

Assessing the Extent of Effective Construction Risk Management in Nigerian Construction Companies

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Abstract - *In this paper, the extent of effective construction risk management among Abuja Federal capital territory and Lagos state Nigeria construction companies was assessed. Then, a survey was conducted among 331 local, national and multinational construction companies within Abuja Federal capital territory and Lagos in Nigeria, using proportionate stratified random sampling, out of which 238 questionnaire were collected for data analysis. Methodologically, this research is perhaps the first to assess the extent of effective construction risk management in Abuja Federal capital territory and Lagos state Nigeria. Using the five point Likert scale categories of risk management from previous studies, statistical analysis affirmed that the overall extent of effective construction risk management among these two states is at medium level. Copyright © 2016 Penerbit Akademia Baru - All rights reserved.*

Keywords: Risk Management Level, Effective Construction Risk Management, Abuja and Lagos Nigeria Construction Companies

1.0 INTRODUCTION

According to [16] the word risk was defined as a “form of circumstances comprising many unknown, unexpected, frequently undesirable and often unpredictable factors.” While risk was perceived by Perry and Hayes [25] as “an uncertain event that, if it occurs, has a positive or negative outcome on a project aim” [18] in addition, stated risk as “the exposure to gain, loss, or the likelihood of natural events of gain/loss procreated by its respective level”, while [1] and [31] reported risk by “the possibility of loss, injury, disadvantages or destruction”.

In spite of the numerous studies on risk, this paper, considering [11] definition, defines risk as “the likelihood of occurrence of any ignored or unexpected consequence which can delay the achievement of project aims.” Again, ineffective project risk management was asserted to have a negative influence on team members in a specific project as a result of inappropriate plans towards the uncertainty and risks which a project might leads to. For example, environmental hazards, poor communication, poor site management, lack of prevention towards the risk of affirming the scope of a project or substantial increases in costs and contractual disputes or litigation, and slow decision making among others, might result in project delay [8].

Risk management is mostly known as one of the most important capability and procedure areas in of project management arena [7, 30]. The genuineness still continue because of the uniqueness and the dynamic nature of each construction project, environments, construction

operation that constitute the diverse techniques, divergent multiple uncertainties and intricacies. Again, managing and determining the possible risk elements that may meaningfully vary from a project to other with several conditions, and performs a significant part in meliorating the execution and achieving the productive outcome of a project [9, 19].

The study of Aibinu and Jagboro [4] also confirmed that companies that refuse to utilize construction services on a casual cases will fail to conceive the implementation of risk management practices in projects. On the long run, this assertion has caused considerable negative consequences on projects performance. Also in line with the study of [24] on contract claims and disputes in some of construction projects, which have revealed the degree of risks natural events that were not well analyzed or integrated by either the clients or contractors as one of the genuine reasons behind claims and disputes on construction projects proves that the levels of risk management is low within the project.

Importance of the study. This study on the risk management literature aims to ascertain the extent of effective construction risk management of the construction companies in Abuja Federal capital territory and Lagos state in Nigeria. This effort could help to confirm whether the construction companies in Abuja Federal capital territory and Lagos state Nigeria are lagging in terms of risk management [5]. The authors state, “The affirmation that the level of risk management in construction companies is high or low compared to other companies is not uncommon among company and other entities.

Aim. The aim of this paper is to address the following research question: What is the extent of effective construction risk management among Abuja Federal capital territory and Lagos state Nigeria construction companies?

Assessing/measuring Risk Management. The argument on the accurate scale or methodology to be used in assessing effective construction risk management has frequently been a basis of controversy. For this reason, [20]; [29] and [10] call for a valid and reliable scale for risk management that is robust enough and void of the weaknesses that has been identified in the existing scales. More so, despite the tremendous breadth of literatures on risk management [12, 13], the issue of construction companies effective risk management has not received considerable attention [22, 14, 15].

2. RESEARCH METHODS

2.1 Design of the study

This present research is cross-sectional in nature [28]. The study covers 2 states. The first one is from the North central region, while the second is from South West region of Nigeria. In this case, each of the states was regarded as a stratum. The sample frame (331 construction companies) was selected from Abujagalleria published in 2005, and Lagos state government’s state tender board, published in 2009. These publications comprise of names and addresses of the construction companies in each of these stratum (states). Out a total of 778 construction companies, 338 from the two states were randomly selected for the survey, using proportionate stratified random sampling.

2.2 Data collection

Following Krejcei and Morgan [21], a sample size of 181 would be expected for a population of 331 construction companies. In an attempt to fit the expected sample size, the return rate of

similar risk management studies in Nigeria was considered. Again, [12] carried out a face-to-face survey on China construction company's risk factors, and resulted to an efficient response rate of 47 percent. Similarly, the study of Sambasivan & Soon [27] who studied risk factors in Malaysian construction companies had only a 2% response rate. Going by [6] logic of sampling, (331) of the sample frame (778) was regarded adequate to attain 238 responses. Therefore, 331 questionnaires were distributed physically across the 2 states. Based on [17], a single representative (contractor) from each company was adequate to complete the questionnaire for this research. Therefore, out of 331 distributed questionnaires, only 238 valid and useable questionnaires were returned, resulting in a (72%) response rate. Thus, this response was considered high when compared with prior studies.

2.3 Statistical Analysis

Statistical Package for Social Science (SPSS) version 21.0 for MS Window was used to analyse the collected data. The demographic profile of the companies and respondents were analysed with descriptive statistics. More so, the goodness of fit was ascertained by reliability test. Descriptive statistics like the standard deviation, percentage and mean score were analysed. Using [26] scale categories interpretation, values (range) was ascribed to the 5-point likert scale used in the questionnaire in ascending order as follows: 1= *very low* (1.0-1.49); 2= *low* (1.5-2.49); 3= *medium* (2.5-3.49); 4= *high* (3.5-4.49); 5 = *very high* (4.5-5.00). This was used to show the extent of risk management in the company as a whole and from section of the company. Risk may occur from different sections of the company like management, material, design, finance, labour and equipment risk. Lastly, to know if risk management is effective with the values assigned to the various risk in the company, the range that correspond to the mean score for each value from the SPSS output was checked.

2.4 Reliability Analysis

The cronbach's alpha coefficient threshold was used to ascertain the reliability of all the items in this study. This was done in order to be sure that the scales adopted in this study were not ambiguous and that the items within a component were measuring that same fundamental component. Thus, higher cronbach's alpha coefficient is a sign of greater consistency among the items for each component and the assurance that the measurements are reliable. This study followed the minimum reliability threshold level [23], where 0.7 is regarded acceptable. However, all the Cronbach's alpha coefficient values received in this study were above the 0.7 minimum threshold.

3.0 RESULTS AND DISCUSSION

Out of 238 respondents that participated in this survey, 10.9% are contract manager; 3.4% executive director; 5.0% marketing manager; 31.5% project manager; 30.3% engineer and 18.9% other employees. Their years of work experience was rated from 1 to 47. The highest (5.9%) percentage of work experience was 14 years, followed by 12 years and 13 years respectively. As for gender, the percentage of male respondents was 76.5% compared with 23.5% female. Again, a total of 36.6% of the companies specialized in building apartment, another 54.7% specialized in roads construction, and 6.7% specialized in bridge construction, while 2.1% of the respondents are in other specializations. This was followed by company's ownership with 63.0% as the highest which were local companies; 6.3% for the national companies, 30.3% for the multi-national companies and other companies was 0.4%.

The company's operational business location ranged from local markets to international markets. The local company operations represents 60.1%, which was the highest percentage. This was followed by companies operating within few states, with 3.8% of the total respondents. Companies within a region was only 2.5% of the total respondents. Companies operating across the entire Nigeria represents 16.8%, while those that operates within the international market represent 18.4%. As regards the year of company's existence, which ranged from 3 to 65 years of experience, the lowest was 0.4% of the total respondents, while the highest was those with 12.2%. Finally, the size of all the sampled companies influences the number of their employees, thus, the employees rated from 5 to 87156, where the lowest and the highest number represent 0.4% and 5.9% as depicted in Table 1 and 2 respectively.

Table 1: Demographic Breakdown of the Respondents

Respondents	Frequency	Percentage (%)
Position in the company		
Contract manager	26	10.9
Executive director	8	3.4
Marketing manager	12	5.0
Project manager	75	31.5
Engineer	72	30.3
Other employees	45	18.9
Working experience (Years)		
Lowest working experience	1	0.4
Highest working experience	47	5.9
Gender		
Male	182	76.5
Female	56	23.5

Table 2: Demographic Breakdown of the Companies

Parameters	Frequency	Percentage (%)
Company specialization		
Apartment buildings	87	36.6
Roads	130	54.7
Bridges	16	6.7
Others	5	2.1
Company ownership type		
Local	150	63.0
National	15	6.3
Multi-national	72	30.3
Others	1	0.4
Company business location		
Local market areas	143	60.1
Within few states	9	3.8
Regional	6	2.5
Across Nigeria	40	16.8
International markets	39	18.4
Company existence (years)		
Lowest	1	0.4
Highest	29	12.2
Company employee		
Lowest	1	0.4
Highest	14	5.9

Extent of Effective Construction Risk Management among Abuja and Lagos state Nigeria Construction Companies as depicted in Table 3.

Table 3: Overall Effective Construction Risk Management among Abuja and Lagos state Nigeria Construction Companies

Extent of Effective construction risk management	Freq.	%	Mean	Median	Mode	SD
Very low	-	-				
Low	116	48.4				
Medium	95	39.9	2.65	2.50	2.26	0.59
High	26	10.6				
Very high	1	0.4				

Table 3 depicts the frequencies, percentages and mean scores for overall effective construction risk management among the construction companies in Abuja Federal capital territory and Lagos state Nigeria. The level with the highest frequency (116) and percentage (48.4 %) is regarded as “low”. However, because the mean score (2.652) falls within the medium category, this implies that the extent of effective construction risk management among the construction companies operating in Abuja Federal capital territory and Lagos state Nigeria is at the “medium” level which is in line with the study of Adeleke, Bahaudin, & Kamaruddeen, [2]. To investigate further the effective construction risk management among these companies, the extent of effective construction risk management from different dimensions of risk management factors (management, material, design, finance, labour and equipment risk) was examined. Table 4 to 8 depicts the extent of effective construction risk management for different dimensions.

Table 4: Extent of management risk among Abuja and Lagos State Nigeria construction companies

Management risk	Frequency	Percentage	Mean
Very low	-	-	
Low	106	44.4	
Medium	107	44.9	2.693
High	24	10	
Very high	1	0.4	

In Table 4, the frequency and percentage scores for management risk among the construction companies in Abuja Federal capital territory and Lagos state, Nigeria was presented. The score with the highest frequency (107) and percentage (44.9 %) is at medium level. The mean score (2.693) implies that management risk factors which will make the two states construction companies risk management to be effective is at medium level which is found among the management risk factor.

Table 5 presents the frequency and percentage scores for material risk among the construction companies in Abuja Federal capital territory and Lagos, Nigeria. The score with the highest frequency (94) and percentage (39.4 %) is at low level. The mean score (2.726) implies that material risk factors which will make the two states construction companies risk management to be effective is at medium level which is found among the material risk factor.

Table 5: Extent of material risk among the construction companies in Abuja FCT and Lagos State Nigeria

Material risk	Frequency	Percentage	Mean
Very low	1	0.4	
Low	94	39.4	
Medium	90	37.8	2.726
High	46	19.4	
Very high	7	2.9	

Table 6: Extent of design risk among Abuja and Lagos State Nigeria construction companies

Design risk	Frequency	Percentage	Mean
Very low	-	-	
Low	95	39.9	
Medium	102	42.9	2.681
High	36	15.1	
Very high	5	2.1	

Table 6 above presents the frequency and percentage scores for design risk among Abuja Federal capital territory and Lagos Nigeria construction companies. The score with both the highest frequency (102) and percentage (42.9 %) is at medium level. The mean score (2.681) implies that design risk factors which will make the two states construction companies risk management to be effective is at medium level which is found among the material risk factor.

Table 7: Extent of finance risk among Abuja and Lagos State Nigeria construction companies

Finance risk	Frequency	Percentage	Mean
Very low	8	3.4	
Low	146	61.3	2.325
Medium	58	24.4	
High	24	10	
Very high	2	0.8	

Table 7 presents the frequency and percentage scores for finance risk among construction companies in Abuja Federal capital territory and Lagos state, Nigeria. The score with the highest frequency (146) and percentage (61.3 %) is at low level. The mean score (2.325) implies that finance risk factors which will make the two states construction companies risk management to be effective is at low level which is found among the material risk factor.

Table 8: Extent of labour and equipment risk among Abuja and Lagos State Nigeria construction companies

Labour and equipment risk	Frequency	Percentage	Mean
Very low	-	-	
Low	114	48	
Medium	83	34.8	2.695
High	34	14.2	
Very high	7	2.9	

Table 8 above presents the frequency and percentage scores for labour and equipment risk among the construction companies in Abuja Federal capital territory and Lagos state, Nigeria.

The score with both the highest frequency (114) and percentage (48 %) is at low level. The mean score (2.695) implies that labour and equipment risk factors which will make the two states construction companies risk management to be effective is at medium level which is found among the material risk factor.

4.0 CONCLUSION

The present study was carried out with one objective, which was to assess the extent of effective construction risk management among the construction companies in Abuja Federal capital territory and Lagos state Nigeria. This study attempts to answer this research question: What is the extent of effective construction risk management among construction companies operating in Abuja Federal capital territory and Lagos Nigeria? The construction companies listed on the Abujagallery and Lagos state government, state tenders board were stratified and randomly selected to participate in this survey. A booklet comprising of a structured questionnaire was physically distributed to 331 construction companies. This was followed up with telephone calls as reminder to better improve the response rate. In the end, a total of 238 useable responses were received.

The results of the statistical analysis shows that the overall mean for effective construction risk management is 2.652, which falls within the medium level. This is in line with the study of Adeleke, Bahaudin & Kamaruddeen [3] whose findings affirmed that risk management is not well implemented within Nigerian construction companies. Although material risk factor exhibited a higher mean score of (2.726) than that of management (2.693), design (2.681), finance (2.325) and labour with equipment risk factors (2.695).

Likewise, the extent of effective construction risk management of construction companies in Abuja Federal capital territory and Lagos state Nigeria presented in the study might be determined by the interpretation of the scale adopted. While the same mean scores found in this study can also be found in similar studies, the corresponding extent of effective construction risk management will depend on the scale interpretation used. For example, if another range different from 3.5 – 3.49 for medium level is used, the extent of effective construction risk management could be different from that found in this study.

This study is significant to all the relevant stakeholders in the construction industry such as the Ministry of Housing and Local Government in Nigeria, the Housing Developers Association, Real Estate and the House Buyers Association. Furthermore, this study constitutes the theoretical or empirical research concerning the extent of the effective construction risk management in Abuja Federal capital territory and Lagos state Nigeria. Therefore this research provides a ground for researchers with interest in this field, to further examine the relationships between the constructs in this study. This research provides a conceptual basis for understanding risk management in the construction industry.

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