Impact of construction firms' competitiveness on corporate performance: An exploratory study

George Cyril Tucker, Abimbola Olukemi Windapo, Keith Cattell

Abstract

This paper investigates the competitiveness and corporate performance of construction companies in South Africa. It examines whether there are key indicators of construction firms' competitiveness that enhances their corporate performance. The rational for the study is based on the fact that the factors, which give construction companies their competitive advantage in South Africa is unknown. A descriptive survey approach and a combination of convenience and snowball sampling techniques were used in identifying 35 building and civil engineering construction companies based in three provinces of South Africa and registered in grades 2-6 of the Construction Industry Development Board (cidb) contractor grading register. The data used in the study was collected from this cohort of respondents through the use of structured interviews incorporating closed and open-ended questions. The findings of this exploratory study indicate that there is a negative significant relationship between staff size a key indicator of competitiveness and their overall corporate performance Return on Total Assets (ROTA) and also the technical ability and company industry affiliation are positively and highly correlated with their overall corporate performance. Based on these significant findings, it can be concluded that it is not the size of staff that determines competitiveness but their productivity. Effective and efficient staff, good technical ability and the level and strength of industry affiliation will make the construction company more competitive and influence its corporate performance. The findings of this research provide construction companies with new knowledge, enabling contractors to understand their competitive advantage and weaknesses in order to formulate effective competitive strategies that will enhance their corporate performance.

Keywords: Competitiveness, corporate performance, marketing strategy, net asset, and, profitability.

1. Introduction

Competitiveness as described by Man, Lau and Chan (2002), is the ability of a firm to increase market share, profit and growth in order to be competitive for a long time and to improve the firms' capability as well as the firms' financial strength. According to Corbett and Wassenhove (1993), a firm's competitiveness has price, place and product dimensions. Implying that competitiveness is a multidimensional phenomenon. The increasing global nature of markets and economic activities has resulted in the increasing complexities of competition among

construction companies (Ibrahim, Ibrahim and Kabir, 2009; Korkmaz, and Messner, 2008), which has made construction companies to be continuously challenged to meet the needs of society and clients (Sexton and Barrett, 2003).

Assertions made by Man et al. (2002), are that firms' competitiveness and corporate performance is characterized by its managerial skill and technical capability or acquisition of strategic assets. Competitiveness however is being regarded as a means to an end which is a firms' performance. Tan, Shen, Yam and Lo (2007), noted that competitiveness is generally used to grade contractors according to their capacity and capability. Conversely, organizational performance is described by DeHaan, Voordijk, and Joosten (2002) as a function of a firms' competitiveness and capability. This paper examines the competitiveness of construction companies that impact their corporate performance, making use of construction company capacity and marketing strategy as competitive variables for the study. To do this, the paper first of all reviews pertinent literature on what constitutes competitiveness of construction firms. Secondly, the research methods used in the study are presented. Thirdly, the data collected in the study is presented and analysed. Finally, the paper discusses the research findings and its implications for construction company performance and growth, which will be the subject of further research.

2. Overview of construction firms' competitiveness

Assertions made by Price and Newson (2003), are that companies competitiveness is evident when it has an edge over its counterparts in attracting customers and protecting its share of the market against other competing forces. In addition, since the market undergoes continuous changes, it implies that competitive advantage cannot be maintained for a very long time without changes in strategies (Korkmaz, and Messner, 2008) and firms therefore rely on the acquisition of new forms of competitiveness in order to be at an advantage and hence maintain their lead (Thompson and Strickland 1999). According to Porter (1990), firms can only be competitive in the market within the boundaries of their competitive advantage. Korkmaz and Messner (2008), Man et al. (2002) established that company competitiveness is a function of a firm's managerial capability, market share, profit and growth.

2.1 Capacity of construction firms

Capacity is described as the possession of adequate human resource team (Russell, 1991), level of managerial skill (Green, Larsen and Kao, 2007), ability to recognise the value of technological innovation and apply it (Zahra, and George, 2002), having financial capital (Bakar, Razak, Yusof and Karim, 2011), as a measure of the development and growth of firms (Bakar, Razak, Yusof, and Karim, 2011), as technical ability in terms of land, buildings, plant and equipment (Tan, Shen, Yam and Lo, 2007). Construction company capacity can therefore be said to include, assets, technical & managerial skills, human resource, turnover, finance, and ability to innovate.

Asset refers to land, buildings, plant and equipment. Penman (2001) describe assets as resources possessed by firms for use in the business operations for an economic benefit as a result of some current or past transaction. Since construction business is a high-risk venture, financial institutions tend to be more difficult in approving loan applications for contractors (Adams, 1997). Lack of collateral security in the form of land, buildings poses a setback for loan acquisition by contractors. It has been validated by previous research that possession of assets by firms enhances their overall performance (Adams, 1997).

2.2 Overview of Marketing Strategies used by Construction Companies

Business networking/relationship can be described as a collaboration of a firm with a strategic actor to form strong and extensive service that enhances the firm's performance (Chell and Baines, 2000). Korkmaz, and Messner (2008), identified marketing strategy as a key business performance factor. This study argues that construction firms that are performing and expanding in operations must have acquired specific advantages and resources through market strategies and the level of their affiliation with construction industry stakeholders like clients, which enables them to be more competitive and perform at higher levels when compared to their counterparts in the construction industry who have not acquired these (Day, 2000).

2.3 Factors influencing corporate performance

Organisational performance is acknowledged as a function of a firms's competitiveness and capability (De Haan, Voordijk and Joosten, 2002); financial, operational and organizational effectiveness (Man et al., 2002); technical capacity (Man et al., 2002); profitability or financial gain (Beatham, Anumba, Thorpe and Hedges, 2004; and Norris, 1990); a basic goal for running a business (Tam, 2002; Naoum, 2003) and a function of timely delivery (Soetanto, Proverbs and Holt, 2001). Bakar et al. (2011) opine that growth and performance can be measured by the dependent variables of turnover and number of permanent employees of the firm.

Although previous research has validated several factors that influence the corporate performance of firms, however, (Man et al., 2002) opined that managerial skills and technical ability are influential factors of performance. Man et al. (2002) further argued that competitiveness of firms has a strong relationship with competitive scope, organizational capabilities, entrepreneurial competences and performance. This implies that competitiveness has a very strong link with performance of the firm. Figure 1 shows a conceptual framework of the relationship between competitive advantage and corporate performance adapted from previous studies by DeHaan et al. (2002), Man et al. (2002), Beatham et al. (2004), Norris (1990), Ofori and Chan (2000), Tam (2002), Naoum (2003), Soetanto et al. (2001) and Bakar et al. (2011).

From the arguments of DeHaan et al. (2002), Man et al. (2002), Beatham et al. (2004), Norris (1990), Ofori and Chan (2000), Tam (2002), Naoum (2003), Soetanto et al. (2001) and Bakar et

al. (2011), the relationship between competitive advantage and performance can be modeled mathematically as:

Corporate Performance {ROTA; ROCE; PM, PBIT, Turnover} = Competitiveness [TA+NA + TECHAB + STSZ + AGE + CAPSTR + INDAFF] (See Figure 1)

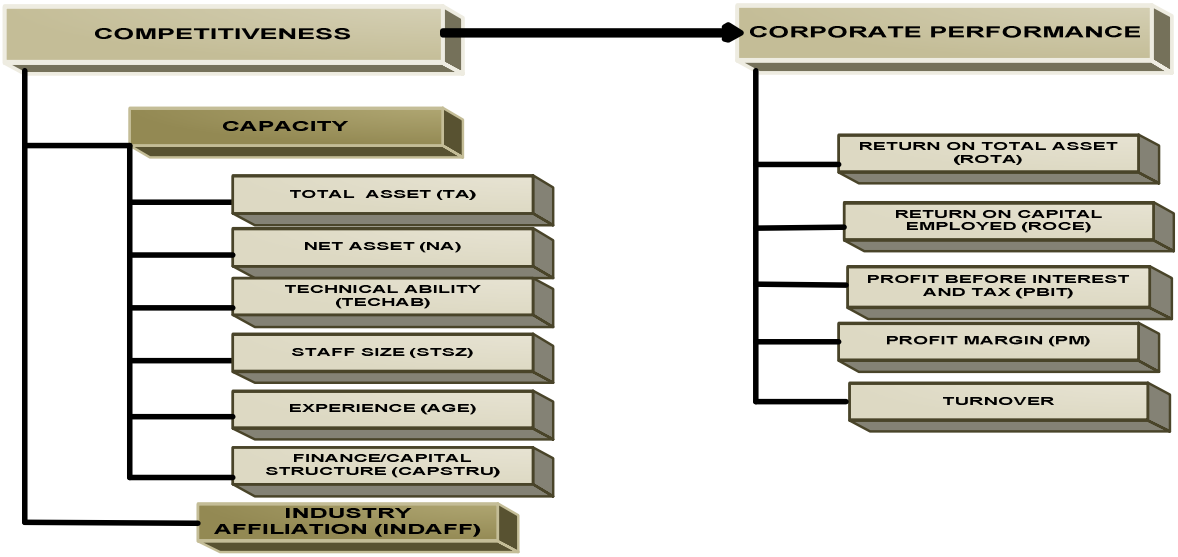

Figure 1: Conceptual frame work of the competitive indicators and performance outcome

Adapted from: DeHaan et al. (2002); Man et al. (2002); Beatham et al. (2004); Norris (1990); Ofori and Chan (2000); Tam (2002); Naoum (2003); Soetanto et al. (2001); and Bakar et al. (2011)

2.4 Research Hypothesis

In addition, the study will be employed in testing the following hypothesis:

H_A: *There are significant competitiveness factors related to the corporate performance of construction companies in South Africa.*

H_O: *There are no significant competitiveness factors related to corporate performance of construction companies in South Africa*

3. Methodology

This research is an area extensively documented in construction management studies (Adams, 1997; Bakar et al. 2011; De Haan et al. (2002); Man et al., 2002; Korkmaz and Messner, 2008; Ofori and Chan, 2000; Russell, 1991; Soetanto et al. 2001; and Tan et al., 2007). A purposive but convenient snowball sampling technique was used in selecting the cohort of construction

companies used in the study from a population of grade two to six building and civil engineering contractors registered on the cidb contractor register. Sampling in this research effort describes a specimen or part of a whole of the population under survey which would reflect the characteristic of the remaining population (Naoum, 2007). Grade two to six building and civil engineering contractors were used in the study because these grades of contractors are often used in contractor training and development programmes on government housing projects in South Africa and also form the major contributors to infrastructure delivery. All potential participants were invited telephonically to take part in the study after which the survey questionnaire was emailed to one hundred (100) participants who agreed to participate in the study. The study was undertaken between July and September 2012 (a ten week period) at the end of which 35 valid responses were collected, representing an overall response rate of 35%. Idrus and Newman (2002), consider any response rate in the range of 20% to 30% to be adequate and valid for research in the construction industry Participants who did not complete the survey via email were reminded intermittently via phone calls. A descriptive and multi-attribute methods and rank correlation was used in analysing the data collected (Chang and Ive, 2002). This is deemed by Mbachu and Nkado (2007) as being appropriate for quantitative and qualitative research data and questions.

3.1 Rating of construction firms' strategic competitiveness and industry affiliation

In order to rate the the indicators of construction firms' strategic competitiveness and industry affiliation, a relative importance index was computed with a minimum value of 0, and a maximum value of 4 from data obtained from a Likert scale used in obtaining information on respondents perception of factors enhancing construction company's competitiveness and industry affiliation (Table 3, figure 2). The relative importance index was calculated using the formula:

Relative Importance Index (RII) $= \frac{4n1+3n2+2n3+1n4+0n5}{(n1+n2+n3+n4+n5)}$

Where: n1, n2, n3, n4 and n5 = Excellent, Good, Average, Poor and Very Poor respectively.

3.2 Corporate Performance Measurement

This study employs the following variables as measures of corporate performance:

- **Return on Total Assets** (ROTA, %) - This is measured in terms of profit before tax which is expressed as a percentage of the total asset. It is an indicator of both profitability and growth. Calculated as: (Pre Tax Profit/Total asset)*100. (Armstrong, 2006; and Ibrahim et al., 2005).

- **Return on Capital Employed** (ROCE, %) - This is a measure of the profitability and growth of the firm as it measures the effectiveness of the management of the firm. It is defined as

the ratio of profit before interest and tax to the total assets less current liabilities. It is calculated as: Profit before Interest (PBIT) and Tax/(Shareholders Funds + Long Term Loans + Other Long Term Liabilities)*100% or PBIT/TA-CL (Armstrong, 2006).

- **Profit before interest and tax (**PBIT): This is described as the profit inclusive of interest and tax. It is calculated as [(Return on Capital Employed, ROCE)* (Shareholders Funds + Long Term Loans + Other Long Term Liabilities)]/100 or (Profit Margin, PM * Turnover)/100 (Armstrong, 2006).

- **Profit Margin** (PM, %) - According to Ibrahim et.al. (2005), profit margin is referred to as net profit on sales and reflects the degree of competitiveness in the market, the ability to differentiate products, the economic situation and ability to control expenses. It is calculated as: (Profit before interest and Tax/Turnover)*100%.

- **Turnover**: This is the volume of contract performed by construction companies, usually rated per year of its operation. (Armstrong, 2006). It is calculated as (Profit before interest (PBIT) and Tax/Profit Margin, PM)*100%

3.3 Measurement of Capacity

- **Total Asset** (TA): This is the fixed Asset plus the Current Asset.

- **Net Asset** (NA): This is the asset excluding liabilities. It is calculated as the Fixed Asset – the Current Asset.

- **Staff Size**: This refers to the permanent employees of the firm within a certain period of time. It is measured by the number of employee on its payroll.

- **Age of the firm:** This is the number of years the company has operated since its inception in the construction industry.

- **Technical ability** (TECHAB): is described as the ability to recognise the value of technological innovation and apply it (Zahra, and George, 2002).

- **Capital Structure**(CAPSTRU): refers to the combination of funds, in the form of debt and equity, a firm uses to finance its asset investments of the firm (Muzir, 2011: pg. 87). This is usually controlled by cash position which simply means the amount in cash held by company in its bank account to finance projects. In other words, it's the company standing capital

- **Industry Affiliation (INDAFF)**: This refers to as marketing strategy in terms of networking which is defined as a cunning inception, sustainability of interpersonal connections for the purpose of commercial gain or an activity in which owners of construction firms build and manage personal relationships with particular individuals in their environment to gain market share (O'Donnell, 2004). It is measured in this study by respondents' perceived strength of relationship with key construction industry stakeholders – client, consultants, suppliers and sub-contractors/other contractors.

3.4 Method of Data Analysis

The Pearson product moment correlation (r) was used to test the proposed research hypothesis in section 2.4. According to Naoum, (2007) and Oyewobi,et al. (2011), the relationship can be either positive or negative and the strength of it is measured on a scale that varies from +1 through 0 to -1. If the critical value obtained is equal or more than the critical value tabulated, then the null hypothesis proposed will be rejected and vice versa (Naoum, 2007)

4. Findings and discussion of results

The data collected in the study are presented in the following sub-sections:

4.1 Background of the Respondents

The study sought to find out the background of the respondents used in the study and data collected in this respect is presented in Tables 1.

Table 1: Work Category of Respondents' Company

Work Category	No. of Respondents	Percentage (%)
Civil Engineering Contractors	22	62.86
Civil Engineering and General Building Contractors	7	20.00
General Building Contractors	4	11.43
Civil, Building and M&E contractors	2	5.71

Table 1 reveals that a significant number of the respondents are made up of civil engineering contractors. It emerged that the respondents are highly placed in the organisations in which they work. The respondents comprised of 57.14% owners, 22.86% Directors, 14.29% Management staff and 5.71% Technical staff. This implies that the information provided by this cohort of respondents is reliable and valid.

4.2 Perception of respondents regarding the factors enhancing construction company competitiveness

This study aims at understanding the perception of contractors regarding the factors which enhances their competitiveness. Data collected in this regard is presented in Table 3 and Figure 2.

Table 2: Perception of respondents regarding the factors enhancing competitiveness

Factors	Rating of Respondents' Perception - Frequency					RII	Rank
	Very poor……Excellent						
Contractor Affiliation with Clients	0	0	0	21	14	3.40	1
Asset	1	1	5	18	11	3.11	2
Contractor Affiliation with Consultant	0	0	10	20	5	2.86	3
Technical and Management Skills	0	4	0	29	2	2.83	4
Contractor Affiliation with Suppliers	0	0	12	17	6	2.83	4
Experience	1	1	9	17	7	2.80	5
Turnover	3	3	5	19	5	2.57	6
Staff of the organization	2	5	6	21	2	2.51	7
Finance	2	1	10	22	0	2.49	8
Contractors Tender Value	4	6	3	18	3	2.23	9
Contractor affiliation with other contractors	0	12	16	7	0	1.86	10

Table 2 and Figure 2 indicates that from a ranking perspective and the radar diagram, construction firms have very strong affiliations with their clients which were ranked first with an RII of 3.40, followed by possession of asset ranked 2nd with RII of 3.11. It reveals that contruction firms rely more heavily on clients' affiliation as a marketing strategy and possession of assets for job procurement and competitiveness.

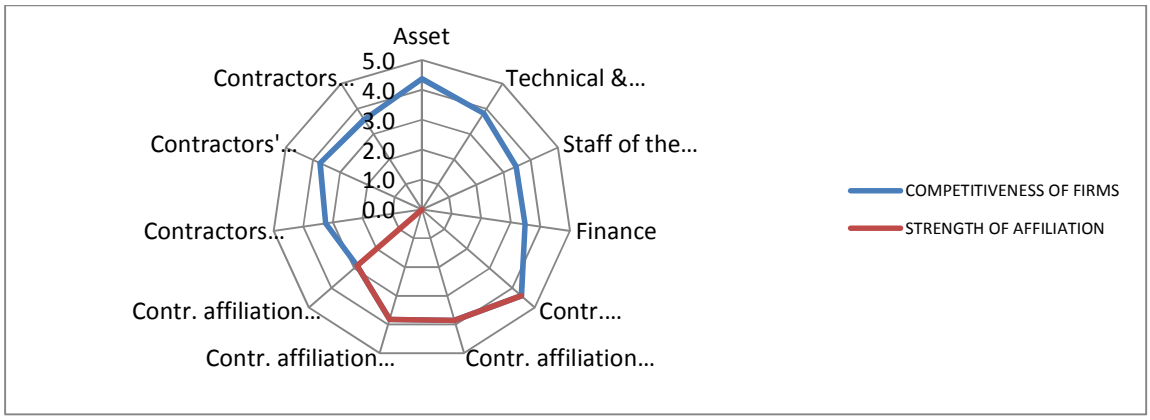

Figure 2 Perceptions of factors contributing to competitiveness & contract procurement.

4.3 Relationship between competitiveness and corporate performance

Figure 3 shows the crossesction of quantitative measures of competitiveness and corporate performance of the construction companies used in the study respectively. Figure 3 reveals that Firm 19 had the highest ROTA of 1400%; Firm 15 had the highest profit of 1100%; and Firm 22 had a ROCE of 550%.

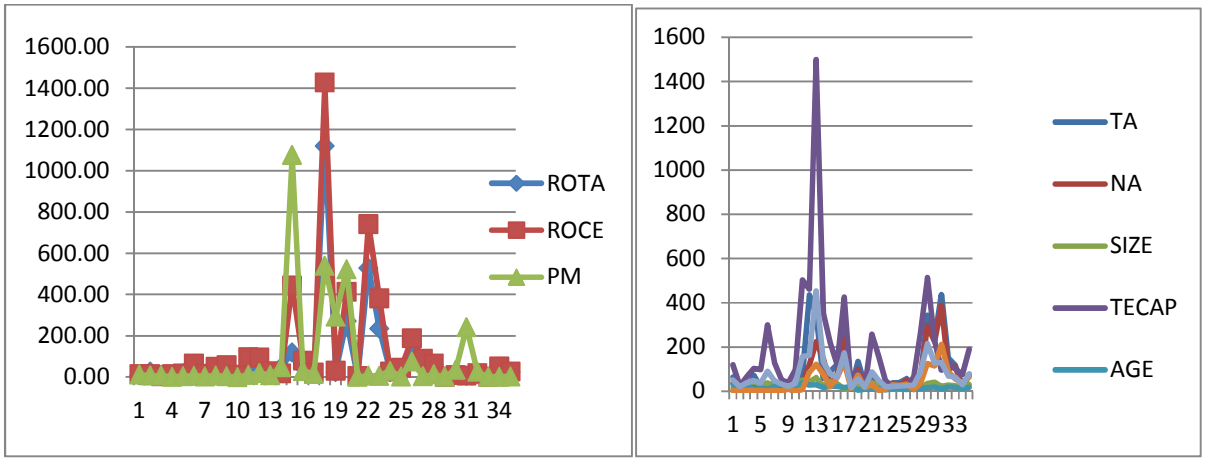

Figure 3: Indicators of Performance and Competitiveness of Firms

Results of the Pearson Correlation Analysis computed between the indicators of competivieness and corporate performance of the responding companies are presented in Table 3.

Table 3: Correlates between company competitiveness and corporate performance

Competitiveness indicators / *Corporate Performance*	*TA*	*NA*	*STAFF SIZE*	*TECHCAP*	*AGE*	*CAP STR*	*IND AFF*
PBIT	.264	.062	.031	.188	.625	.145	0.734**
TURNOVER	*.239*	*.081*	*.132*	*.451***	*-.022*	*.134*	*-0.083*
ROTA	*-0.235*	*-0.235*	*-.291**	*-0.168*	*-0.049*	*-0.217*	*0.929***
ROCE	*-0.227*	*-0.263*	*-0.218*	*-0.158*	*-0.031*	*-0.240*	*0.967***
PM	*-0.009*	*-0.041*	*0.93*	*-0.111*	*-0.29*	*-0.001*	*o.734***

*** Correlation is Significant at the 0.01 level (1-tailed)*

**Correlation is Significant at the 0.05 level (1-tailed)*

Pearson Product Moment Correlation analysis was used to test the hypothesis that there are significant competitiveness factors related to the corporate performance of construction companies in South Africa. It emerged from the analyses presented in Table 3 that there is a significant negative relationship between the staff size, size of the construction companies and corporate performance (ROTA), with a critical value -0.291* and a significant positive relationship between turnover and technical ability, with a critical value of 0.451** and also a significant positive relationship between contractor's strength of construction industry affiliation with corporate performance - profit before interest and tax (PBIT), Return on Total Asset (ROTA), and Return on Capital Employed (ROCE), and Profit Margin (PM) with critical values of 0.734**, 0.921**, 0.921** and 0.734** respectively, whilst there is no significant relationship between other indicators of competitiveness such as Age, TA, NA, Capital Structure (CAPSTRU) and corporate performance. This implies that the null hypothesis is rejected

5. Conclusion and Further Research

This exploratory study provides insights into the competitiveness of South African construction companies in terms of capacities, capabilities and company industry affiliation.The findings suggest that the staff size of the construction companies is negatively correlated with corporate performance (ROTA). In addition, the technical ability and company industry affiliation are positively and highly correlated with their corporate performance whilst no significant relationship was seen between other competiveness factors and corporate performance, It can be concluded therefore that there are significant competitiveness factors related to the corporate performance of small and medium sized construction companies which lie in well managed, efficient and effective staff, good technical ability, and the level and strength of the company industry affiliation. It follows that the smaller the company staff size, good technical ability and strong industry affiliation with client the more will be its corporate performance

This research effort reports the pilot study of an on-going research into the impact of capacity networking strategy of small and medium sized contractors on their corporate performance. Further research to validate the results obtained in this study using a larger sample size across more provinces of South Africa, will form the basis of future studies.

6. Limitation of the research

The finding of this research was focussed only on building and civil engineering contractors listed in Grade 2 to 6 on the cidb Contractor Register. The findings of the research will therefore not be generalizable to the total population of small and medium sized contracting companies in South Africa due to the smallness of the sample size and the limited number of provinces surveyed. The findings and conclusions are also limited to the quality of the responses on the salient information relating to the research questions given by the respondents in the study.

Acknowledgement

The authors are grateful and thankful to the firms that participated in the study.

References

Abdullah M F, Chiet C V, Anuar K and Shen T T (2004) An Overview of the Growth and Development of the Malaysian Construction Industry. Workshop on Construction Contract Management, University of Technology, Malaysia (available online: http://eprints.utm.my//465/ – accessed, September, 2012)

Adams O (1997) “Contractor development in Nigeria: perceptions of contractors and professionals.” *Construction Management and Economics* **15**: 95-108.

Armstrong M (2006) A Handbook of Management Techniques, 3rd Ed, United Kingdom: Kogan Page

Bakar A H A, Razak A A, Yusof M N and Karim N A (2011) "Factors determining growth of companies: A study on construction companies in Malaysia." *African Journal of Business Management* **5**(22): 8753-8762.

Beatham S, Anumba C, Thorpe T and Hedges I (2004) "KPIs: a critical appraisal of their use in construction." *Benchmarking: An International Journal* **11**(1): 93-117.

Chang C and Ive G (2002) "Rethinking the multi-attribute utility approach based procurement route selection technique." *Construction Management and Economics* **20**(3): 275-84.

Chell E and Baines S (2000) "Networking, entrepreneurship and microbusiness behaviour." *Entrepreneurship and Regional Development: An International Journal* **12**(3): 195-215.

Chidiac M (2006) "Getting the best out of executive coaching: a guide to setting out a coaching process." *Development and learning in organizations* **20**(3): 13-5.

Coutu D and Kauffman C (2009) "HBR Research Report." Harvard Business Review, (available online: http//: www.hbr.org.[accessed on 14/05/2012]).

Day G S (2000) "Managing market relationships." *Journal of the Academy of Marketing Science,* **28**(1): 24-30.

De Haan J, Voordijk H and Joosten G J (2002) "Market strategies and core capabilities in the building industry." *Construction Management and Economics* **20**: 109-18.

Ibrahim Y M, Ibrahim A M and Kabir B (2009) "Geographical diversification, performance, and the risk profile of UK construction firms." *Journal of Engineering Design and Technology* **7**(2): 171-185.

Man T W Y, Lau T and Chan K F (2002) "The competitiveness of small and medium enterprises, a conceptualization with focus on entrepreneurial competences." *Journal of Business Venturing* **17**: 123-142.

Mbachu J I C and Nkado R N (2006) "Conceptual framework for assessment of client needs and satisfaction in the building development process." *Construction Management and Economics* **24**(1): 31- 44.

Muzir, E. (2011) Triangle Relationship among Firm Size, Capital Structure Choice and Financial Performance, Some Evidence from Turkey, *Journal of Management Research*, 11(2): 87-98

Naoum S G (2007) *Dissertation Research and writing for construction students*, 2nd Ed, Great Britain, Elsevier.

Norris W E (1990) "Margin of profit: teamwork." *Journal of Management in Engineering* **6**(1): 20-28.

Korkmaz S and Messner J I (2008) "Competitive Positioning and Continuity of Construction firms in International Markets." *Journal of Management in Engineering, ASCE* 24(4): 207-216.

O'Donnell, A. (2004) The nature of networking in small firms, *Qualitative Market Researh: An International Journal,* **7**(3): 206-217

Ofori G and Chan S L (2000) "Growth paths of construction enterprises in Singapore, 1980-98"." *Engineering, Construction and Architectural Management* **7**(3): 307-21.

Oyewobi L O, Ibironke O T, Ganiyu B O and Ola-awo A W (2011) "Evaluating rework cost – a study of selected building projects in Niger State." *Nigeria, Journal of Geography and Regional Planning* (Online academic journal) **4**(3): 147-151.

Penman S (2001) What Net Asset Value? - An Extension of a familiar debate, *The Accounting Review*, **45**(2): 333-346 Available @ http://www.jstor.org/stable/244385

Porter M E (1990) *The competitive advantage of nations*, New York: Free Press.

Russell J S (1991) "Contractor failure: analysis." '*Journal of Performance Construction Factors, ASCE* **5**(3): 165-180.

Sexton M and Barrett P (2003) "A literature synthesis of innovation in small construction firms: insights, ambiguities and questions". *Construction Management and Economics*, **21**: 613-622.

Soetanto R, Proverbs D G and Holt G D (2001) "Achieving quality construction projects based on harmonious working relationships – Clients' and architects' perceptions of contractor performance." *International Journal of Quality and Reliability Management* **18**(5): 528–548.

Tan Y T, Shen L Y, Yam M C H and Lo A A C (2007) "Contractor competitiveness indicators (KCIs): a Hong Kong study." *Surveying and Built Environment* **18**(2): 33-46.

Thompson A A and Strickland A J (1999) *Strategic management concepts and cases*, Boston, McGraw-Hill.

Zahra S A and George G (2002) "Absorptive capacity: a review, reconceptualization, and extension." *Academy of Management Review*, **27**(2): 185-203.