An Analysis of Factors Determining the Viability of Locally Owned Construction Firms in South West Nigeria

Oladimeji Olubimbola[1]

[1] Obafemi Awolowo University Teaching Hospital Complex

Received: 12 December 2016 Accepted: 5 January 2017 Published: 15 January 2017

Abstract

Locally owned construction firms (LOCOFs) is strategic to national development and its viability is germane to a virile economy. To this end, this paper identified and examined various factors determining the viability of LOCOFs. A sample size of 65 staff of 31 LOCOFs out of a total survey of 117 staff of 59 LOCOFs that were awarded building contract in selected institutions in South west Nigeria were accessed for this study. Thirty seven factors influencing the viability of construction business were identified from literature and staff of LOCOFs requested to rate each factors on a 5 point like rt scale of importance. Relative importance index and factor analysis were used to identify and summaries the most important factors. Nine of the 37 factors influence the viability of LOCOFs most and the three topmost factors were: organisational competence (relative importance index (RII) = 0.88), cash for construction work (RII = 0.87) and quality of work and services (RII = 0.86). Also, 11 component factors were obtained from the factor analysis to describe the determinant of the viability of LOCOFs. Three topmost factors of the 11 were: effective management of individual project (9.27

Index terms—

1 I. Introduction

iability is the ability of a thing to maintain itself or recover its potentialities. Generally it means "Capacity for survival" and is more specifically used to mean a capacity for living, developing, or germinating under favourable conditions (Biomedicine, 2013). Viability study is conceptually perceived and measured in the business world by the long time survival of a business, and its ability to have sustainable profits, leverage, efficiency and liquidity over a period of time. If a business is viable, it is able to survive for many years, because it continues to make profits year after year. The longer a company can stay profitable, the better its viability (Jean, 2013).

Locally owned construction firms in Nigeria are faced with various limiting factors which negatively influence their viability. Olugboyega (1995) categorized these difficulty into three: the difficulty presented by the particular market and business involvement in which the contractor operates (Adams, 1997), difficulty derived from client and client's representative, and personal inadequacies of the contractor. In the same vein, Wells (1998) singled out inadequate construction capacity as a major problem to the viability of LOCOFs in developing countries. These are: the low levels of training and poor organisation in the construction industry, large number of very small and inefficient firms, lack of planning at all levels of the construction process and inadequate capacity and inefficiency in the building materials industries. Others include: lack of national construction firms offering bids for civil engineering projects, lack of capacity and "economic rationality" in design and construction and the production of building materials.

More recent identifications of problem affecting the growth of local construction firms by Bala et al.

(2009) established a link between government policies, external and internal problems of firms. In addition, Aje et al. (2009) stressed the significant impact of management capability on the cost and time performance of

building project. Oladimeji and Ojo (2012) observed that that the sum local contractors spent on fixed asset and their average profit was low although their average profit is higher than the UK margin on profit. Despite various literature bothering on the well being of local firms, there is still the need for regular identification and examination of factors determining its viability. This will enhance an up to date assessments of the firms and suggest better ways by which they can significantly contribute to the needed social and economic development.

2 II. Factors Influencing Locof's Viability

This paper identified 37 factors influencing the viability of construction firms from reviewed previous studies on construction business performance. Identified factors in studies on construction business financial management were: (1) cash for construction work (Wang et al., 2010); (2) construction profit margin (Halim et al., 2010); (3) accessibility to building construction loan (Peterson, 2009); (4) interest on loan (Eyiah and Cook, 2003); (5) credit purchase of construction material **??**Peterson,2007); (6) cost of plant and equipment purchase, maintenance and hiring (Adams, 1997); (7) prompt payment of work certificate (Fatoye, 2012); (8) cost of construction labour (Graham, Smith, and Tommelein, 2005) and (**??**) cost of construction material **??**Wahab and Lawal, 2011).

Studies on management of construction operation had the following identified factors: (1) management of construction site material (Dey, 2001);

(2) predictability of construction cost and time (Aje et al., 2009); (3) management of construction site labour, plant and equipment **??**Edward et al, 2004) and (4) organisational competence and client satisfaction (Yu et al., 2007). Factors identified in studies on construction business organisation factors were: (1) (Kangari et al., 1992); (5) tendering practices (Kim and Reinschmidt, 2006); (6) government policy (Bala et al., 2009) and (7) bad weather and natural disaster (Alinaitwe et al., (2007)). (Koksal and Arditi, 2004) and (**??**) number of high performing professionals (Ramirez et al., 2004). Finally, factors identified in studies on construction operation health and safety were: (1) incident rate (Odeyinka et al., 2005); (2) accident cost (Fang et al., 2004) and (3) availability of safety equipment **??**Lingard and Homles, 2001).

3 III. Methodology

Primary data were sourced from Locally Owned Construction Firms (LOCOFs) that were awarded building construction contracts between year 2005 and 2015 by Federal Universities and Federal University Teaching Hospitals in Southwestern Nigeria. Preliminary survey to this study showed that most prequalification exercises for construction contractors in this period started in year 2005. This period witnessed a significant improvement in funding of Nigerian tertiary institutions and improvement in university capital expenditure **??**Bamiro, 2012; **??**amade et al., 2015). In addition, the period chosen for this study was also informed by the need to have the more recent and updated evaluation of LOCOFs.

The choice of federal teaching hospital and university institutions in Lagos, Ondo and Osun out of the six states was reached through the grouping of the states into three groups in order of contiguousness: Lagos and Ogun, Ondo and Ekiti, and Oyo and Osun state. Lagos was selected in preference to Ogun state due to its vast physical development, strategic location and very high concentration of infrastructural development. Ondo was selected in preference to Ekiti to represent one of the oldest states in the region and the Federal University located there is much larger and older than the Federal University in Ekiti state. Osun was selected in preference to Oyo to represent one of the newest states in Southwestern Nigeria.

There are 6 federal universities and 3 federal university teaching Hospitals in Southwestern Nigeria out of which only 3 federal universities and 2 federal university teaching hospitals are located in Lagos, Osun and Ondo states. These universities and university teaching hospitals are: University of Lagos (UNILAG) Akoka, Obafemi Awolowo University (OAU), Ile-Ife, Federal University of Technology Akure (FUTA), Lagos University Teaching Hospital (LUTH) and Obafemi Awolowo University Teaching Hospital Complex (OAUTHC). Specifically, the study surveyed the managing directors or their representatives and 2 other professional members of staff that had engaged in construction works in the institutions from year 2005 to 2015. Information from the institutions displayed in Table 1 indicated that there were 59 firms with 18 in UNILAG, 14 in OAU, 12 in FUTA, 5 in LUTH and 10 in OAUTHC. This brings the total number of expected surveyed firms' respondents to 177. However, a total number of 31 firms comprising of 65 respondents' questionnaires were completed, returned and found useful for analysis. This represented a response rate of 53% of the total surveyed firms which according to Ellhag and Boussabaine (1999) IV. Presentation and Discussion of Findings a) Characteristics of actual sampled LOCOFs Table 2 showed characteristics of the actual sampled locally owned construction firms respondents in this study. Construction professionals (36.9%) while others are contract manager (20%) and site managers (29.2%). About 50% of them had an experience of more than 10 years and more than 70% of the firms have been in operation for more than 10 years. In addition, more than 50% of the firms have executed over 11 construction projects and most firms operate in Nigeria alone (86.2%) and are mostly patronized by both private and public sector in Nigeria. Although a few of them did not give the detail of their turnover, however 52.30% of the respondent claimed their firms had a turnover of between N10 million to N 150 million in the year 2014 while 13.8% of them had a turnover of more than N150 million . These characteristics suggest that respondents have the exposure and long term experiences to be able to give substantial information that could help in making useful inferences and deductions on factors influencing the viability of locally owned construction firms.

4 b) Ranking of factors influencing the viability of LOCOFs

Table 2 shows the mean value, standard deviation, relative importance index (RII) and the ranking of the 37 factors earlier identified from literature as factors influencing the viability of construction contractors. The Standard deviation of each indicator is relatively small enough to conclude that the respondents agreed on the factors influencing the viability of LOCOFs. The rank of each variable was determined by calculating the arithmetic mean and the relative importance index of each variable and subsequently arranged in a rank order (Table 3).

An overview of the ranking of factors influencing the viability of LOCOFs shown in Table 3 indicates all the factors having a relative importance index (RII) and mean that is greater than 2.5 and 0.5 respectively. However, nine factors have a RII and mean greater than 4 and 0.8. These mean that despite the fact that all the identified factors were important to the viability of the construction business, nine factors tend to be extremely important.

These factors cut across customer satisfaction, financial, internal business and environmental perspective of the construction business. Organizational competence which ranked first and quality of construction work and services which ranked third are customers' satisfaction based factors. Cash for construction work which ranked second and prompt payment of work certificate and cost of construction materials which ranked fifth and seventh respectively are financial based factors. Availability of skilled labour, and employee satisfaction are internal organisation and strength of the firms based factors. Lastly, prompt payment of work certificate and cash for construction work earlier referred to as financial based are also influenced by government policy and practice and may also be inferred to as construction business environmental based factors. All these factors expressed by their various ranking influences the survival of the construction business. At this juncture, it is very important to describe the thirty seven important factors in a more concise form for ease of inferences and appropriate deductions. To achieve this aim, principal component factor analysis was used to reduce these factors into major components factors.

5 c) Principal factors influencing viability of LOCOFs

This section sets out to reduce the 37 variables identified as important factors influencing the survival of the LOCOFs to a fewer number component factors. Principal component analysis was carried out using the computer-based Statistical Package for Social Sciences (SPSS version 15). Common factors which account for the correlation among the variables were extracted and this resulted in a reduction of thirty -seven (37) large body of variables to eleven (11) components factors. The grouping of variables is based on their factor loadings. A factor loading indicates the degree of association of a variable with the component and the percentage variance of the component that is explained by the variable. Variables which appear to have the highest loading in one component belong to that component, also the highest loading of a variable higher than 0.4 was assigned to the components that has the loadings (see Table 3).

Factor analysis is widely belief to be an inadequate statistical analysis on small sample sizes and for a study as this with a less than 100 sample size, there is the need to validate the use of this statistical method. As observed in section 4.3, small sample size is sometimes one of the features of a study as this. This is due to the organizational structure of most LOCOFs sample size were favourable for factor analysis to proceed.

Factor analysis has been used on small sample size which is sometimes referred to as sample to respectively. MacCallum et al., 1999 posited that as communalities become lower the importance of sample size increases when all communality are above 0.6, relatively small samples (less than 100) may be perfectly adequate. Preacher and MacCallum (2002) also stipulate that "As long as communalities are high, the number of expected factors is relatively small, and model error is low (a condition which often goes handin-hand with high communalities), researchers and reviewers should not be overly concerned about small sample sizes.

Result from Table 3 reads 11 components factors with 37 variables and it represented a sample to variable size of 1.75:1. (65/37) with all its Eigen values greater than one. The Kaizer-Meyer-Olkin (KMO) measure of sampling adequacy achieved a value of 0.551 which is very close to 0.6, this is appreciable owing to the fact that most communality of the variables after extraction in this study were above 0.7. The Bartlett test of sphericity was also significant (? 2 =1385. 548; df=666; $p<0.001$) suggesting that the population matrix was not an identity matrix. To this end, necessary tests in respect of the factorability and adequacy of the which makes it difficult for them to be easily accessed except during active site construction work. The first component factor is effective management of individual project related issues and it accounted for 9.34% of the observed variance. Six items loaded under this component ranged between 0.481 and 0.782. Items loaded and their loading scores include: project management structure (0.782); management of construction site labour, plant and equipment (0.749); management of construction site material (0.691); firm size (0.597); availability of safety equipment (0.528), and predictability of construction cost and time (0.481). Most of the items loaded in this component factor focused on the uniqueness of each construction projects that should be well planned for the overall construction firms' survival. Construction labour, and Edward (2001) noted in summary that the result of improper handling and managing material, plant and equipment on site during a construction process will influence the total cost, time and the quality of the construction work. To this end, it is expected that a well organised and positioned construction project management structure on each site will go a long way in representing and protecting firms' interest well in effective management of all its resources for improved production.

6 Global Journal of Management and Business

The second component factor was improved construction method related issues and it represents 8.86% of the observed total variance. The following were the three items loaded and its loading scores: advanced construction technology (0.884); specialization of construction work (0.794) and number of high performance professionals (0.779). The three items in this component are essential to improving construction works delivery. High quality construction products and material can be done at lowest possible price due to good technical expertise resulting in an enhanced construction business.

The third and tenth component factors were clients' satisfaction related issues and they represent 8.46% and 4.77% of the observed total variance respectively. Three items were loaded under the third component while two items were loaded under the tenth. Items under the third components include: quality of service works (0.839); organisational competence/ client satisfaction (0.786) and employee satisfaction (0.604). The tenth component also include: quality of construction work and services (-0.648) and firms' impact on the community (0.613). This indicator shows the effect of employees' satisfaction and improved construction work delivery on the viability of construction firms obtained in this analysis. Satisfaction of customers and other interested parties is necessary for the success of firms. In other word, increasing the satisfaction of customers and stakeholders through effective goal development, cost reduction, productivity and process improvement has proved to be essential for organisations to stay in operation (Oakland and Marosszeky, 2006).

The fourth component factor was on construction safety and uncertainty related issues which represented 7.62% of the observed variance. Three items loaded under this component include: accident cost (0.784); incident rate (0.735) and bad weather and natural disaster (0.648).This result indicates the importance of construction safety and uncertainty related issues to the viability of LOCOFs. Construction safety is treated with caution and becomes very important when cost arises from penalty due to non compliance with regulations and the cost due to accident and injuries. Accident and weather conditions are both construction risk, while the former can be reduced and possibly averted through good safety behaviour and safety kits, the later cannot. Although most developed countries construction firm insurance policy are well developed to mitigate this risk, most developing countries especially in African are yet to achieve this fit **??**Windapo and Martins, 2010). Uncertainty arising from adverse weather condition are known to result in construction cost overrun (Ameh et al., 2010) and adversely influence the performance of construction firms (Nudurupati et al., 2007).

The fifth component factor was construction labour and turnover which represented 6.74% of the observed variance. Three items loaded under this component include: availability of artisan and craftsmen (0.775); availability of skilled labour (0.520) and construction work turnover/successful tender rate (0.461). This result underscores the importance of the availability of all relevant construction labour of all trades in executing construction works. Also, A high turnover consequent to the number of contracts won will enhance the availability of fund for firms' construction operation and this can significantly contribute to its profitability and hence its viability (Kaka and Cheetham, 1997;Odeyinka et al., 2003;cui et al., 2010).

The sixth component factor was lack of construction loan and corruption and this represents 6.56% of the observed variance. Four items were loaded under this component and it ranged from 0.491 to 0.726. Items loaded under this component include: accessibility to loan (0.726); corruption (0.706); interest on loan (0.582) and credit purchase of material (0.491). This result indicates that LOCOFs viability will be improved if it has access to very low interest credit and corruption in the industry is drastically reduced if not eliminated. Presently, the percentage of loans disbursed to the construction sector is one of the lowest compared to other sectors such as manufacturing. Industry participants believe that construction remains a misunderstood industry and hence, is still being deemed risky by financial institutions. The ability to obtain funding, however, is a critical factor to the success of the contractors (CIDB, 2008). As at today, interest rate in the banking sector remains as high as 20%, lenders securing such loan do so, possibly to keep busy. As a result of the high interest rate, it may be impossible for lenders to make profit with such loan. It was also observed by Ameh et al., (2010) that high interest charged by banks on loans is a top ranked factor responsible for construction cost overruns. In the same vein, these authors also ranked fraudulent practices and kickbacks as also a top ranked factor responsible for cost overruns in the construction sector.

The seventh and ninth component factors were referred to as construction business environment related issues and each component accounted for 5.97% and 5.50% of the observed variance respectively. Three items loaded under the seventh component include: procurement practices (0.787); government policy (0.725) and reputation of good client-contractor relationship (0.522). The ninth component has two items loaded and it include: tax (0.776) and inflation (0.671). These result revealed the importance of the impact of government activities, policies and the countries' macroeconomic on the survival of the local construction business.

The eighth and eleventh component factors were referred to as firms' profitability related issues and each component accounted for 5.7% and 4.24% of the observed variance respectively. Five items loaded under the eighth component include: cash for construction work (0.793); cost of construction labour (0.508); cost of construction material (0.494); prompt payment of work certificate (0.424) and cost of plant and equipment purchase, maintenance and hiring (0.401). The only recognized item loaded under the eleventh component is construction profit margin (0.924). This result gives credence to the importance of firms' profitability related issues on the viability of LOCOFs'. Profitability is also considered as one of the most important indicators in many other studies, such as Wang et al. (2010) and Yu et al. (2007). One of the most common corporate

economic objectives is profitability and construction executives ranked it as the first indicator to measure financial performance of companies (Halim, 2010) . Financial problems faced by contractors are also due to low profit margins from projects. Firms most often find themselves in a tight situation of delivering good construction product at the cheapest price under the stiff competitive tendering system. Although this system is the best way to ensure the completion of any project at the lowest price, it is the most difficult obstacle contractors are forced to overcome in an attempt to survive the construction business competitive world. It is pertinent to note that low profit margin was identified as one of the unique features of the construction business that predisposes it to a huge risk and a strong contributory factor to its failure (Ibrahim, 2012; Kivrak and Arslan, 2008).

In conclusion, the minor differences observed in the percentages of variance in the eleven components revealed a closely related level of importance between the components factors which suggest that LOCOFs viability is a function of many closely related factors and not just a small group or a single factor. However, the highest factor loading assigned to construction profit margin showed a very significant importance of its impact on the viability of the locally-owned indigenous construction firms.

7 V. Conclusion and Recommendation

To identify and examine factors influencing the viability of LOCOFs, sixty-five properly filled questionnaires were analysed. The characteristics of respondents show 36.9% as construction professional, 20% and 29.2% as contract managers and site managers respectively among other characteristics. Ranking of factors influencing the viability of LOCOFs indicated that all the factors had a relative importance index (RII) and mean that is greater than 2.5 and 0.5 respectively. However, nine factors had a RII and mean greater than 4 and 0.8. These mean that despite the fact that all the identified factors are important to the viability of the construction business, nine factors are extremely important. An attempt to describe the thirty seven important factors in a more concise form for ease of inferences and appropriate deductions led to the analysis of data using the principal component factor analysis. Eleven component factors obtained were referred to as: effective management of individual project; improved construction method; clients' satisfaction and construction safety related issues. Others include: construction labour and turnover; lack of construction loan and corruption; construction business environment and firms' profitability related issues. A closely related level of importance was observed between components factors that determine the viability of LOCOFs which suggest that their viability is a function of many closely related factors and not just a small group or a single factor. However, the highest factor loading assigned to construction profit margin showed a very significant importance of its impact on the viability of the locally-owned indigenous construction firms [1]

1

and Idrus & Newman (2002) is good enough in construction management studies. This response rate is higher than earlier studies on construction firms by Aibinu (2007), Bala et al. (2009) and Hany et al. (2013) which employed the use of surveyed sample frames of 200, 150 and 67 firms with response rates of 41 (21%), 30 (20%) and 27(40%) firms respectively. It is also of interest to note that in a study on failure and financial related factors in Malaysian contracting firms, only six firms and six representatives in Malaysia were sampled and three years financial

Figure 1: Table 1 :

2

	Frequency	Percentage
Respondents' designation		
Contract manager	13	20
Construction professional	24	36.9
Site manager	19	29.2
Others	9	13.8
Years of experience		
0-5years	20	30.8
6-10years	15	23.1
11 -20years	20	30.8
Over 20years	10	15.4
Age of construction company operation		
0-5years	2	3.1
6-10 years	7	10.8
11-20 years	22	33.8
>20 years	21	33.8
No response	12	18.5
Number of project in time past		
0-5	12	18.5
6-10	15	23.1
11 -20	25	29.2
over 20	13	29.2
Number of permanent staff		
0-5	12	18.5
5 -50	44	67.7
over 50	8	12.3
No response	1	1.5
Annual firm's turnover		
less than N10 million	11	16.9
N10 to N49 million	20	30.8
N50 to N150 million	14	21.5

[Note: 2017B]

Figure 2: Table 2 :

3

No.	Factors Influencing the viability (survivability) of LOOFs	Mean	SD	RII	Rank
1.	Organizational competence	4.40	0.81	0.88	1
2.	Cash for construction work	4.36	0.74	0.87	2
3.	Quality of work and services	4.31	0.75	0.86	3
4.	Quality of construction work and services	4.30	0.75	0.86	3
5.	Availability of Skilled labour	4.16	0.84	0.83	5
6.	Prompt payment of work certificate	4.16	0.84	0.83	5
7.	Cost of construction material	4.08	0.74	0.82	7
8.	Employee satisfaction	4.06	0.77	0.82	7
9.	Reputation of good clients-contractors' relationship	4.00	0.84	0.81	9
10.	Availability of artisan and craftsmen	4.00	0.76	0.80	10
11.	Management of construction site Material	3.98	0.77	0.80	10
12.	Management of construction site labour, plant and equipment	3.94	0.89	0.79	12
13.	Government Policy	3.91	0.94	0.78	13
14.	Availability of safety equipment	3.91	0.97	0.78	13
15.	Construction technical expertise	3.86	0.83	0.77	15
16.	Procurement practices (The way contract is awarded)	3.84	0.95	0.77	15
17.	Cost of construction labour	3.81	0.66	0.76	

Figure 3: Table 3 :

4

		1	2	3
	Cash for construction work.	.111	-.063	.075
	Construction profit margin.	-.076	-.073	.096
	Accessibility to loan.	.033	-.053	.098
	Interest on loan	-.081	.053	
2017 Year	Credit purchase of material. Prompt payment of work certificate.	-.001	-.210	-.161
Volume XVII Issue VI Version I ( ) B Research	Cost of plant and equipment purchase maintenance and hiring. Cost of construction labour. Cost of construction material. Project organization structure. Management of construction site. Material Predictability of construction cost and time.	.277	.152	.057
	Management of construction site labour, plant and equipment.	.749		
	Organizational competence/client satisfaction.	.196		
	Quality of service and works.	.134	-.027	.839
	Employee Satisfaction.	.110	-.127	.604
	Reputation of good client-contractor's relationship.	.289	-.132	.177
	Age of operation.	.333		
	Firm Size.	.597		
	Firm's Impact on the community.	.178		
	Inflation	-.193	.147	-.041
	Tax	.147		

		1	2	3
	Cash for construction work.			
	Construction profit margin.	.219	.256	.491
	Accessibility to loan.			
	Interest on loan			
2017 Year	Credit purchase of material. Prompt payment of work certificate.			
Volume XVII Issue VI Version I ( ) B Research	Cost of plant and equipment purchase maintenance and hiring. Cost of construction labour. Cost of construction material. Project organization structure. Management of construction site. Material Predictability of construction cost and time.	-.037	.261	.174
	Management of construction site labour, plant and equipment.			
	Organizational competence/client satisfaction.			
	Quality of service and works.			
	Employee Satisfaction.			
	Reputation of good client-contractor's relationship.			
	Age of operation.	.167	-.022	.393
	Firm Size.	.200	.030	
	Firm's Impact on the community.	.338	.239	
	Inflation	-.010	-.020	.289
	Tax	.076	.029	

		1	2	3
	Cash for construction work.			
	Construction profit margin.	.162	.175	.270
	Accessibility to loan.			
	Interest on loan			
2017 Year	Credit purchase of material. Prompt payment of work certificate.			
Volume XVII Issue VI Version I ( ) B Research	Cost of plant and equipment purchase maintenance and hiring. Cost of construction labour. Cost of construction material. Project organization structure. Management of construction site. Material Predictability of construction cost and time.	.782	.067	.152
	Management of construction site labour, plant and equipment.			
	Organizational competence/client satisfaction.			
	Quality of service and works.			
	Employee Satisfaction.			
	Reputation of good client-contractor's relationship.			
	Age of operation.	.385	-.033	.229
	Firm Size.			
	Firm's Impact on the community.			
	Inflation			
	Tax			

		1	2	3
	Cash for construction work.			
	Construction profit margin.	.691	.230	.313
	Accessibility to loan.			
	Interest on loan			
2017 Year	Credit purchase of material. Prompt payment of work certificate.			
Volume XVII Issue VI Version I ( ) B Research	Cost of plant and equipment purchase maintenance and hiring. Cost of construction labour. Cost of construction material. Project organization structure. Management of construction site. Material Predictability of construction cost and time.	.048		
	Management of construction site labour, plant and equipment.			
	Organizational competence/client satisfaction.			
	Quality of service and works.			
	Employee Satisfaction.			
	Reputation of good client-contractor's relationship.			
	Age of operation.	-.037	-.305	.387
	Firm Size.			
	Firm's Impact on the community.			
	Inflation			
	Tax			

Figure 4: Table 4 :

5

	Component									Com
	1	2	3	4	5	6	7	8	9	
Corruption	-.028	-.034	.084	.248	-.066	.706	.115	.007	.367	.035
Construction work turnover/successful tender rate.	-.009	.226	.239	.254	.461	-.041	-.031	-.034	.435	.447
Availability of Skilled labour.	.196	.183	.365	.072	.520				.248	-.144 .088 .106 .14
Availability of craftsmen.	Artisan .219	.135	.270	.068	.775				.152	-.081 -.044 -.090 -.
Procurement practices (The way contract is awarded).	.043	.238	.007	.080	-.077	.024	.787	.096	.110	.045
Government policy.	.103	.142	.118	.024	-.081	.182	.725	-.184	.326	.168
Bad weather and Natural disaster.	.156	-.024	.221	.648	.301				.037	.066 .120 -.062 .10
Construction technical expertise	.427	.341	.104	.016	.435				.327	-.085 .106 .107 .01
Quality of construction work and services	.039	.464	.371	.112	.218				.001	-.047 .095 .017 -.6
Specialization of construction work	.099	.794	.160	.073	.089	-.029	.093	-.187	.075	.106
Advanced construction technology	.193	.884	-.017	.130	.032				.030	.128 .030 .128 -.03
Number of high performance professionals	.115	.779	-.063	.182	.080	-.091	.172	.234	.024	.061
Incident rate	.026	.323	.115	.735	-.016	.240	-.003	.095	.001	.093
Accident cost	.278	.168	.132	.784	-.003	.098	.084	-.086	.162	-.072
Availability of safety equipment	.528	.152	.306	.331	.090	-.295	.216	-.229	.045	-.123
Eigen Value	3.45	3.28	3.13	2.82	2.49				2.43	2.21 2.11 2.04 1.77
% of total variance	9.27	8.86	8.46	7.63	6.74				6.56	5.97 5.70 5.50 4.77

Figure 5: Table 5 .

.1 Global Journal of Management and Business Research

Volume XVII Issue VI Version I Year ( )

[Business Process Management Journal] , *Business Process Management Journal* 7 p. .

[Agyepong et al.] , S A Agyepong , R Leiringer , W Hughes .

[Kaka and Cheetham ()] ‘) the effect of some tendering and payment strategies on contractors’ financial performance’. A Kaka , D Cheetham . *13th Annual ARCOM Conference*, P Stephenson (ed.) 1997. p. .

[Aje et al. ()] ‘) the impact of contractors’ management capability on cost and time performance of construction projects in Nigeria’. O I Aje , K Odusami , D Ogunsemi . *Journal of Financial Management of Property and Construction* 2009. 14 (2) p. .

[Wells (1998)] ‘) the informal sector and the construction industry’. J Wells . *Construction in Developing Countries*, (Arusha, Tanzania) 1998. Sept. 1998. 29 p. . (AICC)

[Wahab and Lawal] ‘2011) an evaluation of waste control measures in construction industry in Nigeria’. A B Wahab , A F Lawal . *African Journal of Environmental Science and Technology* 5 (3) p. .

[Kim and Reinschmidt ()] ‘A dynamic competition model for construction contractors’. H J Kim , K F Reinschmidt . *Construction Management and Economics* 2006. 24 p. .

[Abidali and Harris ()] ‘A methodology predicting failure in the construction industry’. A F Abidali , F Harris . *Construction Management and Economics* 1995. 13 (3) p. .

[Accessed on Biomedicine (2013)] ‘Accessed on’. www.biomedcine.org/biology-dictionary/viability *Biomedicine* 2013. 14 November 2013.

[Kale and Arditi ()] ‘Age-dependent business failures in the US construction industry’. S Kale , D Arditi . *Construction Management and Economics* 1999. 17 (4) p. .

[Oladimeji and Ojo (2012)] ‘An appraisal of indigenous limited liability construction company in South-Western Nigeria’. Oladimeji , G Ojo . *Procs 4thWest Africa Built Environment Research (WABER) Conference*, S Laryea, S A Agyepong, R Leiringer, W Hughes (ed.) (s 4thWest Africa Built Environment Research (WABER) ConferenceAbuja, Nigeria) 2012. July 2012. p. .

[Odeyinka et al. ()] ‘An assessment of factors inhibiting designers from complying with health and safety regulations in their design’. H Odeyinka , C Davison , P Olomolaiye . *Proceedings of 21 st Annual ARCOM Conference, 7-9September*, (21 st Annual ARCOM Conference, 7-9September) 2005. 2 p. . SOAS, University of London

[Odeyinka et al. (2003)] ‘An evaluation of construction cash flow management approaches in contracting organizations’. H A Odeyinka , Kaka , R Marledge . *19th Annual ARCOM Conference*, D Greenwood (ed.) 2003. 3-5 September 2003. 1 p. . University of Brighton

[Chinyio et al. ()] ‘An evaluation of the project needs of UK building clients’. E A Chinyio , P O Olomolaiye , P Corbett . *International Journal of Project Management* 1998. 16 (6) p. .

[Windapo and Martin ()] ‘An investigation into Nigerian property construction companies’ perception of critical risk’. A Windapo , O Martin . *Journal of Insurance Markets and Companies: Analyses and Actuarial Computations* 2010. 1 (1) p. .

[Association of Researchers in Construction Management (2009)] *Association of Researchers in Construction Management*, September 2009. Nottingham, UK. p. .

[Fang et al. ()] ‘Benchmarking studies on construction safety management in China’. D P Fang , X Y Huang , J Hinze . *Journal of Construction Engineering Management* 2004. 130 (3) p. .

[Ramirez et al. ()] ‘Benchmarking system for evaluating management practices in the construction industry’. R R Ramirez , L F C Alarco´ , P Knights . *Journal of Management Engineering* 2004. 20 (3) p. .

[Wang et al. ()] *Bi-level framework for measuring performance to improve productivity of construction enterprises*, O Wang , M El_Gafy , J Zha . 2010.

[Semyalo et al. ()] *Causes of financial loss to contractors in the Uganda construction industry In: Laryea*, C Semyalo , H Alinaitwe , A Kerali . 2012.

[Yu et al. ()] ‘Comparable performance measurement system for construction companies’. I Yu , K Kim , Y Jung , S Chin . *Journal of Management Engineering* 2007. 23 (3) p. .

[Peterson ()] *Construction accounting and financial management (2 nd Edn*, S J Peterson . 2009. Upper Saddle River, New Jersey: Prentice Hall.

[Idrus and Newman ()] ‘Construction related factors influencing choice of concrete floor systems’. A B Idrus , J B Newman . *Journal of Construction Management and Economics* 2002. 20 (1) p. .

[Construction Resource Congress] *Construction Resource Congress*, 2 p. .

[Adams ()] 'Contractor development in Nigeria: perceptions of contractors and professionals'. O Adams . *Construction Management and Economics* 1997. 15 (1) p. .

[Fatoye (ed.) ()] *Contributing factors of delay in the Nigerian construction industry: A comparative analysis with other selected countries*, E O Fatoye . Laryea, S., Agyepong, S.A., Leiringer, R. and Hughes, W. (ed.) 2012.

[Graham et al. (2005)] 'Cost of concrete placement for contractors'. D Graham , Smith , I Tommelein . *21st Annual ARCOM Conference*, F Khosrowshahi (ed.) 2005. 7-9 September 2005. 2 p. .

[Ellhag and Boussabaine (1999)] 'Evaluation of construction costs and time ttributes'. T M S Ellhag , A H Boussabaine . *Proceedings of the 15th ARCOM Conference*, W Hughes (ed.) (the 15th ARCOM Conference) 1999. September 2008. 2 p. . Liverpool John Moores University

[Preacher and Maccallum ()] 'Exploratory factor analysis in behavior genetics research: Factor recovery with small sample sizes'. K J Preacher , R C Maccallum . *Behavior Genetics* 2002. 32 p. .

[Alinaitwe and Hansson ()] 'Factors affecting the productivity of building B An Analysis of Factors Determining the Viability of Locally Owned Construction Firms in South West Nigeria craftsmen -studies of Uganda'. H M Alinaitwe , Mwakali J A Hansson , B . *Journal of Civil Engineering and Management* 2007. 13 (3) p. .

[Bala et al. ()] 'Factors inhibiting the growth of local construction firms in Nigeria'. K Bala , A Bello , B A Kolo , S A Bustani . *Procs 25th Annual ARCOM conference*, A Dainty (ed.) (s 25th Annual ARCOM conference) 2009. p. .

[Edwards et al. ()] 'Financial implications of poorly utilized construction plant and equipment'. D J Edwards , T Thorpe , P Love . *Journal of Financial Management of Property and Construction* 2004. 9 (1) p. .

[Kangari et al. ()] 'Financial performance analysis for construction industry'. R Kangari , F Farid , H M Elgharib . *Journal of Construction Engineering and Management ASCE* 1992. 118 (2) p. .

[Putra et al. (1999)] 'Improving material scheduling for construction industry in Malaysia'. Che Wan Putra , F Ahmad , A Majid , M Z Kasim , N . *Malaysian Science & Technology Congress* 1999. 6-8 December 1999. 99.

[Hany Abdelshakour et al. ()] *Indicators for measuring performance of building construction companies in Kingdom of Saudi Arabia*, M Hany Abdelshakour , Ibrahim A Ali , Khalid S Al-Sulaihi , Al-Gahtani . 2013. 25 p. . Journal of King Saud University -Engineering Sciences

[Olugboyega ()] 'Indigenous contractors' perceptions of the constraints on contractors' performance and development programmes required in Nigeria'. A A Olugboyega . *Habitat International* 1995. 19 (4) p. .

[King's College, Cambridge Association of Researchers in Construction Management (1997)] *King's College, Cambridge Association of Researchers in Construction Management*, September 1997. 2 p. .

[El-Mashaleh et al. ()] 'Management of construction firm performance using benchmarking'. M El-Mashaleh , R Minchin , W O'brien . *Journal of Management Engineering* 2007. 23 (1) p. .

[Aibinu ()] *Managing building and civil engineering project claims to reduce conflict intensity and contractors' potential to dispute*, A A Aibinu . 2007. Singapore. Unpublished PhD Thesis of the National University of Singapore

[Nudurupati et al. ()] 'Performance measurement in the construction industry: an action case investigating manufacturing methodologies'. S Nudurupati , T Arshad , T Turner . *Journal of Computer Industry* 2007. 58 p. .

[Koksal and Arditi ()] 'Predicting construction company decline'. A Koksal , D Arditi . *Journal of Construction Engineering and Management ASCE* 2004. 130 (6) p. .

[Procs 4th West Africa Built Environment Research (WABER) Conference (2012)] *Procs 4th West Africa Built Environment Research (WABER) Conference*, (s 4th West Africa Built Environment Research (WABER) ConferenceAbuja, Nigeria) July 2012. p. .

[Procs 4th West Africa Built Environment Research (WABER) Conference (2012)] *Procs 4th West Africa Built Environment Research (WABER) Conference*, (s 4th West Africa Built Environment Research (WABER) ConferenceAbuja, Nigeria) July 2012. p. .

[Dey ()] *Re-engineering materials management -a case study on an Indian refinery*, P Dey . 2001.

[Ameh et al. ()] 'Significant factors causing cost overruns in telecommunication projects in Nigeria'. O J Ameh , A A Soyingbe , K T Odusami . *Journal of Construction in Developing Countries* 2010. 15 (2) p. .

[Cui et al. ()] 'System analysis of project cash flow management strategies'. Q Cui , M Hastak , D Halpin . *Construction Management and Economics* 2010. 28 (1) p. .

[Halim et al. ()] 'The Contracting firm's failure and financial related factors: a case study of Malaysian contracting firms'. M S Halim , M Jaafar , O Osman , S Akbar . *International Research Journal of Finance and Economics* 2010. 52 p. .

[Alabi ()] 'The macroeconomic review of building and construction sector in Nigeria:pre'. F O Alabi . *Procs West Africa Built Environment Research (WABER) Conference*, S Laryea, R Leiringer, W Hughes (ed.) (s West Africa Built Environment Research (WABER) ConferenceAccra, Ghana) 2010. 1980-2006. July 2010. p. .

[Oakland and Marosszeky ()] *Total Quality in the Construction Supply Chain*, J Oakland , M Marosszeky . 2006. Great Britain: Elsevier Ltd. (first ed)

[Lingard and Holmes ()] 'Understandings of occupational health and safety risk control in small business construction firms: barriers to implementing technological control'. H Lingard , N Holmes . *Construction Management and Economics* 2001. 19 (2) p. .

[Jean ()] *Viability of a business*, M Jean . about.com/od/glosseryv/g/viability.htm 2013.