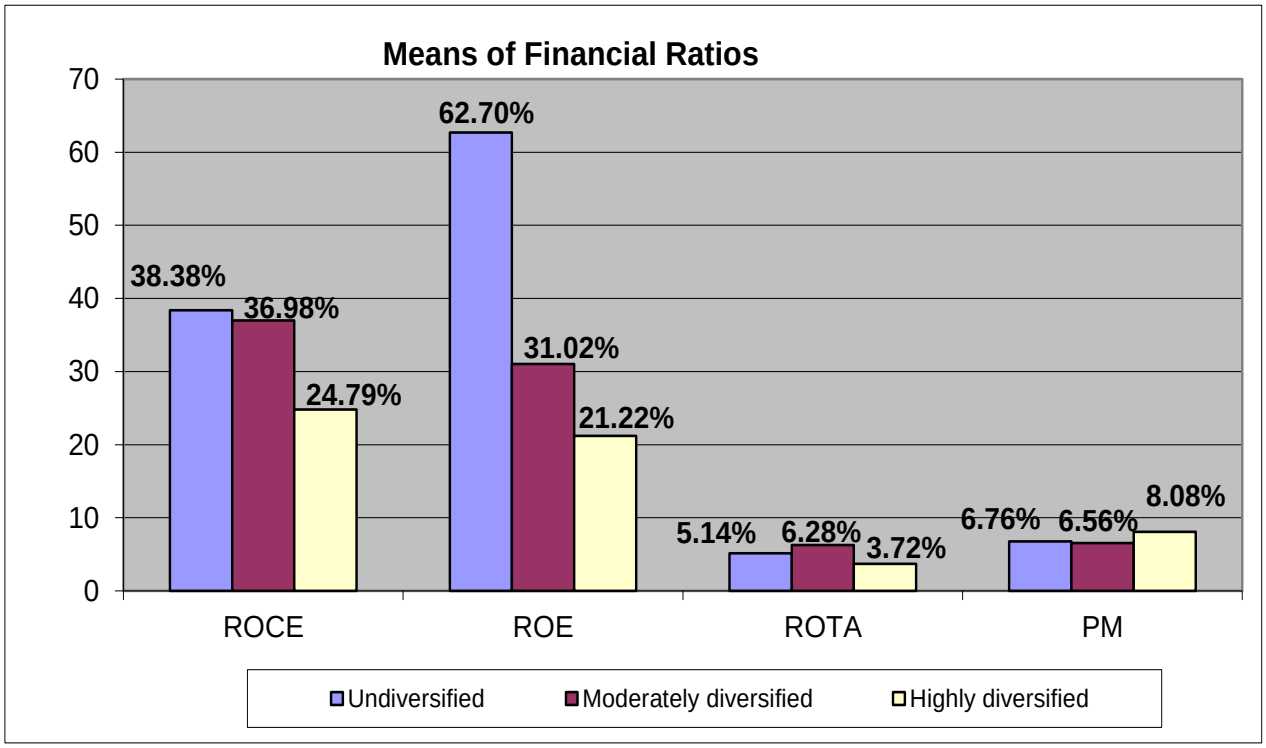

Figure 2: Graphical representation of the means of financial ratios for three independent samples

Results of the Test of Normality of Data

The results of the test of normality of the financial data received from the firms are displayed in Table 4.4. The p values from the tests were compared to the level of significance of 5% (0.05). The result of the test revealed that return on capital employed (ROCE) and return on total asset (ROTA) represent normal distribution while return on equity (ROE) and profit margin (PM) are not normally distributed.

Table 4.4: Kolmogorov Smirnov test for normality at 5% level of significance

Financial Ratio	P-value	Outcome
Return on capital employed (ROCE) (%)	0.264	Normal
Return on equity (ROE) (%)	0.027	Not normal
Return on total asset (ROTA) (number of times)	0.605	Normal
Profit margin (PM) (%)	0.024	Not normal

4.3.2 Test on two independent samples

Further to the test of normality, which established ROCE and ROTA to represent normal distribution, two independent samples t test was done on these financial ratios to establish whether performance and growth differ significantly between the undiversified and diversified firms.

One of the conditions for independent samples t test is the equality of variances. The result of Levene's test for equality of variances when equal variances were assumed for ROCE and ROTA at 5% level of significance resulted into probability values of 0.282 and 0.018 respectively. The result for ROCE supported the null hypothesis of equal variance because it is greater than 0.05, while it was rejected in the case of ROTA because the p value of 0.018 is lower. The result of this test is contained in Appendix H3. What this means is that the t test for ROTA would be done with equal variances not assumed, which is a provision in the calculation of t test.

The result of the t test at 5% level of significance, on ROCE and ROTA, with p values of 0.143 and 0.415 support the null hypothesis that there is no significant difference in the performance and growth of diversified firms in terms of their ROCE and ROTA. Appendix H3 contains the details of the result of this test.

Based on the test of normality carried out on the data, the results do not support that ROE and PM have normal distribution (Table 4.3). Therefore non parametric test (Mann Whitney test) was carried out on these sets of data, at 5% level of significance. The p values from this test for ROE and PM are 0.003 and 0.216 respectively. Please refer to Appendix H5 for details of this test.

The null hypothesis that there is no difference in the performance of undiversified and diversified firms is rejected for ROE but supported by PM. This translates that the data support that there is a significant difference in the performance and growth between diversified and undiversified firms in terms of the ROE but there is no significant difference in their performances in terms of the PM.

4.3.2 Test on three independent samples

In testing the difference of means in the three categories of firms; undiversified, moderately diversified and highly diversified, the one-way ANOVA test was employed. More details are contained in Appendix H6. Since normality is supported by ROCE and ROTA, ANOVA would be applicable. However, one of the conditions for the use of ANOVA is homogeneity of variances. Appendix H7 contains details of test of homogeneity of variances.

A test of homogeneity of variances was carried on the two sets of data (ROCE and ROTA) at 5% level of significance. The null hypotheses of homogeneity of variances are supported and rejected with p values of 0.371 and 0.003 on ROCE and ROTA respectively (see Appendix H7). This means that ANOVA could not be carried out on ROTA because the result did not support the null hypothesis of homogeneity of variance. Therefore only ROCE could be tested with ANOVA. See Appendix H8 for more details. ROTA, ROE and PM were analysed by Kruskal-Wallis test. The result of Kruskal-Wallis test is shown in Appendix H9.

The result of ANOVA on ROCE, with a p value of 0.091 supports the null hypothesis that there is no significant difference in the performance and growth of the three categories of firms, in terms of their ROCE. The result of the Kruskal-Wallis test carried out on ROTA, ROE and PM, with p values of 0.003, 0.014 and 0.708 shows that the null hypothesis is not supported in terms of ROTA and ROE. It is however supported by the results of the test on PM. Please refer to Table 4.5 for a summary of the results of tests of hypothesis.

Table 4.5: Summary of tests of hypothesis

Financial ratios	Two (2) independent samples	Three (3) independent samples
ROCE	Supports null hypothesis	Supports null hypothesis
ROE	Null hypothesis is rejected	Null hypothesis is rejected
ROTA	Supports null hypothesis	Null hypothesis is rejected
PM	Supports null hypothesis	Supports null hypothesis

4.4 Discussion of Findings

A summary of the findings from the administered questionnaires were:

i. All the sampled firms specialise in Civil Engineering, General Building and Mechanical Engineering works;
ii. All undiversified firms are privately owned while the diversified ones have public ownership and are registered with the JSE;
iii. All firms favour internal capacity expansion, acquisitions and joint ventures as strategies to expand their businesses;
iv. All the sampled firms have international operations;
v. Diversified firms have more international operations than undiversified firms.

The outcome of the assessments of strengths and weaknesses in the firms reveal that the following factors are on the top of the list of strengths for contracting firms: *high quality of products and services*; *skilled and competent management staff*; and *ability to access and retain highly qualified subcontractors and specialist labour.* The weaknesses identified are: *use information and communication technologies; adoption of black economic empowerment; project delivery to budget and time; ability to build long term relationships with customers; and age of company and experience*.

The analyses of the questionnaires revealed that the following are top on the list of factors that have influenced the growth of contracting firms: *adequate plant and equipment; project delivery to budget and time; financial base and ability to support client financially; access to credit and finance (suppliers, banks, stock market, subcontractors, etc.); creativity and innovation in project delivery process; provision of after sale services and support to clients; skilled and competent management staff;* and *fixed asset base. High quality of products and services* was identified as a factor that does not have a direct contribution to the growth of a firm.

The analysis show that the following are top on the list of threats and challenges to contracting firms: *government's policy of black economic empowerment'; adoption of targeted preferential procurement system; projects geographically dispersed; globalization (allows entry of bigger and better equipped firms as competitors)); 'adoption of joint ventures and alliances with other companies; fluctuating demand and project types; low flexibility in*

operation and company organization structure; low financial base and access to credit and finance (suppliers, banks, stock market, subcontractors, etc.); over specialization in operation and market already saturated); and *'high establishment cost to maintain branches).*

The study shows that majority (67.67%) of undiversified firms responded that they are interested in diversifying but are not interested now and in the near future. Equal percentages (33.33%) of undiversified firms are likely to adopt the following types of diversification - addition of new products which are related to current business; and movement into new markets by expanding client base and shareholding in other businesses (without active participation). Majority (66.67%) of the firms would prefer to build capacity within the core competence of the firm (internal organic growth) as the preferred mode of diversification. The same percentage would use both internal and external human resource to achieve diversification. Results of the analyses reveal that functional and divisional management structures are currently preferred and scored highest as the likely structures after the firms might have diversified.

A fair percentage (50%) of diversified firms are: currently diversified by moving into new markets (expansion of client base) and shareholding in other businesses (without active participation). When asked to provide the options that best suits their organizations, 50% of diversified firms responded that movement into new markets (expansion of client base) – with existing products best suits their organizations. On the other hand, 66.67% responded that retailing in related and unrelated goods least suit their type of organizations. When asked to indicate the mode of diversification adopted by diversified firms, 83.33% responded in favour of movement into new markets and capacity building within firm's area of core competence, under the internal organic growth mode of diversification. Under the external mode of diversification, 100% of diversified firms responded in favor of joint venture/alliance as their mode of diversification.

The study found that the process of diversification in the diversified firms was achieved equally (50% each) by internal management staff, and both internal and external staff. It was found that the use of functional structures in the firms decreased from 50% to 33.34% after diversification; the use of regional administration in the firms remained unchanged at 33.34%; and the use of divisional structures increased from 33.34% to 50% after the firms diversified.

The study found that 100% of diversified firms use a central financial reporting system. When asked what the motivation for diversification was, the responses on top of the list were – *hope to enjoy economy of scale through operational efficiencies; hope to enjoy economy of scope through building of synergies in asset utilization; attracted to more profitable business(es); need to engage unutilized resources; desire to create a monopoly in the market;* and *present market is saturated-stiff competition*.

The results from the study suggest that diversified firms might have experienced steady growth in sale volume, enjoyed economies of scope as a result of synergies in asset utilization, and possibly of economies of scale regardless of the type of product the firm offers, after the firm diversified. The study further reveals that diversification may not necessarily lead to the improvement in the utilization of resources, achievement of competitive edge over competitors, the need or demand for more professionals and skilled staff, the failure in business and the creation of market monopoly.

The results of the analysis reveal the following as top on the list of barriers to diversification strategy: *there was not enough attention and investment to new business(es); inadequate planning before diversification was implemented; unable to build sufficient synergy for profitable growth; management has poor knowledge of new business environment;* and *too many peripheral activities unrelated to main business.* The most important factor which may influence decision not to diversify is the satisfaction with the existing growth in a firm.

When the performances of the two independent samples of firms (undiversified and diversified) were compared, the outcome of the study reveals that on average, undiversified firms perform better than diversified ones on ROCE, ROE and ROTA. Diversified firms however have better performance on PM. The result of tests of hypothesis on ROCE, ROTA and PM supports the null hypothesis that there is no significant difference in the performance and growth of undiversified and diversified firms. However, on the ROE, the null hypothesis is rejected. This result suggests that the management of undiversified firms are creating more value per unit share capital for investment made.

When the three independent samples of firms (undiversified, moderately diversified and highly diversified) were compared, the results suggest that undiversified firms had the highest average on ROCE and ROE, followed by moderately diversified and highly diversified firms respectively. On ROTA, moderately diversified firms had the highest

average, followed by undiversified and highly diversified firms respectively. Highly diversified firms had the highest average on PM, followed by undiversified and moderately diversified firms respectively. The results of test of hypothesis on ROCE and PM show that the null hypothesis which states that there is no significant difference in the performance and growth of contracting firms is supported by the data. The null hypothesis is not supported in terms of ROTA and ROE. The result of the study suggests that the management teams of undiversified firms are more effective than moderately and highly diversified firms in utilizing their assets in generating profit. The finding on ROE for the three groups is similar in that it suggests that the management teams of undiversified firms are creating more value per unit share capital on investment made in these firms.

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of report

The history of South Africa is marked with racial imbalances in all spheres of the society, including the construction industry. The government has attempted to reverse these imbalances through procurement policies which favour individuals disadvantaged by policies of apartheid.

The implication of preferential procurement policy is that less government contracts are awarded to HAIs. This reality informs various innovative and survival strategies in the industry. The competition from foreign firms within the industry and low entry barriers presumably aggravated the challenge of shrinking market share. These inform the need for contracting firms in South Africa to build competitive advantage in order to achieve a reasonable level of financial performance and growth for all stakeholders. This exploratory study is an attempt at investigating the relationship between diversification strategies adopted by established contracting firms, and the financial performance and growth that result from these strategies. This study takes a cue from a research conducted by Palich et al. (2000).

A review of literature is presented in Chapter 2, which suggests that there are incoherent results from studies into the subject of diversification strategies and performance and growth. This subject has not received much attention in the construction industry. Lack of adequate literature during the study attests to this assertion. Review of literature reveals that strategic assets are requisites for competitive advantage, which create superior economic performance and growth, in a normal market environment. However, sustained superior economic performance has been found to be rare (Ofori and Chan, 2000). This implies that firms need to continuously build and create new strategic assets which respond to market demands per time, in order to remain competitive and operate at an advantage over rival firms. Sampled firms' performances were measured by calculating the ROTA, ROE, ROCE and PM.

Research methods adopted in the study and their justifications are discussed in Chapter 3. Sample selection and further sample categorization processes are also explained, including the various statistical tests undertaken on the study. Chapter 4 contains the analyses of data received from the questionnaires and financial data. The findings from the results of the analyses were discussed and inferences made.

5.2 Results of Hypothesis Testing

The following are the results of hypotheses postulated for the study:

- **Hypothesis (H1):** The financial performance of diversified firms is better than that of undiversified ones.

The test of this hypothesis using ROCE, ROTA and PM support the null hypothesis that there is no significant difference in the performances and growth of undiversified and diversified firms. However, the ROE results support the alternative hypothesis that there is a significant difference in the performance and growth between the two categories of firms.

- **Hypothesis (H2):** The financial performance of established contracting firms is linearly related to their diversification strategies.

The test of this hypothesis using ROCE and PM show that the null hypothesis, which states that there is no significant difference in the performance and growth of contracting firms, is supported by the data. The null hypothesis is not supported in terms of ROTA and ROE.

5.3 Summary of objectives, results and conclusions

The objectives of this study were:

1. To classify all South African contracting firms on the Construction Industry Development Board, CIDB (level 9) database based on the categories of work registered for, using globally accepted diversification categories. This was achieved in chapter 3.
2. To measure the financial performance and growth of each of the firms classified above using robust financial indices. After measuring the financial performance and growth of each of the firms, a comparative analysis would be undertaken to determine trends and relationships. This was achieved in chapter 4.

3. To explore the relationships that exist between diversification and financial performance and growth in order to determine the marginal growth differences between undiversified, moderate and highly diversified established contracting firms within the construction industry. This was achieved in chapter 4.

The analyses carried out to address the above objectives produced the following findings:

- On average, undiversified firms perform better than the diversified ones. This result lends itself to the conclusion reached by Pandya and Rao (1998) in their study of 2,000 firms in multiple industries, that the best performing firms are the specialised ones.
- The result in this study is in support of Tasi (1994), who concluded that specialization is favourable to maximize expected return.
- The result is in agreement with Hill and Hansen (1991) who concluded, on their study in the pharmaceutical industry in the US that undiversified firms performed better than diversified ones.
- No particular pattern of performance was established when comparisons were made across the three categories of firms; undiversified, moderately diversified and highly diversified groups. However, previous studies such as Choi and Russel (2005); Gort (1965); Palepu (1985) and Chang and Thomas (1989) who concluded that there is no significant relationships between firm performance and level of diversification, are supported by the results in this study with respect to ROCE and PM only.
- The result support recent study by Ibrahim et al., (2009) who found no difference in the performance of three diversification groups. This agreement is based on ROCE only.
- The findings contradict Rumelt (1974), who concluded that diversified firms in general, outperform others.
- The findings are in agreement with Capon et al. (1988) who argue that firms that concentrate in a market area should have superior financial performance.
- All the moderately and highly diversified firms are listed and undiversified ones are privately owned. This is in agreement with Kim and Reinschmidt (2011) who assert that larger firms tend to be more diversified than smaller firms. This may also point to the fact that diversified firms have more capacity in that they have shifted from focus to broadly targeted competitive strategy, according to Chung and Cheah (2006).
- One may conclude that undiversified firms are involved in highly specialised areas.

- Most of the undiversified firms operate as specialist contractors. From questionnaire responses, these firms seem to be satisfied with their levels of growth and as a result, most of them are not interested in diversifying now and in the near future.
- Undiversified and diversified firms seem to be equally interested in the same types of diversification; movement into new markets by expanding client base and shareholding in other businesses (without active participation).
- Undiversified and diversified firms favour internal capacity building within the organization's core competence (internal organic growth) as a mode of diversification.
- Undiversified firms appear to prefer functional and divisional management structures for their existing strategy and would likely implement the same after they may have diversified. For the diversified firms, there is a decline in the use of functional structure, there is no change in the use of regional administration, and the use of divisional structure increased.
- Diversified firms seem to have preference for joint venture and alliance as external mode of diversification.
- The study results suggest that the use of central financial reporting system is common to all diversified firms.
- The anticipation of economies of scale through operation efficiencies, the anticipation of economy of scope through building of synergies in asset utilization, the attraction to more profitable businesses, the need to engage unutilized resources, the desire to create a monopoly in the market and the impression that the current market is saturated seem to be some of the important motivations for diversification in diversified firms.
- It seems that synergies in asset utilization in diversified firms could positively improve sale volume. It is also noteworthy that diversification may not bring about the following: improvement in resource utilization, achievement of competitive edge over competitors, the need for more professionals and skilled staff, the failure in business, and the creation of market monopoly.
- The lack of attention to new businesses, the inadequate planning before diversification, the inability to build sufficient synergy for profitable growth, the management's poor knowledge of new business environment and the existence of too many peripheral activities unrelated to main business have been identified as possible barriers to a diversification exercise.
- The decision not to diversify may be influenced by the level of satisfaction with the existing growth in the firm.

- It should be noted that firms can diversify for reasons that may not be related to the growth of the firm.
- The implementation of government's policy of black economic empowerment and adoption of targeted preferential procurement system are the two issues that top the list of challenges and threats to the growth of the firms.

5.4 Assumptions and limitations of the study

- The sample size in the study was relatively small, which may make the findings not generalizable.
- This study is not predictive of financial performance of contracting firms, neither is it a model for outcomes of diversification efforts.
- The study did not look into the business models employed by contracting enterprises.
- The study did not classify contracting firms according to the sector or industry that they are active in. For instance, the nature of client such as mining, concession, specialist contracting and subcontracting, manufacturing, professional services, project financing, infrastructure development, development management, etc.
- The study is restricted to relatively recent times.
- The study experienced some outliers from the financial data of some of the sampled firms.
- The study could not employ advanced analysis techniques because the sample size was not large enough.
- Some of the firms sampled in the study have a huge project order from international contracts. This may misrepresent the findings, as some other firms only rely on the South African local market for their income.
- The study did not take any corrective measures or adjustment on the financial information received from the sampled firms. Some might have restructured the financial statements to take the benefit of tax incentives or have a particular financial outlook, as the management of the firm may have deemed fit.
- The results in the study are discussed conservatively and conscious effort has been made not to draw broad conclusions based on this single study, as it is possible that the results are an aberration from the actual state of things in the industry.

- Information on the CIDB website on some of the firms are slightly different from information provided by the firm personnel in some instances.
- All incomes, assets and investments, including non-construction interests of the firms formed part of the analysis. It is not certain if the outcome of the study would have been different if only the construction interest of the firms were considered.

5.5 Recommendations for Further Study

- The experience during this study reveals that very few number of studies on the subject of diversification strategies and financial performance have been conducted in the construction industry. Empirical studies in this area should be generally encouraged.
- The same study could be repeated with a survey of only listed entities, which would ensure the availability of financial data.
- It would be beneficial to the industry and body of knowledge if this study could be replicated with larger sample firms, probably in another province in South Africa in order to establish a better understanding of the subject area and test the reliability of the study's findings.
- Further study should be carried out on the subject of diversification strategy and firm performance and growth in the construction industry during the period of financial recession, to see if there is an impact of recession on the strategy and performance of contracting firms.
- An area that further study could be directed is difference in performance between related and unrelated diversifiers in the construction industry.
- Further research should look into developing a model that explains the diversification-performance-growth relationships in the construction industry in particular. Researchers in other industries have different and sometimes conflicting conclusions on the subject.
- Due to the peculiarity of challenges facing the South African Construction industry, there are numerous collaborations between HDIs and HAIs. Further study could be carried out in this area.

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APPENDICES

Appendix A – Questionnaire cover letter

University of the Witwatersrand, Johannesburg

School of Civil and Environmental Engineering

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011 530 9700 (Work)
086 629 8739 (Fax)
072 785 0885 (Cell)
idowu.adegelu@students.wits.ac.za

Dear Sir/Madam,

The University of Witwatersrand is currently undertaking research into the relationships between diversification strategies and growth among established construction contractors in South Africa. The research is in partial fulfilment of the requirement for a Masters Degree in Building (MSc Building) at the School of Construction Economics and Management, University of the Witwatersrand, Johannesburg and is being undertaken by myself and supervised by Dr. Ilemobade in the School of Civil and Environmental Engineering. The research would provide useful guide to diversifying the operations of contracting organizations thereby enhancing their growth and survival in the face of ever changing economic environment.

As part of this research we are sending out a questionnaire to your firm from a selection of established and emerging contracting enterprises. The information collected will be confidential and individual firms will not be identified in the research report. We would therefore ask you to complete the questionnaire and return it as an attachment via email to: idowu.adegelu@students.wits.ac.za or by fax to the number indicated above. The questionnaire should take about 20 - 25 minutes to complete, and we hope that you may be able to spare us this time.

If you have any queries or concerns about the questionnaire or wish to talk to us in more detail about the research then please feel free to contact me on the numbers provided.

While thanking you for your kind assistance and contribution, we look forward to receiving your responses.

Yours,



Idowu Adegelu
Postgraduate Student

Appendix B1 – Questionnaire for undiversified firms
Questionnaire

Introduction

For each question, please place an (X) in the box adjacent to the option that is closest to the organisation's experience. The questionnaire is formatted in such a way that you can complete it electronically and return as attachment to the email address provided below. Otherwise, it may be printed, filled and sent by post to the researcher.

Section A: General Information (*To obtain information on the background, experience and position of person completing questionnaire).*

1. What is your rank/position in the organisation?

☐ Top level Manager – (e.g. CEO, Director, Board member, etc)

☐ Middle level Manager – (e.g. Functional/unit head, Contract manager etc)

☐ Low level Manager – (e.g. Technical/operation manager, Site managers, Accountant etc)

2. Which of the following best describe your status in relation to the company?

☐ Owner-Manager ☐ Joint owner – Manager ☐ Employee

Section B: Company Profile *(The purpose of this section is to be able to properly classify the company based on its background, experience and current capacity)*

1. Major areas of specialisation of the company:

☐ General building works ☐ Civil engineering ☐ Mechanical engineering

☐ Electrical engineering ☐ Building excavations, shafts sinking and lateral earth support

☐ Structural steelwork fabrication & erection ☐ Formwork

☐ Property development ☐ Estate development ☐ Plant hire ☐ Construction product

☐ Healthcare ☐ Waste disposal ☐ Mining ☐ Securities trading

☐ Others

_____

2. Category of corporate registration:

☐ Closed corporation (CC) ☐ Private (PTY) limited

☐ Public - Is your company listed on the Johannesburg Stock Exchange ☐ Yes ☐ No

3. What is the company's strategy on expansion?

☐ Internal Capacity expansion ☐ Mergers ☐ Acquisition ☐ Joint Ventures

4. Does your company operate outside the Republic of South Africa? ☐ Yes ☐ No

5. If yes in question (B4), state number of countries in which the company is doing business:

_____

_____

_____

_____

Section C: Assessment of company's strengths/weaknesses (This section seeks to determine the factors within and outside the organizations that influences their growth/successes).

1. *Please give a candid assessment of the current status of the company against the following factors, where **5 stands for a position of great strength and 1for absence of such in the company*. (Kindly note that, the availability, presence or utilization of a factor/variable indicates strength, while the absence of such indicates a weakness).**

Factor	Very strong	Strong	Moderate	Weak	Very weak
	5	4	3	2	1
Skilled and competent management staff					
Skilled and competent technical staff					
Highly trained operatives					
Fixed asset base					
Adequate plant and equipment					
Financial base and ability to support client financially					
Flexibility in operation and company organisation structure					
High overhead costs					
Sound financial management practices					
Access to credit/finance (suppliers, banks, stock market, subcontractors etc)					
Ability to access and retain highly qualified subcontractors and specialist labour.					
High quality of products and services					
Age of company and experience					
Goodwill and brand name of the enterprise					
Ability to build long term relationships with customers					
Provision of after sale services/support to clients					
Project delivery to budget and time					
Creativity / innovation in project delivery process					
Avoidance of adversarial postures during contract execution					
Professionalism (ethical practices) and reputation					
Use Information and Communication Technologies (ICT)					
Adoption of Black Economic Empowerment (BEE)Policy					

2. *Please rank the following factors as they have influenced the growth of your company,* ***where 5 represents strong influence and 1 represents no influence on growth.(Growth here implies increase in sales volume/turnover, fixed assets, employee size, profit and shareholders funds)***

Factor	Very strong	Strong	Moderate	Weak	Very weak
	5	4	3	2	1
Skilled and competent management staff					
Skilled and competent technical staff					
Highly trained operatives					
Fixed asset base					
Adequate plant and equipment					
Financial base and ability to support client financially					
Flexibility in operation and company organisation structure					
High overhead cost					
Sound financial management practices					
Access to credit/finance (suppliers, banks, stock market, subcontractors etc)					
Ability to access and retain highly qualified subcontractors and specialist labour.					
High quality of products and services					
Age of company and experience					
Goodwill and brand name of the enterprise					
Ability to build long term of relationships with customers					
Provision of after sale services/support to clients					
Project delivery to budget and time					
Adoption of Black Economic Empowerment (BEE)Policy					
Adoption of Joint Venture/Alliances with other companies					
Creativity / innovation in project delivery process					
Avoidance of conflicts/adversarial posture during contract execution					
Professionalism (ethical practices) and reputation					
Use Information and Communication Technologies (ICT)					

Section D: Challenges/Threats to growth of the company (The section is aimed at being able to assess both challenges and threats to growth of companies in the industry as a basis for ameliorating them).

The following are some perceived challenges/threats to the growth and survival of companies in the industry. Please rank each as they affect your company's growth on a scale of 1 – 5, ***where 1 represents no influence and 5 represents extreme negative influence.***

Factors	Very strong	Strong	Moderate	Weak	Very weak
	5	4	3	2	1
Globalisation (allows entry of bigger and better equipped firms as competitors)					
Adoption of targeted preferential procurement system					
Government's policy of Black Economic Empowerment					
Adoption of Joint Venture/Alliances with other companies					
Low entry barrier and use of lowest bid competitive tendering					
Lack of access to adequate plant and equipment					
Lack of technical skills for certain types of projects					
Over specialization in operation and market already saturated					
Low flexibility in operation and company organisation structure					
High overhead cost; makes some projects unprofitable					
Low financial base and access to credit/finance (suppliers, banks, stock market, subcontractors etc)					
Young company and inexperienced – clients unwilling to commit projects to us – their preference is for established firms					
Fluctuating demand and project types					
High establishment cost to maintain branches					
Projects geographically dispersed					

Section E: Diversification in company (This section seeks to examine the status, proposed type, mode and processes of diversification to be adopted by **companies that are interested in implementing diversification strategy**). Those not interested in diversifying are also required to fill this section.

1. Is your company interested in diversifying? ☐ Yes ☐ No
2. Which of the following describes the status of the process of diversification in your company?

☐ The company is not interested in diversification now and in the near future

☐ The discussion about diversification has just been initiated at the senior management level

☐ The board is in the process of making a decision on diversification of the company

☐ The board has reached a conclusion on diversification of the company

☐ The company has begun restructuring to implement the strategy of diversification

3. Which of the following option(s) best describe the type of diversification your company is likely to implement?

☐ The company is not interested in diversification now and in the near future

☐ Addition of new product(s) – related to current business

☐ Movement into new markets (expansion of client base) - same products

☐ Addition of news products (manufacturing) – unrelated to current business

☐ Share holdings in other business (without active participation).

☐ Retailing in related and unrelated goods

☐ Others specify:

_____

4. Indicate which mode of diversification your company is likely to adopt ***(please tick as many as is applicable):***

☐ The company is not interested in diversification now and in the near future

Internal (organic growth)	External	Both internal and external
☐ product diversity ☐ move to new markets (local and international) ☐ Capacity building within firm's area of core competence	☐ Merger ☐ acquisition ☐ joint venture/alliance	

5. How do you intend to achieve diversification? Through the services of ;

☐ The company is not interested in diversification now and in the near future

☐ Company's management staff only

☐ External professional consultants only

☐ Both internal and external

6a. Which of the following describes the current management structure of the company?

☐ Unitary structure (military)

☐ Functional (professional managers heading units)

☐ Regional administration (with semi-autonomy)

☐ Divisional structure (under central administration)

☐ Other specify:

_____

6b. Which of the following describes the likely management structure of the company after it might have been diversified?

☐ The company is not interested in diversification now and in the near future

☐ Unitary structure (military)

☐ Functional (professional managers heading units)

☐ Regional administration (with semi-autonomy)

☐ Divisional structure (under central administration)

☐ Other

specify:_____

7. *Please indicate how the following factors have motivated the company's diversification strategy.* ***Where 5 represents strong motivation and 0 represents no influence.***

☐ The company is not interested in diversification now and in the near future

Factor	Very strong	Strong	Moderate	Weak	Very weak
	5	4	3	2	1
The need to spread risk – risk aversion					
Present market is saturated – stiff competition					
Need for growth (increase turnover and profit)					
Need to engage unutilized resources (human, technical and financial)					
Attracted to more profitable business(es)					
"Bandwagon effect" – others are doing it					
Cyclical/fluctuating demand in present market					
Diversified companies appear to be doing better than us					
Improve the stability/survival of the company					
Hope to enjoy economy of scope – build synergies in asset utilisation					
Hope to enjoy economy of scale through operational efficiencies					
Desire to create a monopoly in the market					

9. *The following are some barriers to achieving success in diversification strategies in the construction industry. Please, indicate your opinion on a scale of 1 – 5,* ***with 1 representing extreme disagreement and 5 representing extreme agreement with each statement***

Parameter	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	5	4	3	2	1
Management has poor knowledge of new business environment					
Too many peripheral activities (small scale investments) – unrelated to main business.					
There was not enough attention/investment to new business(es)					
Inadequate planning before diversification was implemented					
Lack of transferable knowledge/technology and skills					

Stiff competition in the new market/product – unable to build/sustain competitive advantage					
Customers were reluctant to try out new products					
Insufficient information about new market/customer preferences					
Business was acquired by mistake – just a spur of the moment decision, a pet idea of a valued director/staff or "bandwagon syndrome"					
Unaware of market restrictions through legislations against foreign firms					
We needed to have engaged the services of professional consultants to help with the development of the strategic plan					
We were unable to build sufficient synergy for profitable growth					

10. *To what extent have the following factors influenced your reason not to diversify your business?* ***Where 5 represents strong influence and 0 represents no influence.***

Factor	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	5	4	3	2	1
Satisfied with the present level of growth					
Insufficient knowledge of other types of businesses					
Consider diversification process too difficult/involving					
Inadequate resources (human, technical and financial)					
Present market not saturated – more opportunities exit here					
High cost involved in diversification					
Prefer to be focused and specialised in present business					
Diversified companies are not doing better than us					

11. Kindly state any general observations/comments that could help to improve the study which has not been covered:

_____

_____

_____

Thank you for your valued time and contribution.

Appendix B2 – Questionnaire for diversified firms

Questionnaire

Introduction

For each question, please place an (X) in the box adjacent to the option that is closest to the organisation's experience. The questionnaire is formatted in such a way that you can complete it electronically and return as attachment to the email address provided below. Otherwise, it may be printed, filled and sent by post to the researcher.

Section A: General Information (*To obtain information on the background, experience and position of person completing questionnaire).*

1. What is your rank/position in the organisation?

☐ Top level Manager – (e.g. CEO, Director, Board member, etc)

☐ Middle level Manager – (e.g. Functional/unit head, Contract manager etc)

☐ Low level Manager – (e.g. Technical/operation manager, Site managers, Accountant etc)

2. Which of the following best describe your status in relation to the company?

☐ Owner-Manager ☐ Joint owner – Manager ☐ Employee

Section B: Company Profile *(The purpose of this section is to be able to properly classify the company based on its background, experience and current capacity)*

1. Major areas of specialisation of the company:

☐ General building works ☐ Civil engineering ☐ Mechanical engineering

☐ Electrical engineering ☐ Building excavations, shafts sinking and lateral earth support

☐ Structural steelwork fabrication & erection ☐ Formwork

☐ Property development ☐ Estate development ☐ Plant hire ☐ Construction products

☐ Healthcare ☐ Waste disposal ☐ Mining ☐ Securities trading

☐ Others

_____

2. Category of corporate registration:

☐ Closed corporation (CC) ☐ Private (PTY) limited

☐ Public - Is your company listed on the Johannesburg Stock Exchange ☐ Yes ☐ No

3. What is the company's strategy on expansion?

☐ Internal Capacity expansion ☐ Mergers ☐ Acquisition ☐ Joint Ventures

4. Does your company operate outside the Republic of South Africa? ☐ Yes ☐ No

5. If yes in question (B4), state number of countries in which the company is doing business:

_____

_____

_____

_____

Section C: Assessment of company's strengths/weaknesses (This section seeks to determine the factors within and outside the organizations that influences their growth/successes).

1. *Please give a candid assessment of the current status of the company against the following factors, where* ***5 stands for a position of great strength and 1for absence of such in the company*****. (Kindly note that, the availability, presence or utilization of a factor/variable indicates strength, while the absence of such indicates a weakness).**

Factor	Very strong	Strong	Moderate	Weak	Very weak
	5	4	3	2	1
Skilled and competent management staff					
Skilled and competent technical staff					
Highly trained operatives					
Fixed asset base					
Adequate plant and equipment					
Financial base and ability to support client financially					
Flexibility in operation and company organisation structure					
High overhead costs					
Sound financial management practices					
Access to credit/finance (suppliers, banks, stock market, subcontractors etc)					
Ability to access and retain highly qualified subcontractors and specialist labour.					
High quality of products and services					
Age of company and experience					
Goodwill and brand name of the enterprise					
Ability to build long term relationships with customers					
Provision of after sale services/support to clients					
Project delivery to budget and time					
Creativity / innovation in project delivery process					
Avoidance of adversarial postures during contract execution					
Professionalism (ethical practices) and reputation					
Use Information and Communication Technologies (ICT)					
Adoption of Black Economic Empowerment (BEE)Policy					

2. *Please rank the following factors as they have influenced the growth of your company,* ***where 5 represents strong influence and 1 represents no influence on growth.(Growth here implies increase in sales volume/turnover, fixed assets, employee size, profit and shareholders funds)***

Factor	Very strong	Strong	Moderate	Weak	Very weak
	5	4	3	2	1
Skilled and competent management staff					
Skilled and competent technical staff					
Highly trained operatives					
Fixed asset base					
Adequate plant and equipment					
Financial base and ability to support client financially					
Flexibility in operation and company organisation structure					
High overhead cost					
Sound financial management practices					
Access to credit/finance (suppliers, banks, stock market, subcontractors etc)					
Ability to access and retain highly qualified subcontractors and specialist labour.					
High quality of products and services					
Age of company and experience					
Goodwill and brand name of the enterprise					
Ability to build long term of relationships with customers					
Provision of after sale services/support to clients					
Project delivery to budget and time					
Adoption of Black Economic Empowerment (BEE)Policy					
Adoption of Joint Venture/Alliances with other companies					
Creativity / innovation in project delivery process					
Avoidance of conflicts/adversarial posture during contract execution					
Professionalism (ethical practices) and reputation					
Use Information and Communication Technologies (ICT)					

Section D: Challenges/Threats to growth of the company (The section is aimed at being able to assess both challenges and threats to growth of companies in the industry as a basis for ameliorating them).

The following are some perceived challenges/threats to the growth and survival of companies in the industry. Please rank each as they affect your company's growth on a scale of 1 – 5, ***where 1 represents no influence and 5 represents extreme negative influence.***

Factors	Very strong	Strong	Moderate	Weak	Very weak
	5	4	3	2	1
Globalisation (allows entry of bigger and better equipped firms as competitors)					
Adoption of targeted preferential procurement system					
Government's policy of Black Economic Empowerment					
Adoption of Joint Venture/Alliances with other companies					
Low entry barrier and use of lowest bid competitive tendering					
Lack of access to adequate plant and equipment					
Lack of technical skills for certain types of projects					
Over specialization in operation and market already saturated					
Low flexibility in operation and company organisation structure					
High overhead cost; makes some projects unprofitable					
Low financial base and access to credit/finance (suppliers, banks, stock market, subcontractors etc)					
Young company and inexperienced – clients unwilling to commit projects to us – their preference is for established firms					
Fluctuating demand and project types					
High establishment cost to maintain branches					
Projects geographically dispersed					

Section E: Diversification in company (This section seeks to examine the type, mode and processes of diversification adopted by companies in the industry and explore its relationship with their performance as well as identify some difficulties in the process).

1. Which of the following option(s) best describe the type of diversification in your company?

- ☐ Addition of new product(s) – related to current business
- ☐ Movement into new markets (expansion of client base) - same products
- ☐ Addition of news products (manufacturing) – unrelated to current business
- ☐ Share holdings in other business (without active participation).
- ☐ Retailing in related and unrelated goods
- ☐ Others specify:

_____

2. Please, **rank in order of importance from experience**, which of these options best suits your type of organisation? (Starting with 1 = for the best option and 5 = least option)

- ☐ Addition of new product(s) – related to current business
- ☐ Movement into new markets (expansion of client base) - same products
- ☐ Addition of news products (manufacturing) – unrelated to current business
- ☐ Share holdings in other business (without active participation).
- ☐ Retailing in related and unrelated goods

3. Indicate which mode of diversification was adopted by your company ***(please tick as many as is applicable):***

Internal (organic growth)	External	Both internal and external
☐ product diversity ☐ move to new markets (local and international) ☐ Capacity building within firm's area of core competence	☐ Merger ☐ acquisition ☐ joint venture/alliance	

4. Was the diversification processes achieved using the services of?

- ☐ Company's management staff only
- ☐ External professional consultants only
- ☐ Both internal and external

5a. Which of the following describes the management structure of the company before diversification?

- ☐ Unitary structure (military)
- ☐ Functional (professional managers heading units)
- ☐ Regional administration (with semi-autonomy)
- ☐ Divisional structure (under central administration)

☐ Other specify:

_____

5b. Which of the following describes the management structure of the company after diversification?

☐ Unitary structure (military)

☐ Functional (professional managers heading units)

☐ Regional administration (with semi-autonomy)

☐ Divisional structure (under central administration)

☐ Other specify:

_____

6. Does the company operate a centralised financial reporting system (i.e. produce a single end-of-year financial statement? ☐ Yes ☐ No

7. *Please indicate how the following factors have motivated the company's diversification strategy.* ***Where 5 represents strong motivation and 0 represents no influence.***

Factor	Very strong	Strong	Moderate	Weak	Very weak
	5	4	3	2	1
The need to spread risk – risk aversion					
Present market is saturated – stiff competition					
Need for growth (increase turnover and profit)					
Need to engage unutilized resources (human, technical and financial)					
Attracted to more profitable business(es)					
"Bandwagon effect" – others are doing it					
Cyclical/fluctuating demand in present market					
Diversified companies appear to be doing better than us					
Improve the stability/survival of the company					
Hope to enjoy economy of scope – build synergies in asset utilisation					
Hope to enjoy economy of scale through operational efficiencies					
Desire to create a monopoly in the market					

8. *In relation to the* ***post-diversification*** *experience of your company, indicate how your company performs against the various parameters,* ***on a scale of 1 – 5, with 1 representing extreme disagreement and 5 representing extreme agreement with each statement***

Parameter	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	5	4	3	2	1
The company experienced steady growth in sale (turnover) volume					
There was a steady growth in overall profitability					

Asset turnover for the company increased					
Improvement in the utilisation of resources (human, technical and financial) was realised					
A boost in the corporate image of the company was achieved					
The company achieved an edge over competitors					
The company's management structure had to change					
More professionals and skilled staff have to be employed					
At a point, the company had to divest its interest in some business to refocus its operation – due to failure in such business(es)					
Company didn't enjoy economy of scope – build synergies in asset utilisation					
Its was not possible to achieve economy of scale because of production type – usually customised products					
Unable to create a monopoly in the market					

9. *The following are some barriers to achieving success in diversification strategies in the construction industry. Please, indicate your opinion on a scale of 1 – 5,* ***with 1 representing extreme disagreement and 5 representing extreme agreement with each statement***

Parameter	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	5	4	3	2	1
Management has poor knowledge of new business environment					
Too many peripheral activities (small scale investments) – unrelated to main business.					
There was not enough attention/investment to new business(es)					
Inadequate planning before diversification was implemented					
Lack of transferable knowledge/technology and skills					
Parameter	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	5	4	3	2	1
Stiff competition in the new market/product – unable to build/sustain competitive advantage					
Customers were reluctant to try out new products					
Insufficient information about new market/customer preferences					

Business was acquired by mistake – just a spur of the moment decision, a pet idea of a valued director/staff or “bandwagon syndrome”					
Unaware of market restrictions through legislations against foreign firms					
We needed to have engaged the services of professional consultants to help with the development of the strategic plan					
We were unable to build sufficient synergy for profitable growth					

10. *For those who answered No in (E1), to what extent have the following factors influenced your reason not to diversify your business?* ***Where 5 represents strong influence and 0 represents no influence.***

Factor	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	5	4	3	2	1
Satisfied with the present level of growth					
Insufficient knowledge of other types of businesses					
Consider diversification process too difficult/involving					
Inadequate resources (human, technical and financial)					
Present market not saturated – more opportunities exit here					
High cost involved in diversification					
Prefer to be focused and specialised in present business					
Diversified companies are not doing better than us					

11. Kindly state any general observations/comments that could help to improve the study which has not been covered:

_____

_____

_____

_____

Thank you for your valued time and contribution

Appendix C1 – Financial ratios table

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011 530 9700 (Work)
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idowu.adegelu@students.wits.ac.za

Dear Sir/Madam,

Our experience on this research has revealed that private companies treat financial information with a high level of confidentiality, as expected. We feel that preparing a table like the one below (which eliminates the need for raw data) would help overcome this challenge.

Kindly assist us in filling out the table below and the attached questionnaire and return via email or fax above. Your anticipated assistance is much appreciated.

Yours,



Idowu Adegelu
Postgraduate student (0612264A).

Years	Return on Equity (ROE)	Return on total Asset (ROTA)	Return on Capital Employed (ROCE)	Profit Margin (PM)
2008				
2007				
2006				
2005				
2004				
2003				

Notes

Return on equity (ROE) = $\frac{\text{Profit after tax and preference dividends}}{\text{Equity shareholders' funds}} \times 100\%$

Return on Total Assets (ROTA) = $\frac{\text{Sales}}{\text{Capital employed}}$

Return on Capital Employed (ROCE) = $\frac{\text{Profit before interest and tax}}{\text{Total assets - current liabilities}} \times 100\%$

Profit Margin (PM) = $\frac{\text{Profit before interest and tax}}{\text{Sales}} \times 100\%$

Appendix C2 – Financial ratios data of sampled firms

RETURN ON CAPITAL EMPLOYED - ROCE (%)								
YEAR	STEFANUTTI & STOCKS (ST)	AVENG (AV)	BASIL READ (BA)	GROUP 5 (G5)	WBHO (WB)	MURRAY & ROBERTS (MU)	TRENCON (TR)	LENNING DEC (LE)
2004	-	18.04	-	19.60	24.84	11.94	11.60	-
2005	47.81	22.53	65.23	18.40	26.59	13.79	51.20	-
2006	32.41	26.95	21.06	17.25	29.58	15.92	42.30	15.60
2007	56.57	73.78	30.78	15.86	32.61	26.43	40.80	-
2008	30.15	32.30	-	23.38	46.10	35.73	68.80	-
RETURN ON EQUITY - ROE (%)								
YEAR	STEFANUTTI & STOCKS (ST)	AVENG (AV)	BASIL READ (BA)	GROUP 5 (G5)	WBHO (WB)	MURRAY & ROBERTS (MU)	TRENCON (TR)	LENNING DEC (LE)
2004	-	7.54	-	19.90	24.81	18.33	7.22	-
2005	34.67	12.14	74.81	18.03	26.25	15.10	32.80	100.00
2006	14.80	16.70	27.12	11.48	28.14	16.59	51.60	129.00
2007	16.99	68.13	32.91	15.11	27.54	19.30	40.90	32.00
2008	22.84	21.88	-	22.80	41.35	35.23	58.80	112.00
RETURN ON TOTAL ASSET ROTA (TIMES)								
YEAR	STEFANUTTI & STOCKS (ST)	AVENG (AV)	BASIL READ (BA)	GROUP 5 (G5)	WBHO (WB)	MURRAY & ROBERTS (MU)	TRENCON (TR)	LENNING DEC (LE)
2004	-	4.7	11.71	5.06	5.32	2.48	6.66	-
2005	5.41	4.74	10.75	5.19	7.07	2.47	9.03	0.06
2006	5.44	4.55	4.55	5.91	6.07	2.62	9.05	3.57
2007	6.29	2.01	3.63	2.94	6.78	3.62	9.76	2.25
2008	3.44	2.81	NIL	2.78	5.18	3.92	5.49	0.36
PROFIT MARGIN - PM (%)								
YEAR	STEFANUTTI & STOCKS (ST)	AVENG (AV)	BASIL READ (BA)	GROUP 5 (G5)	WBHO (WB)	MURRAY & ROBERTS (MU)	TRENCON (TR)	LENNING DEC (LE)
2004	-	3.84	-	4.58	4.67	4.81	23.70	-
2005	8.83	4.76	6.07	3.54	3.76	5.59	0.03	0.36
2006	5.96	5.92	4.62	2.92	4.87	6.08	10.05	1.61
2007	9.00	36.70	8.47	5.40	4.81	7.30	3.21	0.66
2008	8.77	11.48	-	8.40	8.89	9.11	12.33	8.87

Appendix D1 – List of level 9 contracting firms

Serial #	Registered level 9 Contractor	Trading Name	Construction Works Category	Grading	GB	CE	ME	EE	SC	SL
1	ABB SOUTH AFRICA (PTY) LTD	ABB SOUTH AFRICA (PTY) LTD	Electrical Engineering	9EE				X		
2	ALSTOM ELECTRICAL INDUSTRIES (PTY) LTD	ALSTOM	Electrical Engineering	9EE				X		
3	ALSTOM POWER SERVICE SA PTY LTD	ALSTOM POWER SERVICE SA PTY LTD	Mechanical Engineering	9ME			X			
4	ALSTOM S AND E AFRICA (PTY) LTD	ALSTOM S AND E AFRICA (PTY) LTD	Electrical Engineering	9EE				X		
5	ALSTOM S AND E AFRICA (PTY) LTD	ALSTOM S AND E AFRICA (PTY) LTD	Mechanical Engineering	9ME			X			
6	ATC (PTY) LTD	CBI ELECTRIC AFRICAN CABLES	Electrical Engineering	9EE				X		
7	AVENG (AFRICA) LIMITED	GRINAKER-LTA LIMITED	Civil Engineering	9CE		X				
8	AVENG (AFRICA) LIMITED	GRINAKER-LTA LIMITED	General Building Works	9GB	X					
9	AVENG (AFRICA) LIMITED	GRINAKER-LTA LIMITED	Mechanical Engineering	9ME			X			
10	AVENG (AFRICA) LIMITED	GRINAKER-LTA LIMITED	Building Excavations, Shaft Sinking and Lateral Earth Support	9SC					X	
11	AVENG (AFRICA) LIMITED	GRINAKER-LTA LIMITED	Structual Steelwork fabrication and erection	9SL						X
12	BASIL READ (PTY) LTD	BASIL READ (PTY) LTD	Civil Engineering	9CE		X				

13	BASIL READ (PTY) LTD	BASIL READ (PTY) LTD	General Building Works	9GB	X					
14	BATEMAN AFRICA PTY LTD	BATEMAN AFRICA PTY LTD	Mechanical Engineering	9ME			X			
15	BOUYGUES TRAVAUX PUBLICS (INCORPORATED IN VERSAILLES)	BOUYGUES TRAVAUX PUBLICS	General Building Works	9GB	X					
16	BOUYGUES TRAVAUX PUBLICS (INCORPORATED IN VERSAILLES)	BOUYGUES TRAVAUX PUBLICS	Civil Engineering	9CE		X				
17	CHINA HARBOUR ENGINEERING COMPANY LIMITED	CHINA HARBOUR ENGINEERING COMPANY LIMITED	Civil Engineering	9CE		X				
18	CHINA HARBOUR ENGINEERING COMPANY LIMITED	CHINA HARBOUR ENGINEERING COMPANY LIMITED	Mechanical Engineering	9ME			X			
19	CHINA RAILWAY SEVENTH GROUP SA	CHINA RAILWAY SEVENTH GROUP SA	Civil Engineering	9CE		X				
20	CHINA RAILWAY SEVENTH GROUP SA	CHINA RAILWAY SEVENTH GROUP SA	General Building Works	9GB	X					
21	CONCOR HOLDINGS (PTY) LTD	CONCOR HOLDINGS (PTY) LTD	Mechanical Engineering	9ME			X			
22	CONCOR HOLDINGS (PTY) LTD	CONCOR HOLDINGS (PTY) LTD	Civil Engineering	9CE		X				
23	CONCOR HOLDINGS (PTY) LTD	CONCOR HOLDINGS (PTY) LTD	General Building Works	9GB	X					

24	CONSTRUCTORA DO TAMEGA SOUTH AFRICA (PTY) LTD	CONSTRUCTORA DO TAMEGA (SOUTH AFRICA) PTY LTD	Civil Engineering	9CE		X				
25	CONSTRUCTORA DO TAMEGA SOUTH AFRICA (PTY) LTD	CONSTRUCTORA DO TAMEGA (SOUTH AFRICA) PTY LTD	General Building Works	9GB	X					
26	COOPERATIVE MURATORI AND CEMENTISTI - C M C RAVENNA-SOCIETA COOPERATIVA	C.M.C DI RAVENNA	Civil Engineering	9CE		X				
27	COOPERATIVE MURATORI AND CEMENTISTI - C M C RAVENNA-SOCIETA COOPERATIVA	C.M.C DI RAVENNA	General Building Works	9GB	X					
28	COSIRA INTERNATIONAL (SA) PTY LTD	HIGHLAND NIGHT INVESTMENTS 128	Structual Steelwork fabrication and erection	9SL						X
29	COVEC S A (PTY) LTD	COVEC S A (PTY) LTD	General Building Works	9GB	X					
30	COVEC S A (PTY) LTD	COVEC S A (PTY) LTD	Civil Engineering	9CE		X				
31	COVEC S A (PTY) LTD	COVEC S A (PTY) LTD	Mechanical Engineering	9ME			X			
32	CYC - SA CONSTRUCTION (PTY) LTD	CYC - SA CONSTRUCTION (PTY) LTD	Civil Engineering	9CE		X				
33	CYC - SA CONSTRUCTION (PTY) LTD	CYC - SA CONSTRUCTION (PTY) LTD	General Building Works	9GB	X					
34	CYCAD PIPELINES (PTY) LTD	CYCAD PIPELINES (PTY)	Civil Engineering	9CE		X				

		LTD								
35	ERICSON SOUTH AFRICA (PTY) LTD	ERICSON SOUTH AFRICA (PTY) LTD	Electrical Engineering	9EE				X		
36	FLSMIDTH MINERALS (PTY) LTD	FLSMIDTH MINERALS (PTY) LTD	Mechanical Engineering	9ME			X			
37	GEA NILENCA (PROPRIETARY) LIMITED	GEA NILENCA (PROPRIETARY) LIMITED	Mechanical Engineering	9ME			X			
38	GROUP FIVE LIMITED	GROUP FIVE CONTRUCTION (PTY) LTD	Structual Steelwork fabrication and erection	9SL						X
39	GROUP FIVE LIMITED	GROUP FIVE CONTRUCTION (PTY) LTD	General Building Works	9GB	X					
40	GROUP FIVE LIMITED	GROUP FIVE CONTRUCTION (PTY) LTD	Mechanical Engineering	9ME			X			
41	GROUP FIVE LIMITED	GROUP FIVE CONTRUCTION (PTY) LTD	Electrical Engineering	9EE				X		
42	GROUP FIVE LIMITED	GROUP FIVE CONTRUCTION (PTY) LTD	Civil Engineering	9CE		X				
43	HITACHI POWER AFRICA PTY LTD	HITACHI POWER AFRICA PTY LTD	Mechanical Engineering	9ME			X			
44	HITACHI POWER EUROPE GMBH	HITACHI POWER EUROPE GMBH	Mechanical Engineering	9ME			X			
45	HO HUP CORPORATION (SA)(PTY)LTD	HO HUP CORPORATION (SA)(PTY)LTD	Civil Engineering	9CE		X				

46	HO HUP CORPORATION (SA)(PTY)LTD	HO HUP CORPORATION (SA)(PTY)LTD	Mechanical Engineering	9ME			X			
47	HO HUP CORPORATION (SA)(PTY)LTD	HO HUP CORPORATION (SA)(PTY)LTD	General Building Works	9GB	X					
48	HOCHTIEF CONSTRUCTION AG	HOCHTIEF CONSTRUCTION AG	Civil Engineering	9CE		X				
49	IMPREGILO S.P.A.	IMPREGILO S.P.A.	Civil Engineering	9CE		X				
50	IST HOLDINGS PTY LTD	IST HOLDINGS	Electrical Engineering	9EE				X		
51	IST HOLDINGS PTY LTD	IST HOLDINGS	Mechanical Engineering	9ME			X			
52	JUNG IN CONSTRUCTION AND ENGINEERING (PTY) LTD	JUNG IN CONSTRUCTION AND ENGINEERING (PTY) LTD	Civil Engineering	9CE		X				
53	KHUMBULA PROPERTY SERVICES (PTY) LTD	KHUMBULA PROPERTY SERVICES (PTY) LTD	General Building Works	9GB PE	X					
54	LENNINGS DEC RAIL SERVICES (PTY) LTD	LENNINGS DEC RAIL SERVICES (PTY) LTD	Civil Engineering	9CE		X				
55	LONEROCK CONSTRUCTION (PTY) LTD	LONEROCK CONSTRUCTION (PTY) LTD	Civil Engineering	9CE		X				
56	MURRAY & ROBERTS CEMENTATION (PTY) LTD	MURRAY & ROBERTS CEMENTATION	Civil Engineering	9CE		X				

		(PTY) LTD								
57	MURRAY AND ROBERTS CONSTRUCTION (PTY) LTD	MURRAY AND ROBERTS CONSTRUCTION (PTY) LTD	General Building Works	9GB	X					
58	MURRAY AND ROBERTS CONSTRUCTION (PTY) LTD	MURRAY AND ROBERTS CONSTRUCTION (PTY) LTD	Civil Engineering	9CE		X				
59	MURRAY AND ROBERTS LTD	MURRAY AND ROBERTS LTD	General Building Works	9GB	X					
60	MURRAY AND ROBERTS LTD	MURRAY AND ROBERTS LTD	Civil Engineering	9CE		X				
61	MURRAY AND ROBERTS LTD	MURRAY AND ROBERTS LTD	Mechanical Engineering	9ME			X			
62	MURRAY AND ROBERTS LTD	MURRAY AND ROBERTS LTD	Structual Steelwork fabrication and erection	9SL						X
63	ONSE TELECOM SA	ONSE TELECOM SA	Civil Engineering	9CE		X				
64	ONSE TELECOM SA	ONSE TELECOM SA	General Building Works	9GB	X					
65	PATULA CONSTRUCTION (PTY) LTD	PATULA CONSTRUCTION (PTY) LTD	Civil Engineering	9CE		X				
66	POWERTECH TRANSFORMERS PTY LTD	POWERTECH TRANSFORMERS PTY LTD	Electrical Engineering	9EE				X		
67	ROADCRETE AFRICA (PTY) LTD	ROADCRETE AFRICA (PTY) LTD	Civil Engineering	9CE		X				

68	SIEMENS LIMITED	SIEMENS	Electrical Engineering	9EE				X		
69	SIEMENS LIMITED	SIEMENS	Mechanical Engineering	9ME			X			
70	SINOHYDRO CORPORATION	SINOHYDRO CORPORATION	Civil Engineering	9CE		X				
71	STEFANUTTI & BRESSAN HOLDINGS LIMITED	STEFANUTTI & BRESSAN HOLDINGS LIMITED	Civil Engineering	9CE		X				
72	STEFANUTTI & BRESSAN HOLDINGS LIMITED	STEFANUTTI & BRESSAN HOLDINGS LIMITED	General Building Works	9GB	X					
73	STEINMULLER AFRICA PTY LTD	STEINMULLER AFRICA PTY LTD	Mechanical Engineering	9ME			X			
74	STEINMULLER ENGINEERING SERVICES PTY LTD	STEINMULLER ENGINEERING SERVICES PTY LTD	Mechanical Engineering	9ME			X			
75	STOCKS (PROPRIETARY) LIMITED	STOCKS LIMITED	General Building Works	9GB	X					
76	SULZER PUMPS (SOUTH AFRICA) LIMITED	SULZER PUMPS (SOUTH AFRICA) LIMITED	Mechanical Engineering	9ME			X			
77	THYSSENKRUPP ENGINEERING (PTY) LTD	THYSSENKRUPP ENGINEERING (PTY) LTD	Mechanical Engineering	9ME			X			
78	TRENCON CONSTRUCTION (PTY) LTD	TRENCON CONSTRUCTION (PTY) LTD	General Building Works	9GB PE	X					

79	VANDERLANDE INDUSTRIES B.V.	VANDERLANDE INDUSTRIES B.V.	Mechanical Engineering	9ME			X			
80	WBHO CONSTRUCTION (PTY) LTD	WBHO CONSTRUCTION (PTY) LTD	Civil Engineering	9CE		X				
81	WBHO CONSTRUCTION (PTY) LTD	WBHO CONSTRUCTION (PTY) LTD	General Building Works	9GB	X					
82	WK PIPELINE PTY LTD	WK PIPELINE PTY LTD	Civil Engineering	9CE		X				
83	ZEST ELECTRIC MOTORS (PTY) LTD	ZEST ELECTRIC MOTORS (PTY) LTD	Electrical Engineering	9EE				X		

Notes
GB - General Building Works
CE - Civil Engineering
ME - Mechanical Engineering
EE - Electrical Engineering
SC - Building Excavations, Shaft Sinking and Lateral Earth Support
SL - Structual Steelwork fabrication and erection

Appendix D2 – Consolidated list of level 9 contracting firms

Serial #	Level 9 Contractors	Construction Works Categories						Working in SA		Admin Office in SA		HQ in Gauteng		Diversification classification of sampled firms
		GB	CE	ME	EE	SC	SL	Yes	No	Yes	No	Yes	No	
1	AVENG (AFRICA) LIMITED	X	X	X		X	X	X		X		X		Highly diversified
2	GROUP FIVE LIMITED	X	X	X	X		X	X		X		X		Highly diversified
3	MURRAY & ROBERTS CEMENTATION (PTY) LTD	X	X	X			X	X		X		X		Highly diversified
4	CONCOR HOLDINGS (PTY) LTD	X	X	X				X		X		X		-
5	COVEC S A (PTY) LTD	X	X	X				X		X		X		-
6	HO HUP CORPORATION (SA)(PTY)LTD	X	X	X				X		X			X	-
7	ALSTOM ELECTRICAL INDUSTRIES (PTY) LTD			X	X			X		X		X		-
8	BASIL READ (PTY) LTD	X	X					X		X		X		Moderately diversified
9	BOUYGUES TRAVAUX PUBLICS (INCORPORATED IN VERSAILLES)	X	X					X		X		X		Moderately diversified
10	CHINA HARBOUR ENGINEERING COMPANY LIMITED		X	X						X		X		Moderately diversified
11	CHINA RAILWAY SEVENTH GROUP SA	X	X											-
12	CONSTRUCTORA DO TAMEGA SOUTH AFRICA (PTY) LTD	X	X					X						-

13	COOPERATIVE MURATORI AND CEMENTISTI - C M C RAVENNA-SOCIETA COOPERATIVA	X	X					X		X				Moderately diversified
14	CYC - SA CONSTRUCTION (PTY) LTD	X	X						X		X		X	-
15	IST HOLDINGS (PTY) LTD			X	X			X		X		X		-
16	ONSE TELECOM SA	X	X						X		X		X	-
17	SIEMENS LIMITED			X	X			X		X		X		-
18	STEFANUTTI & BRESSAN HOLDINGS LIMITED	X	X					X		X		X		Moderately diversified
19	WBHO CONSTRUCTION (PTY) LTD	X	X					X		X		X		Moderately diversified
20	ABB SOUTH AFRICA (PTY) LTD				X			X		X		X		-
21	ATC (PTY) LTD				X			X		X		X		-
22	BATEMAN AFRICA (PTY) LTD			X				X		X		X		-
23	COSIRA INTERNATIONAL (SA) PTY LTD						X	X		X		X		-
24	CYCAD PIPELINES (PTY) LTD		X					X		X		X		Undiversified
25	ERICSON SOUTH AFRICA (PTY) LTD				X			X		X		X		-
26	FLSMIDTH MINERALS (PTY) LTD			X				X		X			X	-

27	GEA NILENCA (PROPRIETARY) LIMITED			X				X		X		X		-
28	HITACHI POWER AFRICA (PTY) LTD			X				X		X		X		-
29	HITACHI POWER EUROPE GMBH			X				X		X		X		-
30	HOCHTIEF CONSTRUCTION AG		X						X		X		X	-
31	IMPREGILO S.P.A.		X						X		X		X	-
32	JUNG IN CONSTRUCTION AND ENGINEERING (PTY) LTD		X						X		X		X	-
33	KHUMBULA PROPERTY SERVICES (PTY) LTD	X						X		X		X		Undiversified
34	LENNINGS DEC RAIL SERVICES (PTY) LTD		X					X		X		X		Undiversified
35	LONEROCK CONSTRUCTION (PTY) LTD		X					X		X		X		Undiversified
36	PATULA CONSTRUCTION (PTY) LTD		X					X		X		X		Undiversified
37	POWERTECH TRANSFORMERS (PTY) LTD				X			X		X		X		-
38	ROADCRETE AFRICA (PTY) LTD		X					X		X		X		Undiversified
39	SINOHYDRO CORPORATION		X						X		X		X	-
40	STEINMULLER AFRICA (PTY) LTD			X				X		X		X		-

41	STEINMULLER ENGINEERING SERVICES (PTY) LTD			X				X		X		X		-
42	STOCKS (PTY) LIMITED	X						X		X		X		-
43	SULZER PUMPS (SOUTH AFRICA) LIMITED			X				X		X		X		-
44	THYSSENKRUPP ENGINEERING (PTY) LTD			X				X		X		X		-
45	TRENCON CONSTRUCTION (PTY) LTD	X						X		X		X		Undiversified
46	VANDERLANDE INDUSTRIES B.V.			X				X		X		X		-
47	WK PIPELINE (PTY) LTD		X					X		X		X		Undiversified
48	ZEST ELECTRIC MOTORS (PTY) LTD				X			X		X		X		-

Appendix E - Results of test of reliability

Section		Number of items or variables	Cronbach' Alpha coefficient
C. Assessment of company's strengths / weaknesses	C.1	22	0.813
	C.2	23	0.889
D. Challenges/threats to growth of the company		15	0.994
E. Diversification in the company	E.7 strategy	12	0.873
	E.8 Post diversification	12	0.005
	E.9 Barriers	12	0.727

Appendix F (Frequency tables)

Appendix F1 - Major areas of specialization of sampled firms

	Percentage of response received (%)			
Areas of specialization	**Undiversified**	**Moderately Diversified**	**Highly diversified**	**Total**
General Building	11.12	33.34	33.34	77.80
Civil Engineering	33.34	33.34	33.34	100.00
Mechanical Engineering	11.12	11.12	33.34	55.57
Electrical Engineering	-	11.12	11.12	22.24
Building Excavations	-	22.23	-	22.23
Structural steelwork	-	11.12	11.12	22.24
Formwork	-	11.12	11.12	22.24
Property Dev	-	-	11.12	11.20
Estate Development	-	-	11.12	11.20
Plant hire	-	-	-	-
Construction products	-	-	22.23	22.23
Healthcare	-	-	-	-
Waste disposal	-	-	-	-
Mining	-	22.23	11.12	33.35
Securities trading	-	-	-	0
Others	22.23	-	-	22.23

Appendix F2 - Category of corporate registration

	Percentage of response received (%)		
Corporate registration	**Undiversified**	**Moderately diversified**	**Highly diversified**
Close corporation	-	-	-
Private (Pty) Limited	33.34	-	-
Public – listed on JSE	-	33.34	33.34

Appendix F3 – Firm strategy on expansion

	Percentage of response received (%)		
Strategy on expansion	**Undiversified**	**Moderately diversified**	**Highly diversified**
Internal capacity expansion	33.34	33.34	33.34
Mergers	-	11.12	-
Acquisitions	11.12	33.34	11.12
Joint ventures	11.12	22.23	22.23

Appendix F4 - International operations of sampled firms

	Percentage of response received (%)		
International operations	**Undiversified**	**Moderately diversified**	**Highly diversified**
Yes	22.23	33.34	33.34
No	11.12	-	-

Appendix F5 - International operations of sampled firms (number of countries)

	Number of countries (international operations)		
Firms	**Undiversified**	**Moderately diversified**	**Highly diversified**
Wk Pipelines	**2**	**-**	**-**
Trencon Construction	**0**	**-**	**-**
Lenning DEC	**3**	**-**	**-**
Wilson Bayly Holmes-Ovcon (WBHO)	**-**	**7**	**-**
Stefanutti Stocks Holdings	**-**	**9**	**-**
Basil Read	**-**	**2**	**-**
Murray and Roberts		**-**	**10**
Group 5	**-**	**-**	**5**
Aveng	**-**	**-**	**4**

Appendix F6 - Interest in diversification (undiversified firms)

Interest in diversification	
Response	**Percentage of total response (%)**
Yes	66.67
No	33.33

Appendix F7 - Status of diversification (undiversified firms)

Status of the process of diversification	Percentage response (%)
The company is not interested in diversification now and in the near future	**66.67**
The discussion about diversification has just been initiated at the senior management level	**33.34**
The board is in the process of making a decision on diversification of the company	**-**
The board has reached a conclusion on the diversification of the company	**-**
The company has begun restructuring to implement the strategy of diversification	**-**

Appendix F8 - Likely type of diversification to be implemented (undiversified firms)

Likely type of diversification to be implemented	Percentage response (%)
The company is not interested in diversification now and in the near future	-
Addition of new product(s) – related to current business	**33.33**
Movement into new markets (expansion of client base) – same products	**33.33**
Addition of new products (manufacturing) – unrelated to current business	**33.33**
Shareholding in other businesses (without active participation)	-
Retailing in related and unrelated goods	-
Others	-

Appendix F9 - Likely mode of diversification to be implemented (undiversified firms)

Likely mode of diversification (%)						
Internal (organic growth)			External			Internal & External
Product diversity	Move to new markets	Capacity building within firm's area of core competence	Merger	Acquisition	Joint venture/alliance	-
33.34	33.34	66.67	-	33.34	33.34	-

Appendix F10 - How the firm intends to achieve diversification (undiversified firms)

How the firm intends to achieve diversification	Percentage of response (%)
The company is not interested in diversification now and in the future	33.33
Company's management staff only	-
External professional consultants only	-
Both internal and external	66.67

Appendix F11 - Current / future management structure of the firm (undiversified firms)

Management structures of the company	Percentage of response (%) (current)	Percentage of response (%) (likely - after)
The company is not interested in diversification now and in the near future	Not applicable	33.34
Unitary structure (military)	-	-
Functional (professional managers heading units)	33.34	33.34
Regional administration (with semi-autonomy)	-	-
Divisional structure (under central administration)	33.34	33.34
Others (specify)	-	-

Appendix F12 – Type of diversification existing in the firm (diversified firms)

Type of diversification existing in the firm	Percentage response (%)
Addition of new product(s) – related to current business	33.34
Movement into new markets (expansion of client base) – same products	50.00
Addition of new products (manufacturing) – unrelated to current business	-
Shareholding in other businesses (without active participation)	50.00
Retailing in related and unrelated goods	**-**
Others	**-**

Appendix F13 – Type of organization – diversification type (diversified firms)

Type of organization (diversification type)	Rankings in order of importance (% of response)				
	1	2	3	4	5
Addition of new product(s) – related to current business	33.34	16.67	50.00	-	-
Movement into new markets (expansion of client base) – same products	50.00	16.67	16.67	16.67	-
Addition of new products (manufacturing) – unrelated to current business	-	33.34	-	33.34	16.67
Shareholding in other businesses (without active participation)	16.67	33.34	-	33.34	-
Retailing in related and unrelated goods	-	-	16.67	-	66.67

Appendix F14 - Existing mode of diversification (diversified firms)

Adopted mode of diversification (%)						
Internal (organic growth)			External			Internal & External
Product diversity	Move to new markets	Capacity building within firm's area of core competence	Merger	Acquisition	Joint venture/alliance	-
50	83.33	83.33	16.67	66.67	100	-

Appendix F15 - How diversification was achieved (diversified firms)

How diversification processes were achieved	Percentage of total response (%)
Company's management staff only	**50**
External professional staff only	**-**
Both internal and external	**50**

Appendix F16 - Management structure before and after diversification (diversified firms)

Management structure of the company before diversification	**Percentage of response (%) (before)**	**Percentage of response (%) (after)**
Unitary structure (military)	-	-
Functional (professional managers heading units)	50.00	33.34
Regional administration (with semi-autonomy)	33.34	33.34
Divisional structure (under central administration)	33.34	50.00
Others (specify)	-	-

Appendix F17 – Centralized financial reporting structure in the firm (diversified firms)

Does the company operate a centralized financial reporting system (i.e. a single end-of-year financial statement)	
Response	**Percentage of total response (%)**
Yes	100
No	-

Appendix F18 – Post diversification experience (diversified firms)

Variables	Percentage (%) response				
	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
The company experienced steady growth in sale (turnover) volume	33.33	50	16.67	-	-
There was a steady growth in overall profitability	16.67	50	16.67	16.67	-
Asset turnover for the company increased	16.67	16.67	66.67	-	-
Improvement in the utilization of resources (human, technical and financial) was realized	16.67	16.67	50	16.67	-
A boost in the corporate image of the company was achieved	33.33	16.67	50	-	-
The company achieved an edge over competitors	16.67	33.33	16.67	33.33	-
The company's management structure had to change	33.33	33.33	16.67	16.67	-
More professionals and skilled staff have to be employed	16.67	16.67	50	16.67	-
At a point, the company had to divest its interest in some business to refocus its operation – due to failure in such businesses	-	33.33	16.67	33.33	16.67
The company did not enjoy economy of scope – build synergies in asset utilization	-	16.67	33.33	33.33	16.67
It was not possible to achieve economy of scale because of production type – usually customized products	-	16.67	16.67	33.33	16.67
Unable to create monopoly in the market	-	33.33	16.67	16.67	33.33

Appendix F19 - Factors influencing decision not to diversify (undiversified)

Factors influencing decisions not to diversify	Rankings (% of response)				
	5	4	3	2	1
	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Satisfied with the present level of growth	66.67	-	-	-	-
Insufficient knowledge of other types of businesses	-	-	-	33.34	33.34
Consider diversification process too difficult/involving	-	33.34	-	-	33.34
Inadequate resources (human, technical and financial)	-	33.34	-	-	33.34
Present market not saturated – more opportunities exist here	-	33.34	-	33.34	-
High cost involved in diversification	-	33.34	-	33.34	-
Prefer to be focused and specialized in present business	-	33.34	-	33.34	-
Diversified companies are not doing better than us	-	33.34	-	33.34	-

Appendix G – Results of factor analysis

Appendix G1 – Communalities of variables for subsection C 1 (firm's current strengths/weaknesses)

Variable	Initial	Extraction
Skilled and competent management staff	1.000	.998
Skilled and competent technical staff	1.000	.973
Highly trained operatives	1.000	.989
Fixed asset base	1.000	.932
Adequate plant and equipment	1.000	.851
Financial base and ability to support client financially	1.000	.994
Flexibility in operation and company organisation structure	1.000	1.000
High overhead costs	1.000	.975
Sound financial management practices	1.000	.955
Access to credit/finance (suppliers, banks, stock market, subcontractors etc}	1.000	.934
Ability to access and retain highly qualified subcontractors and specialist labour	1.000	.897
High quality of products and services	1.000	.989
Age of company and experience	1.000	.861
Goodwill and brand name of the enterprise	1.000	.957
Ability to build long term relationships with customers	1.000	.972
Provision of after sale services /support to clients	1.000	.996
Project delivery to budget and time	1.000	.974
Creativity/ innovation in project delivery process	1.000	.996
Avoidance of adversarial postures during contract execution	1.000	.960
Professionalism (ethical practices) and reputation	1.000	.847
Use information and communication technologies	1.000	.991
Adoption of Black Economic Empowerment (BEE) policy	1.000	.975

Appendix G2 – Total variance explained by components for subsection C 1 (firm's current strengths/weaknesses)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.352	37.962	37.962	8.352	37.962	37.962	4.344	19.746	19.746
2	4.478	20.355	58.318	4.478	20.355	58.318	4.328	19.672	39.418
3	2.788	12.674	70.992	2.788	12.674	70.992	3.631	16.506	55.924
4	2.305	10.479	81.470	2.305	10.479	81.470	2.964	13.474	69.398
5	1.833	8.330	89.801	1.833	8.330	89.801	2.902	13.189	82.588
6	1.259	5.722	95.523	1.259	5.722	95.523	2.846	12.935	95.523
7	.985	4.477	100.000	-	-	-	-	-	-

Appendix G3 – Initial component matrix for subsection C 1 (firm's current strengths/weaknesses)

Variable	Component					
	1	2	3	4	5	6
Ability to access and retain highly qualified subcontractors and specialist labour	.856	-.036	.117	.249	-.243	-.168
Highly trained operatives	.800	.071	-.230	-.310	.298	.326
Adoption of Black Economic Empowerment (BEE) policy	-.785	.242	-.197	.401	.173	.266
Provision of after sale services /support to clients	.773	-.291	.109	.207	-.290	.419
Creativity/ innovation in project delivery process	.773	-.291	.109	.207	-.290	.419
Skilled and competent management staff	.747	.008	.478	-.383	.252	.040
Sound financial management practices	.726	.565	-.157	-.077	-.210	.182
Professionalism (ethical practices) and reputation	.717	.227	-.478	.130	-.050	-.182
Fixed asset base	.710	.415	-.007	.106	-.146	-.473
Age of company and experience	.620	-.316	-.082	-.192	.526	-.237
Ability to build long term relationships with customers	.606	-.592	-.293	.396	-.045	-.094
High quality of products and services	.589	-.461	.495	-.357	-.238	.025
Adequate plant and equipment	.567	.554	-.367	-.095	-.091	.266
High overhead costs	-.120	.852	.215	.363	.211	-.114
Use information and communication technologies	-.541	.743	-.106	.107	.054	.347
Flexibility in operation and company organisation structure	-.041	.706	.604	-.299	-.200	-.069
Avoidance of adversarial postures during contract execution	.515	.663	.469	-.103	.100	-.121
Goodwill and brand name of the enterprise	.600	.241	-.716	.114	.064	-.095
Access to credit/finance (suppliers, banks, stock market, subcontractors etc}	.504	.023	.161	.728	.310	-.162
Financial base and ability to support client financially	.506	.355	.503	.540	.162	.202
Project delivery to budget and time	.032	-.503	.389	.227	.696	.178
Skilled and competent technical staff	.448	.277	-.348	-.509	.550	.114

Appendix G4 – Rotated component matrix for subsection C 1 (firm's current strengths/weaknesses)

Total % of variance explained: 95.5%	Component					
	1	2	3	4	5	6
Use information and communication technologies	-.897	.009	.399	-.106	-.011	-.122
Adoption of Black Economic Empowerment (BEE) policy	-.891	-.273	-.119	-.217	-.212	.033
High quality of products and services	.854	-.157	.131	.456	.068	-.074
Skilled and competent management staff	.634	-.024	.421	.282	.544	.206
Ability to access and retain highly qualified subcontractors and specialist labour	.533	.509	.054	.425	-.039	.410
Goodwill and brand name of the enterprise	-.051	.843	-.284	.055	.378	.132
Professionalism (ethical practices) and reputation	.150	.826	-.129	.128	.254	.213
Fixed asset base	.369	.753	.325	-.017	.025	.349
Sound financial management practices	.021	.722	.383	.434	.312	.032
Project delivery to budget and time	.139	-.694	-.249	.056	.312	.557
Adequate plant and equipment	-.178	.689	.224	.345	.414	-.054
Flexibility in operation and company organization structure	-.003	.008	.989	-.053	-.098	-.100
Avoidance of adversarial postures during contract execution	.180	.286	.818	.069	.245	.334
Ability to build long term relationships with customers	.425	.293	-.679	.331	-.009	.367
High overhead costs	-.517	.201	.626	-.242	-.053	.463
Provision of after sale services /support to clients	.361	.192	-.134	.875	.062	.206
Creativity/ innovation in project delivery process	.361	.192	-.134	.875	.062	.206
Skilled and competent technical staff	.032	.284	.079	-.099	.932	-.083
Highly trained operatives	.225	.343	-.008	.400	.811	.044

Age of company and experience	.562	.098	-.246	-.097	.609-	.306
Access to credit/finance (suppliers, banks, stock market, subcontractors etc}	.085	.196	-.078	.142	-.004	.928
Financial base and ability to support client financially	-.046	.071	.435	.448	.046	.771

Appendix G5 – Communalities of variables for subsection C 2 (factors that influence firm growth)

Variable	Initial	Extraction
Skilled and competent management staff	1.000	.843
Skilled and competent technical staff	1.000	.982
Highly trained operatives	1.000	.993
Fixed asset base	1.000	.946
Adequate plant and equipment	1.000	.926
Financial base and ability to support client financially	1.000	.989
Flexibility in operation and company organisation structure	1.000	.974
High overhead costs	1.000	.953
Sound financial management practices	1.000	.981
Access to credit/finance (suppliers, banks, stock market, subcontractors etc}	1.000	.883
Ability to access and retain highly qualified subcontractors and specialist labour	1.000	.944
High quality of products and services	1.000	.981
Age of company and experience	1.000	.887
Goodwill and brand name of the enterprise	1.000	.909
Ability to build long term relationships with customers	1.000	.976
Provision of after sale services /support to clients	1.000	.951
Project delivery to budget and time	1.000	.998
Adoption of Black Economic Empowerment (BEE) policy	1.000	.926
Adoption of Joint Venture/Alliances with other companies	1.000	.886
Creativity/ innovation in project delivery process	1.000	.901
Avoidance of adversarial postures during contract execution	1.000	.952
Professionalism (ethical practices) and reputation	1.000	.926
Use information and communication technologies	1.000	.989

Appendix G6 – Total variance explained by components created for subsection C 2 (firm's current strengths/weaknesses)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.830	38.390	38.390	8.830	38.390	38.390	5.426	23.592	23.592
2	4.931	21.440	59.830	4.931	21.440	59.830	4.752	20.661	44.252
3	2.705	11.762	71.592	2.705	11.762	71.592	3.587	15.596	59.848
4	2.207	9.598	81.189	2.207	9.598	81.189	3.174	13.799	73.647
5	1.848	8.033	89.222	1.848	8.033	89.222	2.492	10.837	84.484
6	1.175	5.109	94.332	1.175	5.109	94.332	2.265	9.848	94.332
7	.733	3.185	97.517	-	-	-	-	-	-
8	.571	2.483	100.000	-	-	-	-	-	-

Appendix G7 – Initial component matrix for subsection C 2 (firm's current strengths/weaknesses)

Variable	Component					
	1	2	3	4	5	6
Financial base and ability to support client financially	.953	.139	-.221	.053	.071	-.067
Creativity/ innovation in project delivery process	.913	.087	-.060	.207	-.112	-.043
Ability to build long term relationships with customers	.774	-.101	.333	-.495	.074	-.067
Skilled and competent technical staff	.774	.112	.318	.036	-.517	-.020
Skilled and competent management staff	.752	-.146	-.184	.068	-.335	.325
Professionalism (ethical practices) and reputation	.751	.475	.146	-.199	.213	-.172
Adequate plant and equipment	.743	.113	-.575	.085	-.121	.094
Sound financial management practices	.729	-.253	.201	.056	.473	-.344
Fixed asset base	.725	-.272	-.103	.515	.257	.065
Provision of after sale services /support to clients	.719	.489	-.249	-.149	-.075	.326
Ability to access and retain highly qualified subcontractors and specialist labour	.688	-.351	.205	-.287	.191	-.433
Access to credit/finance (suppliers, banks, stock market, subcontractors etc}	.684	.048	-.419	.325	.047	-.360
Goodwill and brand name of the enterprise	.662	-.224	.255	-.336	.271	.411
Use information and communication technologies	.044	.880	.219	.199	.344	.081
Adoption of Joint Venture/Alliances with other companies	.320	.838	.126	-.229	.026	.109
Adoption of Black Economic Empowerment (BEE) policy	.111	.809	.384	-.270	-.132	-.142
High quality of products and services	.222	-.808	.188	.329	.213	.302
Age of company and experience	.404	-.714	.002	-.290	.306	.189
Avoidance of adversarial postures during contract execution	.347	.673	.231	.333	.319	.336
Project delivery to budget and time	.551	.007	-.811	-.102	-.135	-.089
Flexibility in operation and company organisation structure	.513	-.516	.617	.035	-.248	.039
High overhead costs	.020	.188	.371	.872	.056	-.123

Highly trained operatives	.487	-.141	.428	.179	-.720	-.049

Appendix G8 – Rotated component matrix for subsection C 2 (factors that influence firm growth)

Variable	Component					
	1	2	3	4	5	6
Adequate plant and equipment	.946	.089	.056	.090	.103	-.039
Project delivery to budget and time	.938	-.100	.071	-.095	-.090	-.293
Financial base and ability to support client financially	.804	.259	.443	.193	.178	.098
Access to credit/finance (suppliers, banks, stock market, subcontractors etc}	.794	-.023	.373	.032	-.195	.270
Creativity/ innovation in project delivery process	.707	.199	.346	.414	.145	.223
Provision of after sale services /support to clients	.698	.589	-.012	.149	.273	-.140
Skilled and competent management staff	.681	-.033	-.004	.487	.374	-.033
Fixed asset base	.589	-.178	.338	.106	.360	.559
Adoption of Joint Venture/Alliances with other companies	.168	.920	.012	.048	-.012	-.096
Use of information and communication technologies	-.045	.878	-.062	-.233	-.069	.391
Adoption of Black Economic Empowerment (BEE) policy	-.154	.875	.079	.212	-.264	-.124
Avoidance of adversarial postures during contract execution	.164	.762	-.060	-.049	.266	.517
Professionalism (ethical practices) and reputation	.378	.669	.559	.127	.086	.006
High quality of products and services	-.022	-.632	.169	.148	.627	.371
Ability to access and retain highly qualified subcontractors and specialist labour	.193	-.096	.897	.242	.143	-.116
Sound financial management practices	.261	-.019	.878	.053	.241	.284
Ability to build long term relationships with customers	.176	.254	.700	.390	.392	-.293
Highly trained operatives	.124	-.035	.065	.980	-.034	.106

Skilled and competent technical staff	.369	.279	.228	.842	.070	.040
Flexibility in operation and company organizational structure	-.108	-.226	.402	.764	.387	.129
Goodwill and brand name of the enterprise	.165	.152	.404	.193	.800	-.138
Age of company and experience	.121	-.447	.452	.000	.656	-.197
High overhead costs	-.094	.101	-.049	.181	-.188	.929

Appendix G9 – Communalities of variables for section D (challenges and threats to company's growth)

Variable	Initial	Extraction
Globalisation (allows entry of bigger and better equipped firms as competitors)	1.000	.773
Adoption of targeted preferential procurement system	1.000	.910
Government's policy of Black Economic empowerment	1.000	.903
Adoption of Joint Venture/Alliances with other companies	1.000	.717
Low entry barrier and use of lowest bid competitive tendering	1.000	.938
Lack of access to adequate plant and equipment	1.000	.679
lack of technical skills for certain types of projects	1.000	.877
Over specialisation in operation and market already saturated	1.000	.782
Low flexibility in operation and company organisation structure	1.000	.866
High overhead cost; makes some projects unprofitable	1.000	.897
Low financial base and access to credit/finance (suppliers, banks, stock market, subcontractors etc)	1.000	.827
Young company and inexperienced - clients unwilling to commit projects to us	1.000	.928
Fluctuating demand and project types	1.000	.947
High establishment cost to maintain branches	1.000	.946
Projects geographically dispersed	1.000	.978

Appendix G10 – Total variance explained by components created for section D (challenges and threats to company's growth)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.033	60.221	60.221	9.033	60.221	60.221	6.886	45.904	45.904
2	2.456	16.374	76.595	2.456	16.374	76.595	3.781	25.209	71.112
3	1.480	9.865	86.460	1.480	9.865	86.460	2.302	15.348	86.460
4	.857	5.712	92.172	-	-	-	-	-	-
5	.699	4.659	96.831	-	-	-	-	-	-
6	.304	2.028	98.859	-	-	-	-	-	-
7	.171	1.141	100.000	-	-	-	-	-	-

Appendix G11 – Initial component matrix for section D (challenges and threats to company's growth)

Variable	Component		
	1	2	3
Projects geographically dispersed	.967	-.184	.094
Fluctuating demand and project types	.957	-.106	.143
High establishment cost to maintain branches	.931	.126	.251
Low financial base and access to credit/finance (suppliers, banks, stock market, subcontractors etc)	.903	.098	.041
Young company and inexperienced - clients unwilling to commit projects to us	.888	.340	.156
Over specialisation in operation and market already saturated	.865	-.011	.185
Adoption of targeted preferential procurement system	.825	-.476	.057
Low flexibility in operation and company organisation structure	.811	.007	-.455
Government's policy of Black Economic empowerment	.791	-.447	-.277
Adoption of Joint Venture/Alliances with other companies	.766	-.272	-.237
High overhead cost; makes some projects unprofitable	.692	.635	-.122
Globalisation (allows entry of bigger and better equipped firms as competitors)	.682	-.541	-.125
lack of technical skills for certain types of projects	.358	.781	-.372
Lack of access to adequate plant and equipment	.486	.654	-.122
Low entry barrier and use of lowest bid competitive tendering	.321	.188	.894

Appendix G12 - Rotated component matrix for section D (challenges and threats to company's growth)

Variable	Component		
	1	2	3
Government's policy of Black Economic empowerment	.944	.079	-.072
Adoption of targeted preferential procurement system	.921	-.031	.246
Projects geographically dispersed	.876	.267	.373
Globalisation (allows entry of bigger and better equipped firms as competitors)	.874	-.096	.019
Adoption of Joint Venture/Alliances with other companies	.822	.200	-.015
Fluctuating demand and project types	.816	.312	.427
Low flexibility in operation and company organisation structure	.754	.521	-.160
Low financial base and access to credit/finance (suppliers, banks, stock market, subcontractors etc)	.684	.488	.348
Over specialisation in operation and market already saturated	.682	.336	.452
High establishment cost to maintain branches	.651	.461	.557
lack of technical skills for certain types of projects	-.046	.929	-.106
High overhead cost; makes some projects unprofitable	.257	.887	.212
Lack of access to adequate plant and equipment	.077	.807	.148
Young company and inexperienced - clients unwilling to commit projects to us	.520	.647	.488
Low entry barrier and use of lowest bid competitive tendering	-.011	.034	.968

Appendix G13 – Communalities of variables for section E 7 (motivation of diversification strategy)

Variable	Initial	Extraction
The need to spread risk-risk aversion	1.000	.889
Present market is saturated-stiff competition	1.000	.444
Need for growth (increase turnover and profit)	1.000	.896
Need to engage unutilised resources	1.000	.963
Attracted to more profitable business(es)	1.000	.916
"Bandwagon effect"-others are doing it	1.000	.842
Cyclical/fluctuating demand in present market	1.000	.989
Diversified companies appear to be doing better than us	1.000	.692
Improve the stability/survival of the company	1.000	.920
Hope to enjoy economy of scope-build synergies in asset utilisation	1.000	.892
Hope to enjoy economy of scale through operational efficiencies	1.000	.897
Desire to create a monopoly in the market	1.000	.838

Appendix G14 – Total variance explained by components created for section E 7 (motivation of diversification strategy)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.940	49.499	49.499	5.940	49.499	49.499	4.685	39.042	39.042
2	2.887	24.055	73.554	2.887	24.055	73.554	2.904	24.197	63.239
3	1.351	11.256	84.811	1.351	11.256	84.811	2.589	21.572	84.811
4	.988	8.231	93.041	-	-	-	-	-	-
5	.668	5.567	98.608	-	-	-	-	-	-
6	.167	1.392	100.000	-	-	-	-	-	-

Appendix G15 – Initial component matrix for section E 7 (motivation of diversification strategy)

Variable	Component		
	1	2	3
Need to engage unutilised resources	.970	-.021	-.148
Attracted to more profitable business(es)	.920	-.101	-.244
Hope to enjoy economy of scope-build synergies in asset utilisation	.894	.063	-.298
Hope to enjoy economy of scale through operational efficiencies	.819	-.036	-.474
Desire to create a monopoly in the market	.808	.424	.066
The need to spread risk-risk aversion	.768	.034	.547
Present market is saturated-stiff competition	.650	.128	-.071
Need for growth (increase turnover and profit)	.642	-.608	.338
Cyclical/fluctuating demand in present market	-.281	.952	.063
"Bandwagon effect"-others are doing it	.323	.847	-.141
Diversified companies appear to be doing better than us	-.072	.816	.145
Improve the stability/survival of the company	.646	.119	.699

Appendix G16 – Rotated component matrix for section E 7 (motivation of diversification strategy)

Total % of variance explained: 84.8%	**Component**		
	1	**2**	**3**
Hope to enjoy economy of scale through operational efficiencies	.941	-.105	.020
Hope to enjoy economy of scope-build synergies in asset utilization	.921	-.009	.211
Attracted to more profitable business(es)	.903	-.173	.267
Need to engage unutilized resources	.901	-.097	.377
Desire to create a monopoly in the market	.684	.363	.487
Present market is saturated-stiff competition	.600	.078	.280
Cyclical/fluctuating demand in present market	-.203	.971	-.066
Diversified companies appear to be doing better than us	-.078	.821	.108
"Bandwagon effect"-others are doing it	.410	.818	.070
Need for growth (increase turnover and profit)	.327	-.650	.606
Improve the stability/survival of the company	.195	.080	.936
The need to spread risk-risk aversion	.372	-.016	.866

Appendix G17 - Communalities of variables for section E 9 (diversification barrier)

Variable	Initial	Extraction
Management has poor knowledge of new business environment	1.000	.745
Too many periphical activities unrelated to main business	1.000	.867
There was not enough attention/investment to new business(es)	1.000	.946
Inadequate planning before diversification was implemented	1.000	.945
Lack of transferable knowledge/technology and skills	1.000	.935
Stiff competition in the new market/product	1.000	.679
Customers were reluctant to try out new products	1.000	.893
Insufficient information about new market/customer preferences	1.000	.893
Business was acquired by mistake	1.000	.637
Unware of market restrictions through legislations against foreign firms	1.000	.885
Need of services of professional consultants to help with the development of the strategy plan	1.000	.921
Unable to build sufficient synergy for profitable growth	1.000	.795

Appendix G18 - Total variance explained by components created for section E 9 (diversification barrier)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.907	40.888	40.888	4.907	40.888	40.888	4.349	36.240	36.240
2	3.860	32.165	73.053	3.860	32.165	73.053	3.984	33.197	69.437
3	1.374	11.449	84.502	1.374	11.449	84.502	1.808	15.066	84.502
4	.767	6.393	90.896	-	-	-	-	-	-
5	.695	5.795	96.690	-	-	-	-	-	-
6	.262	2.180	98.870	-	-	-	-	-	-
7	.136	1.130	100.000	-	-	-	-	-	-

Appendix G19 - Initial component matrix for section E 9 (diversification barrier)

Variable	Component		
	1	2	3
Too many periphical activities unrelated to main business	.922	.127	-.038
Inadequate planning before diversification was implemented	.907	.301	.177
There was not enough attention/investment to new business(es)	.903	.283	.227
Management has poor knowledge of new business environment	.782	.269	.245
Unable to build sufficient synergy for profitable growth	.743	.409	.276
Business was acquired by mistake	-.639	.289	.380
Insufficient information about new market/customer preferences	-.346	.879	.023
Customers were reluctant to try out new products	-.346	.879	.023
Lack of transferable knowledge/technology and skills	-.387	.816	-.346
Stiff competition in the new market/product	.204	.745	-.287
Unware of market restrictions through legislations against foreign firms	-.469	.706	.407
Need of services of professional consultants to help with the development of the strategy plan	-.442	-.292	.800

Appendix G20 - Rotated component matrix for section E 9 (diversification barrier)

Variable	Component		
	1	2	3
There was not enough attention/investment to new business(es)	.964	-.051	-.124
Inadequate planning before diversification was implemented	.956	-.034	-.174
Unable to build sufficient synergy for profitable growth	.883	.123	-.037
Management has poor knowledge of new business environment	.860	-.022	-.065
Too many peripherical activities unrelated to main business	.835	-.198	-.361
Insufficient information about new market/customer preferences	-.006	.944	.045
Customers were reluctant to try out new products	-.006	.944	.045
Lack of transferable knowledge/technology and skills	-.193	.906	-.279
Unaware of market restrictions through legislations against foreign firms	-.034	.817	.464
Stiff competition in the new market/product	.322	.634	-.416
Need of services of professional consultants to help with the development of the strategy plan	-.199	-.136	.929
Business was acquired by mistake	-.329	.485	.541

Appendix H – Tables of statistics

Appendix H1 – Group statistics for two (2) independent samples

Group Statistics					
	Diversification	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Return on capital employed (ROCE) (%)	Undiversified	6	38.383	21.6659	8.8451
	Diversified	27	30.209	15.5240	2.9876
Return on equity (ROE) (%)	Undiversified	9	62.702	41.4513	13.8171
	Diversified	27	25.571	15.4557	2.9745
Return on total asset (ROTA) (number of times)	Undiversified	9	5.1967	3.68181	1.22727
	Diversified	28	4.9086	2.26689	.42840
Profit margin (PM) (%)	Undiversified	9	6.7578	7.87284	2.62428
	Diversified	27	7.3733	6.24690	1.20222

Appendix H2 – Group statistics for three (3) independent samples

Group Statistics					
	Diversification	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Return on capital employed (ROCE) (%)	Undiversified	6	38.383	21.6659	8.8451
	Moderately diversified	12	36.978	13.7209	3.9609
	Highly diversified	15	24.793	15.1310	3.9068
Return on equity (ROE) (%)	Undiversified	9	62.702	41.4513	13.8171
	Moderately diversified	12	31.019	15.5649	4.4932
	Highly diversified	15	21.212	14.4042	3.7191
Return on total asset (ROTA) (number of times)	Undiversified	9	5.1967	3.68181	1.22727
	Moderately diversified	13	6.2800	2.45050	0.67965
	Highly diversified	15	3.7200	1.22610	0.31658
Profit margin (PM) (%)	Undiversified	9	6.7578	7.87284	2.62428
	Moderately diversified	12	6.5542	2.05601	0.59352
	Highly diversified	15	8.0287	8.25325	2.13098

Appendix H3 – T Test: parametric test for two (2) independent samples

Two (2) independent samples T - Test										
		Levene's test for equality of variances		T-test for equality of means						
		F	Sig.	t	df	Sig. (1-tailed)	Mean difference	Std. Error difference	95% confidence interval of the difference	
									Lower	Upper
Return on capital employed (ROCE) (%)	Equal variances assumed	1.201	0.282	-1.087	31	0.143	-8.1748	7.5230	-23.5182	7.1685
	Equal variances not assumed			-0.876	6.190	0.207	-8.1748	9.3360	-30.8498	14.5002
Return on total asset (ROTA) (number of times)	Equal variances assumed	6.180	0.018	-0.283	35	0.390	-.28810	1.01832	-2.35539	1.77920
	Equal variances not assumed			-0.222	10.024	0.415	-.28810	1.29989	-3.18348	2.60729

Appendix H4 – Sum of Ranks

	Diversification	N	Mean Rank	Sum of Ranks
Return on equity (ROE) (%)	Undiversified	9	26.89	242.00
	Diversified	27	15.70	424.00
	Total	36		
Profit margin (PM)	Undiversified	9	16.11	145.00
	Diversified	27	19.30	521.00
	Total	36		

Appendix H5 – Mann-Whitney: non parametric test of two independent samples

Test Statistics		
	Return on equity (ROE) (%)	Profit margin (PM)
Mann-Whitney U	46.000	100.000
Wilcoxon W	424.000	145.000
Z	-2.758	-.786
Sig. (1-tailed)	0.003	0.216

Appendix H6 - One way analysis of variance (ANOVA): parametric test for three independent samples

Descriptive									
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Return on capital employed (ROCE) (%)	Undiversified	6	38.383	21.6659	8.8451	15.646	61.120	11.6	68.8
	Moderately diversified	12	36.978	13.7209	3.9609	28.260	45.695	21.1	65.2
	Highly diversified	15	24.793	15.1310	3.9068	16.414	33.173	11.9	73.8
	Total	33	31.695	16.7154	2.9098	25.768	37.622	11.6	73.8
Return on total asset (ROTA) (number of times)	Undiversified	9	5.1967	3.68181	1.22727	2.3666	8.0268	.36	9.76
	Moderately diversified	13	6.2800	2.45050	.67965	4.7992	7.7608	3.44	11.71
	Highly diversified	15	3.7200	1.22610	.31658	3.0410	4.3990	2.01	5.91
	Total	37	4.9786	2.62339	.43128	4.1040	5.8533	.36	11.71

Appendix H7 – Result of test of homogeneity of variances

Test of homogeneity of variances				
	Levene statistic	df1	df2	Sig.
Return on capital employed (ROCE) (%)	1.025	2	30	.371
Return on total asset (ROTA) (number of times)	6.839	2	34	.003

Appendix H8 – Result of analysis of variance

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Return on capital employed (ROCE) (%)	Between Groups	1317.756	2	658.878	2.593	.091
	Within Groups	7623.232	30	254.108		
	Total	8940.988	32			

Appendix H9 – Kruskal Wallis test: non parametric test for three (3) independent samples

Ranks				
Financial Ratio	**Level of diversification**	**N**	**Mean Rank**	
Return on equity (ROE) (%)	Undiversified	9	26.89	.003
	Moderately diversified	12	20.42	
	Highly diversified	15	11.93	
	Total	36		
Return on total asset (ROTA) (number of times)	Undiversified	9	19.67	.014
	Moderately diversified	13	25.19	
	Highly diversified	15	13.23	
	Total	37		
Profit margin (PM)	Undiversified	9	16.11	.708
	Moderately diversified	12	19.92	
	Highly diversified	15	18.80	
	Total	36		