

Business Diversification and Performance: Evidence from South African Construction Firms

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Abstract:

The paper examines whether there is any significant relationship between business diversification and the performance of construction firms in South Africa. The rationale for the examination stems from the view that relationship between diversification and performance of construction firms are important issues in strategic management and cross border businesses in terms of growth. However, there is a dearth of empirical research and theoretical arguments on the effects of business diversification on the performance of construction firms in South Africa. The study employed the use of archival data for a period of five years for 16 construction companies listed in Grade 7-9 on the Construction Industry Development Board (cidb) contractor register. The data were analysed using t-statistics and correlation coefficient and the results indicate that although diversification was found to have a positive impact on the corporate performance of companies, there were no statistically significant differences in the performance of diversified and undiversified firms. The findings of this study also revealed that geographic and product diversification has an impact on the profit margin of the firms. The outcome of the research is of immeasurable value to decision makers and managers of construction companies as it will help in making viable corporate strategic decisions. The study also engenders a better understanding of the effect of both service and geographic diversification on the performance of contractors.

Keywords:

Business, Construction, Diversification, Performance, South Africa

Introduction

Construction firms operate in a complex and fragmented industry environment where different project or firm exhibits unique characteristics coupled with ever changing demand of stakeholders, which inter alia include investors, clients, contractors and consulting professionals (cidb, 2012). This growing and complex nature demonstrated by the business environment demands an organisation to look inwards and outwards and diversify their operations in a way that can make the company attain and sustain success in a hyper-competitive market (Ibrahim *et al.*, 2009).

Different definitions and outcome of performance effects of different types of diversification exist in strategic and international business literature (Ravichandran *et al.*, 2009). Many of the definitions available in the literature defined or discussed diversification of firms from international point of view (Capar & Kotabe, 2003; Hitt *et al.*, 2006; Wiersema & Bowen, 2008). For instance, Capar and Kotabe (2003) defined geographic diversification as firms' expansion beyond the borders of its home country

across different nations and geographical regions. Within the context of this paper, diversification is defined as organisational spread beyond its local borders to another market (sub sector) within the industry or region (geographic) to improve business performance by reducing inherent risks and enhance return on investments.

Despite the wealth of knowledge and research in linking performance effects of both product and geographic diversification, even within the strategic management, finance and international business circles, there are still inconsistencies in the outcome of the studies and as such scholars persist in their inquiry (Mayer & Whittington 2003; Chakrabarti *et al.* 2007; Wiersema & Bowen 2008). In addition, there is sparse literature on diversification focusing on the construction industry, the reason being that construction management is relatively an innovative field of research compared to other areas, it becomes essential to tap from both natural and social sciences to enhance performance of the field (Knight & Ruddock, 2008).

Singh *et al.* (2010) assert that the major motive for a company's diversification into different product categories and geographic markets is to satisfy their growth and corporate strategic objectives. Higgins and Vincze (1993) cited in Ofori and Chan (2000) note that growth of firms requires some considerations that was categorised into four: the type of growth (diversified); its geographical focus; how it will take place; and how quickly it will occur. However, many of the studies carried out focus mainly on large firms with some of them reporting that a positive relationship exists between performance effects on products and geographic diversification (Kim *et al.* 1993; Hitt *et al.* 1997, Singh *et al.*, 2010) as well as negative (Tallman & Li 1996) on firms. In spite of this acknowledged importance of strategic objectives, little attention has been given to it in the construction industry. Kim and Reinschmidt (2012) corroborate the opinion that much of the available knowledge on strategic issues at the corporate or industry level is mostly descriptive rather than quantitative, and useful empirical findings are limited.

Considering the dearth of empirical research and theoretical arguments on the effects of business diversification on construction company performance, this paper intends to fill this gap by examining whether the level of diversification evident in construction companies has had an effect on the business performance, and also establishing whether it is important for construction firms to diversify in order to benefit from accrued opportunities available in other product (sub-sectors) and geographic markets (Teo, 2002).

Literature Review

This section reviews literature on the effect of geographic and product diversification on corporate performance.

Geographic Diversification

Geographic diversification (GD) of a construction firm in the context of this paper will mean the organisational spread of a firm beyond its local borders or corporate head office to another region which may be internal (within the country) or external (beyond the borders of the country) (Capar & Kotabe, 2003; Ibrahim *et al.*, 2009). Singh *et al.*

(2010) categorised the previous studies on performance effects of geographic diversification into three namely; (1) the category that comprises research that focuses on establishing the relationship between GD and firm performance without much attention to the contingency factors; (2) the category that comprises research that focuses primarily on the contingency conditions affecting geographic diversification performance relationship and (3) the category that comprises research that explores the relationship in different empirical settings. All these studies produced mixed results with respect to performance effects of geographic diversification; the incongruities in the results vary from positive relationship findings (Annvarajula *et al.*, 2005; Hitt *et al.*, 2006; Singh *et al.*, 2010), negative relationship (Geringer *et al.*, 2000; Denis *et al.*, 2002), an inverted “U” shaped relationship (Singh *et al.*, 2010), an “S” shaped relationship as reported by (Contractor *et al.*, 2003; Lu & Beamish, 2004) to lack of relationship among the variables (Dess *et al.*, 1995).

Product diversification

Many authors have written on the performance effects of product diversification (PD) (Palich *et al.*, 2000; Wiersema & Bowen, 2008) and documented evidence exist on the resultant benefits and prices associated with PD as well as exigency factors that influence the benefits and costs of it (Singh *et al.*, 2010). Wiersema and Bowen (2008) posit that earlier theory has it that reasons for corporate strategic objective regarding expansion via product or international diversification by companies is based on their opportunity to leverage the firm’s excess resources into new markets. Many firms diversify into different region or product markets for myriad of reasons, such as economies of scale and scope as well as to increase market share (Markides & Williamson, 1996), risk dispersion and for reasons to safeguard future business uncertainties (Berger, 1995), to benefit from optimal utilization of existing resources and capabilities (Wiersema & Bowen, 2008). Wan and Hoskisson (2003) assert that firms that exhibit higher levels of product diversification are more likely prone to insufficient resources and managerial difficulties that is capable of impeding their ability to develop global competitive advantages.

In this paper, PD denotes a firm’s diversification to more than one class of work as calibrated by cidb such as general building works, civil engineering, mechanical and electrical services, property developers, plant hirers and so forth.

Research Methodology

The impacts of company diversification on performance have been comprehensively studied in strategic management, finance and international business literature but many of the research focused on the economic rationale behind the diversification–performance linkage (Ravichandran *et al.*, 2009; Singh *et al.*, 2010). The research adopts a case study approach using semi structured interview to elicit primary qualitative data on the level of geographic and product diversification of the firm from the respondents in the study. Secondary financial data were also for use in assessing the level of performance of the firms for a period of five years.

Population of the Study and Sample Size

The samples for this study consist of active medium and large contracting firms listed in Grade 7-9 on the cidb contractor register. The data used for the research were sourced from that cohort of firms because of their continuous upgrade of at least three times within a period of five years (2006-2010) on the register. The dominance of these firms is evident in the large number of contracts they have benefited from. This was estimated to be around 75% of the total public sector contracts (cidb, 2012). A total of 679 firms were found to be active on the registers at the time this research was carried out between February and June 2011. Of this number, 62 construction firms located across South Africa were found to have met the research criteria of company upgrade and performance. All 62 contracting firms that constituted the sample size were invited to participate in the study via e-mail and later telephonically due to low responses. At the end of a six week period, 14 contractors responded to the e-mail and telephone invite, representing a 22.57% response rate. Four established contractors that were selected with a convenience sampling technique were also used as control for the study.

Statement of Hypotheses

Based on the earlier studies by Ofori and Chan (2000), Ibrahim *et al.* (2009) and Singh *et al.* (2010), which investigated the effects of company diversification on corporate performance empirically, this study also proposed and tested the hypotheses.

Measures of geographic and product diversification variables

Several measures of diversification exists in the literature, but the most frequently used measure is the 'foreign sales ratio,' which is expressed as a firm's foreign sales divided by its total sales (Tallman & Li, 1996). Other measures as suggested by Ibrahim *et al.* (2009) include foreign employee ratio and foreign assets ratio, the entropy of a firm's sales across geographic market regions (Hitt *et al.*, 1997), the ratio of exports to total sales, and the ratio of foreign to total employees (Kim *et al.*, 1989). Ibrahim *et al.* (2009) assert further that many of these approaches have been criticised as they focus on the overall strategic importance of foreign operations to a firm. This research adopts the approach used by earlier researchers (Jiang *et al.*, 2005; Ibrahim *et al.*, 2009; Singh *et al.*, 2010) in measuring the variables. Explanatory variables are PD and GD.

Product Diversification

PD is measured adopting the Herfindahl index as used in (Tallman & Li, 1996; Singh *et al.*, 2010), this will be based on total number of contracts won and executed in the equivalent of Standard Industrial Classification (SIC) category, businesses in the same SIC level are treated as homogeneous and distinctions are made with those in different SIC categories as used by (Jiang *et al.*, 2005).

Mathematically, $PD = 1 - \sum_{i=1}^n S_i^2$

Where: S_i is the proportion of the firm's contracts in i th class of work (product) category

Geographic Diversification

GD of the firm is determined by the ratio of contracts won outside its local province to total number of contracts won for the period under consideration. This measure of

geographic diversification is in conformity with previous studies (Capar & Kotabe, 2003; Singh *et al.*, 2010).

Control Variables

Control variables are the size, age, technical capability and capital structure (working capital) of firms.

Measures of Corporate Performance

Ibrahim *et al.* (2009) maintain that there are many measures of firm's performance available in use as demonstrated by researchers such as Ofori and Chan (2000) who state that index of performance measurement of firms include sales revenue, volume of output, share of market, profit, number of personnel, number of branches and extent of geographical spread. The earlier studies of performance effects on diversification employed different accounting measures ranging from Return On Total Asset (ROTA) by authors such as (Ibrahim *et al.*, 2009, Singh *et al.*, 2010) to Return On Investment (ROI) (Palich *et al.*, 2000; Jiang *et al.*, 2005). Return on total asset (ROTA), Return on capital employed (ROCE) and Profit margin (PM) are used as a measure of firm's performance and the dependent variables for which the study will employ the following as measures:

Method of Data Analysis

The research employed parametric statistical methods, the t-statistics to compare the means of the two samples (diversified and undiversified firms). This was used as a result of its strength which implies that it is comparatively indifferent to violations of underlying assumptions of homogeneity of variance and normality of population distribution from which samples are taken as suggested by Ibrahim *et al.* (2009). Correlation co-efficient was also used to indicate the nature of relationships that exist among the dependent, exploratory and control variables of the sample population. Correlation is a statistical technique that measures the degree of closeness or linear relationship between the variables. The firms were classified into diversified and undiversified, thus analyses of the differences in the performance of the two categories was carried out to suggest actions to be taken on the hypotheses. In doing this, the study employed the use of average annual performance measures.

Correlation co-efficient measures the strength of linear relationship that exists between two variables, but does not necessarily indicate the causativeness, correlation in the range of 70% (0.70) to 90 % (0.90) is high and 50% (.50) to 70% (.70) is moderate while below 50% is regarded as low or weak (Oyewobi *et al.*, 2011). Positive correlation within the range of $(0 < p \leq 1)$ is an indication that significant or greater values of x are related to greater values of y, while the negative correlation $(-1 \leq p < 0)$ indicates that greater values of x are related to small values of y.

Findings and Discussion of Results

Table 1 shows the results of descriptive statistics and correlation coefficients. 76% of the firms considered diversified both geographically and in terms of product, while 23%

remain undiversified. The descriptive statistics indicate that the average age of firms involved in the study is 22 years. The mean values of PD and GD are 0.38 and 0.40 respectively. The correlation analysis results of the tested variables indicated low positive relationships exist between GD, PD and profit margin (PM) (34 and 26% for GD and PD respectively), this depicts that the more diversified firms are, the higher the profit margin.

This result was in affirmation of earlier findings of Zook (2001) who posits that firms that diversify around their core business (concentric diversifications) have higher success rate than other approaches to diversification. Weak negative correlation were also found to exist among measures of firms performance (ROTA and ROCE) and diversification, which indicates that as firms diversify the returns both on asset and capital employed decreases. The result is in tune with the findings of Ofori and Chan (2000) who reported that negative relationship exists between a firms' geographic diversification and corporate performance. This also underpinned the findings of earlier studies that firms which exhibit higher levels of product or geographic diversification are more likely prone to insufficient resources and more market risk which leads to drops in returns (Wan & Hoskisson, 2003; Wiersema & Bowen, 2008).

Table 1: Descriptive Statistics and Correlation of Variables

	MEAN	S.D	TCAP	AGE	PD	GD	ROTA	ROCE	PM	SIZE	CPST
TCAP	268.46	401.91	1								
AGE	22.08	10.87	0.31	1							
PD	0.38	0.25	0.64*	0.23	1						
GD	0.40	0.26	0.55	0.19	0.90**	1					
ROTA	18.81	16.32	0.08	0.14	-0.10	-0.10	1				
ROCE	70.13	116.32	-0.12	-0.22	-0.40	-0.39	0.74**	1			
PM	6.11	5.05	0.40	0.68*	0.34	0.26	0.56*	0.09	1		
SIZE	1.53	0.20	0.51	0.22	0.85**	0.96**	-0.01	-0.24	0.25	1	
CPST	19.80	39.76	0.85**	0.27	0.51	0.47	0.10	-0.02	0.51	0.47	1

*Correlation is significant at 0.05 level

** Correlation is significant at 0.01 level

Key:

S.D.-Standard Deviation; TCAP-Technical capability; PD-Product Diversification; GD-Geographic Diversification; ROTA-Return on total asset; ROCE-Return on capital employed; PM-Profit Margin; and CPST- Capital structure.

The results of the correlation indicates strong positive relationship between GD and PD and this shows that firms that diversify (concentric diversification) or extend to other provinces will enjoy increase market share and improved returns as indicated by the relationship between PD, GD and PM. This finding is deeply rooted in the results of studies carried out by Singh *et al.* (2010). Size of firms exhibit high positive relationship with PD and GD with values of $r = 85\%$ and 90% respectively, this shows that the greater diversification (PD & GD) are associated with large values or number of contract won by the diversified firms. While age of firms indicates that established firms enjoy more improved returns of investment.

Figure 1 shows the aggregate trends in the performance of the construction firms studied. It emerged that the corporate performance indicators are not level depicting peaks and valleys and a general inconsistency in the performance of the companies.

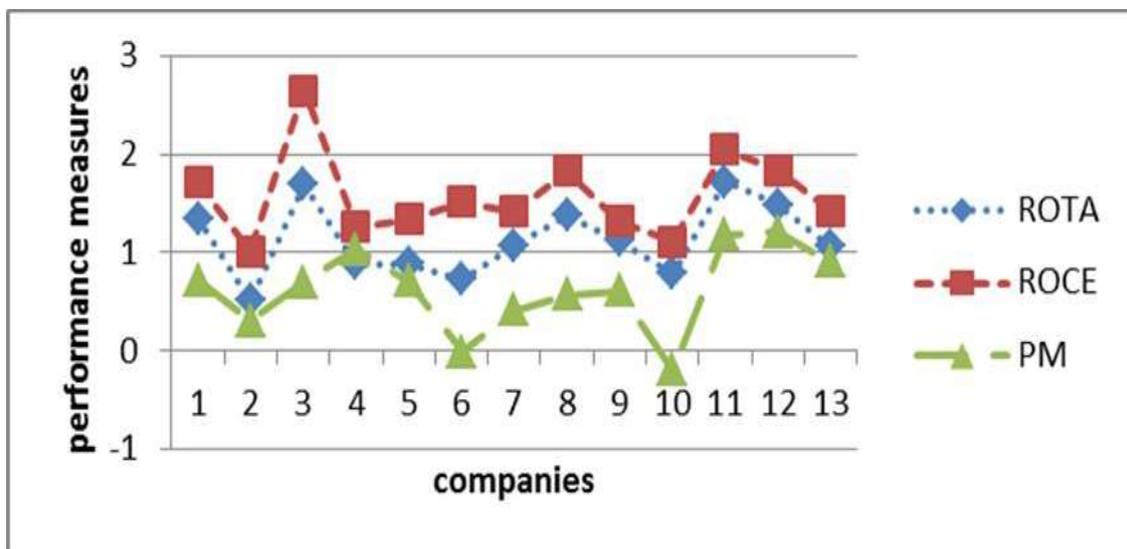


Figure 1: Aggregate Trends in Corporate Performance of the Construction Companies

Tables 2, 3 and 4 show the result of comparison of performance measures of both the diversified and undiversified firms considered for the study. T-statistics was used to test whether there are significant differences in the performance of both diversified and undiversified firms and this was used at 95% confidence interval of the alternative hypothesis. The decision rule is dependent on whether the t-calculated is greater than or less than the critical values of t for (n-2) degree of freedom.

Across the three measures of performance measures employed in this study, the results indicated no performance differences exist between the two groups of study. This is demonstrated by the values of t-calculated, which was less than the critical values of t, the results are statistically insignificant and thus alternative hypothesis is rejected. This result affirmed the findings of Ibrahim *et al.* (2009) in the context of the United Kingdom (UK) construction industry. Ibrahim *et al.* (2009) observe that there appear to be no performance differences between the two groups with respect to the measures of performance employed.

Table 2: t-Test statistic- undiversified vs. diversified firms (PM)

t-test: two-sample assuming equal variances	Undiversified firms	Diversified firms
<i>Average annual PM</i>		
Mean	0.572929366	0.6424967
Variance	0.05250024	0.2251653
Observations	3	10
Pooled Variance	0.193771637	
Hypothesized Mean Difference	0	
df	11	
t Stat	-.240076244	
P(T<=t) one-tail	0.407343191	
t Critical one-tail	1.795884819	

Table 3: t-Test statistic- undiversified vs. diversified firms (ROCE)

t-test: two-sample assuming equal variances	undiversified firms	diversified firms
<i>Average annual ROCE</i>		
Mean	1.788693788	1.508166955
Variance	0.676061787	0.089100238
Observations	3	10
Pooled Variance	0.195820519	
Hypothesized Mean Difference	0	
df	11	
t Stat	0.963017684	
P(T<=t) one-tail	0.178115754	
t Critical one-tail	1.795884819	

Table 4: t-Test statistic- undiversified vs. diversified firms (ROTA)

t-test: two-sample assuming equal variances	Undiversified firms	Diversified firms
<i>Average annual ROTA</i>		
Mean	1.183787319	1.1115951
Variance	0.364037396	0.1045031
Observations	3	10
Pooled Variance	0.151691186	
Hypothesized Mean Difference	0	
df	11	
t Stat	0.281578443	
P(T<=t) one-tail	0.391746683	
t Critical one-tail	1.795884819	

Conclusions and Further Research

This study investigates the impact of geographic and service/product diversifications on the corporate performance of firms in the South African construction industry. To achieve the main objective of the study, the research postulated hypotheses to examine the level and nature of relationship that exists among the variables. The study found that there is no positive relationship between the two measures of performance ROTA and ROCE, but low positive relationship exists between diversification and PM. Overall, the alternative hypothesis was rejected, as no significant positive relationship is apparent. Positive interaction between PD and GD was demonstrated by the research, which upheld the third alternative hypothesis. The research established that there were no statistically significant differences between the diversified and undiversified firms in terms of performance when the measures of performance were compared for the two groups. Nonetheless, the correlated positive relationship between GD, PD and PM shows that diversification is capable of increasing returns (profit), but show negative effects on ROTA and ROCE. In summary, this suggests that diversifications have an impact on the corporate performance of firms in terms of increases in profit margin. However, there was no significant impact on the returns on assets/capital invested by the company in the business. This is inconclusive and further study with a larger sample size and longer time needs to be investigated in order to validate this and investigate the impact of time. The study recommends that a firm considering diversification should ensure it diversify around its core business area where it has competitive advantage so as to add value to traditional business, and to improve performances and reduce risks.

Limitations of the Research

The research was limited to large firms (Grade 7-9) listed on the cidb contractor register, efforts should be made to expand the research by incorporating a larger sample size and increasing the length of years examined in a future study. The information used for GD and PD was limited to the information supplied by the firms.

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