INFLUENCE OF CONTRACTUAL RISKS ON BUILDING PROJECT DELIVERY IN ABUJA, NIGERIA

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ABSTRACT
Contractual risks were risks mostly encountered by contractors in Nigeria and identified to have the consequences on claims, risks in construction especially with the increase construction complexity and the clients are getting more sophisticated in disputes, lack of coordination, delays and inflated costs. Those challenges are due to unanticipated their demands. These challenges prompted this study on influence of contractual risks on building contracts in Abuja. The study largely derives qualitative measure in order to understand the influence of contractual risk on building delivery. The study is criteria – based study, in which certain criteria were outline for the selection of the construction companies. The respondent (stakeholders) samples used in the study were drawn from the total population of stakeholders in the 5 construction companies selected for the study. The total numbers of stakeholders are 220 while 140 were selected for the study following the rules of Krejcie and Morgan, (1970). The analysis of the questionnaires survey data was undertaken using (SPSS) version 20. Correlation analysis was conducted in order to determine the relationship between contractual risks factors and project delivery (time and cost) and the result were found to be significant (P<0.005). This relationship was modeled using simple linear regression and from the model the result shows that contractual risks factors have effect on project delivery in term of time and cost. Risk management should be integrated into project management processes to minimize the effect of contractual risk factors on time and cost increase of building project.

Keywords: Contractor, Contractual risks, Project cost, Project time.

1.0 INTRODUCTION

Risk is inherent in all human endeavors and construction projects are no exception as they involve activities that are prone to different type of risks (Ogunsanmi, O. E., Salako, O. A., & Ajayi, O. M. 2011). Haseeb, M. J., & Xinhailu Bibi, A. (2011), opined that risks affect construction sector negatively and focusing on risk reduction measures is important. It is a generally recognized fact that those within the construction industry are continually faced with a variety of situations involving many unknown, unexpected, frequently undesirable and often unpredictable factors. These uncertain situations, according to Turner (1990), have made many

projects to fall short of the desired objectives of cost, time, quality and satisfaction. Risk in relation to construction is describe as a variance in the process of a construction project whose variation results in uncertainty as to the final cost, duration and quality of the project (Bufaied, 1987). There are many risks involved in construction projects, which could be attributed to a number of reasons; amongst them are the nature of the construction process, the complexity and time-consuming design and construction activities, the involvement of a multitude of people, from different organizations, with different skills and interests, all resulting in accumulative associated risks for the project. Hence, a great deal of effort is required to co-ordinate the wide range of activities that are undertaken (Chapman & Ward, 1997). As the size and complexity of the projects increases, the ability to manage risks throughout the construction processes has become a central concern in the attempt to prevent unwanted consequences (Harinarain, (2008). However, in many projects there are attempts by parties to avoid risks (unwanted consequences) as much as possible and let somebody else in the value chain deal with the risks. Majority of project risks are usually borne by contractors (Andi, 2006); this is because contractors are usually visible for almost the entire project life- cycle, hence contractors are exposed to risks and are constantly saddled with the responsibility of managing risks and uncertainties inherent in the project life-cycle. Studies carried out by Akintoye and Mcleod (1997), Onukwube, H. N., & Enang, A. J. (2009) and identified some risks that contractors are commonly exposed to while executing contracts. These risks are grouped into; contractual, political, performance, financial, technical and environmental risks. The consequences of these risks factors are claims, dispute, poor quality work, delay, disruption of work, increase in price of materials, dispute, and stoppage of work etc. Akintoye and Macleod (1997), identified contractual risks as a fundamental risk in project management, recognized as having most adverse consequences on the successful

completion of construction project. Contractual risks were also revealed to be the risks mostly encountered by contractors in Nigeria and also identified to have the consequences on claims, disputes, disruption of work, stoppage of work, lack of coordination, delays and inflated costs. Since construction projects are often executed under contractual agreement and impose numerous obligations and duties on parties to the contract (Olatunji, 2007). Furthermore, a study carried out in South Africa by Harinarain, (2008) to identify and quantify contractors' risk sources as imposed by Joint Building Contract Committee (JBCC) Principal Building Agreement Series 2000 found out that the risk sources to the contractors (ranked from highest to the least) are client, subcontractor, quantity surveyor, principal agent, architect, engineer, government authorities and suppliers. However, Chapman and Ward (1997), revealed that it is not just enough to identify risks and their sources without prioritizing them by assessing and combining their probability of occurrence and consequences, or impact. Williams (1996) also argue that proper consideration of project risk requires the consideration of both likelihood and impact of risk. Those challenges are due to unanticipated risks in construction especially with the increase construction complexity and the clients are getting more sophisticated in their demands. These challenges prompted this study on influence of contractual risks on building contracts in Abuja, Nigeria.

2.0 LITERATURE REVIEW

A variety of factors make a construction contract different from most other types of contracts; these include the length of the project, its complexity, its size and the fact that the price agreed and the amount of work done may change as it proceeds (Andi, 2006). Over the years construction contracts have evolved into standard contract forms, not only because of their advantages of familiarity and the prohibitive cost of customization but also to provide certainty

on the nature of the transaction between parties on a project specific basis in effect, to minimize transaction costs (Masterman, 1997). There is need to check the activities, responsibilities and powers of stakeholders to prevent dispute and conflict of interest. The development of these contract forms reflects the building industry's perspective. Flanagan and Norman (1997) revealed that the Standard forms of contract in use within the construction industry emerged from the construction industry's historical practices and its consequence of concerted efforts by professional institutions to improve contracting practice. A number of organizations have prepared recommended standard general conditions and associated forms such as Federation Internationale des Ingénieurs-Conseils (FIDIC), New Engineering Contract (NEC), Institute of Civil Engineers (ICE), Joint Contract Tribunal (JCT) etc. In Nigeria the JCT and the Standard Form of Building Contract (SFBC) 1990 is commonly used for administering building contract. The standard form of building contract (SFBC 1990) in Nigeria is provided and reviewed by the Nigeria Institute of Architects (NIA) to act as a guideline to different issues and complexities of building contracts and construction in Nigeria. Carter, C., Hassan, T., Merz, M., & White, E. (2001) revealed that there is an extensive use of the Joint Contracts Tribunal (JCT) forms of contracts in Nigeria and the most common edition being used in Nigeria for traditional procurement is that of 1998. The first edition to be adopted by the Nigerian construction industry is the JCT 1963 and this document has been further internalised to suit the country's construction. In construction contracts there are two major parties to the contract, namely the Employer or the Client and the contractor. The contractor's basic obligation, so far as the standard of work is concerned, is to comply with the terms of the contract. This includes both express terms (such as the requirement of contract that work shall be of the standards described in the bills) and implied terms (such as the principle that all materials shall be of 'satisfactory

quality') (Murdoch & Hughes, 2000). The Employer agrees to accept certain responsibilities when entering the contract. The most basic of these oblige it to pay the Contractor for the work that has been completed and to compensate the contractor for any additional loss or expense.

In the case of Merton LBC v Stanley Hugh Leach Ltd as cited in Murdoch and Hughes (2000), acknowledged the obligations on the part of the employer to be implied into all building contracts are expressed as follows:

i. The employer will not hinder or prevent the contractor from carrying out all its obligations in accordance with the terms of the contract, and from executing the works in a regular and orderly manner.

ii. The employer will take all steps reasonably necessary to enable the contractor to discharge all its obligations and to execute the works in a regular and orderly manner.

Risk in construction has been the object of attention because of time and cost overruns associated with construction projects. Moavenzadeh and Rossow (1976) have regarded risk as an exposure to loss only. Bufaied (1987) in his work describes risk in relation to construction as a variable in the process of a construction project whose variation results in uncertainty as to the final cost, duration and quality of the project. Risks in the construction project have been perceived differently in literature; Choffray and Johnson (1993) and Ritchie and Marshall (1993) have identified factors influencing the formation of risk perception including educational background, practical experience, an individual's cognitive characteristics, the availability of information, peer group influence, etc. In the studies carried out by Akintoye and McLeod (1997), the perception of risk by contractors and project managers in UK revealed that contractors perceived risk as Factors which can adversely affect the successful completion of a project in terms of budget and schedule which in themselves are not always identifiable. Zuofa, T., Ochieng, E. G &

Awuzie, B. O. (2012), discovered that Contractors perceive risk as those factors that jeopardize their abilities to meet predefined project scope, cost and time and risks are depicted as any event that has a negative effect on their operations, they also identified tight project schedules, inaccurate estimating, poor project management, resource incompetence, inadequate safety measures and unsafe operations, subcontractor's inexperience and excessive bureaucracy as risk factors while performing contracts in the Niger Delta area in Nigeria. The fundamental step in managing construction project risks is to determine types of project risks and classifying it into several groups in which it belong. This could enable the assessment process to be carried out in determining the level of each risk and the severity effects of it in project undertakings

3.0 MATERIAL AND METHODS

According to Creswell, (2003) that the factor to be consider in selecting the best research methodology should be the influence that such method have on the research problem and objectives. The study largely derives qualitative measure in order to understand the influence of contractual risk on building projects delivery. The stakeholders considered for this research are the contractors, architects, quantity surveying, civil engineers and builders working within the contractor's organizations. The study is a criteria – based study, in which certain criteria were outline for the selection of the construction companies and their stakeholders. Those criteria are:

1. The construction company must be built/civil engineering, construction.

2. The construction firm or company must be more than twenty (20) years in civil/building construction work.

3. The construction stakeholders must at least be with the construction company for not less than fifteen (15) years.

4. His qualification must be at least B. Tech/Msc or HND.

5. The location of the study is Abuja, the Nigeria federal capital.

Five (5) construction companies were identified that meet the study criteria and as such five (5) of the construction companies were selected for the study. The selection is based on sample selection rules of Krejcie and Morgan, (1970). The respondent (stakeholders) samples used in the study were drawn from the total population of stakeholders in the 5 construction companies selected for the study. The total numbers of stakeholders that meet the study criteria in the 5 construction companies are 220 while 140 were selected for the study following the rules of Krejcie and Morgan, (1970). The research questionnaires were administered on 140 permanent stakeholders within the 5 construction companies in Abuja. The analysis of the questionnaires survey data was undertaken using the statistical package for social science (SPSS) version 20. Which is a software package used for statistical analysis. It is now named "IBM SPSS Statistics". It is manufacture in Chicago USA, by SPSS Inc. The SPSS Inc is a leading global manufacturer of software used in data analysis, reporting and modeling. In social science study, there is need to ascertain the reliability of the data prior to data analysis. As such quality control mechanism is established in order to control error within an existing data in order to make it reliable.

Table 3.1 Results of Reliability Tests

S/no	Components	1st Test		2nd Test		3rd Test		No. of Items	
		α	No of items	α	No of items	α	No of items	Initial	Final
1	Contractual Risk factors	.840	11	.846	10	.863	9	11	9
2	Project time delivery	.712	7	.853	6	-	-	7	6
3	Project cost delivery	.718	6	.874	5	-	-	6	5

Source: Researcher analysis (2018)

Reliability test is a way of assessing the quality of the measurement procedure used to collect data in a research. Three components are subjected to the reliability test and their results are

1. Contractual risk factors have eleven components and only nine are reliable. The rest are not valid and not reliable.

2. Project time delivery has seven components and only six are reliable. The rest are not valid and not reliable.

3. Project cost delivery has six components and only five are reliable. The rest are not valid and not reliable.

4.0 RESULT AND DISCUSSION

Correlation analysis was conducted in order to determine the relationship between contractual risks factors and project time delivery, contractual risk factors and project cost delivery. Table 4.1 shows the result of the correlation analysis.

Table 4.1 Average Project Time Delivery (AVGPTD

Component	r	P
AVGCRF	0.698	0.001

listwise N=140

Source: Researcher analysis (2018)

Where;

AVGCRF = Average Contractual Risks Factors
AVGPTD = Average Time Delivery

Table 4.2 Average Cost Delivery (AVGPCD)

Component	r	P
AVGCRF	0.710	0.001

listwise N=140
Source: Researcher analysis (2018)

Where;

AVGCRF = Average Contractual Risks Factors
AVGPCD = Average Cost Delivery

Table 4.1 and Table 4.2 reveal the correlation of (1) Average Time Delivery and (2) Average Cost Delivery and their correlation is significant at the 0.01 level (2- tailed). N = 140. The Pearson's correlation of the two tables reveals a positive, strong and highly significant relationship between;

1. Average contractual risks factors and average time delivery.

2. Average contractual risks and average cost delivery

The Pearson's correlation (r*)* from table 4.1 is 0.698 while its P< 0.001 and that of table 4.2 is 0.710 while P<0.001.This means that as the level of influence of contractual risk factors increases there is a corresponding increase in the project time delivery and project cost delivery or high level of contractual risk factors on construction project will have a significant effect on project time delivery and project cost delivery. Following the existing of positive relationship

between the variables, there is a need to predict the outcome of the variables. Therefore, simple linear regression is adopt, the simple linear regression seek to examine the effect of contractual risk factors on building project delivery i.e. time and cost.   In the simple linear regression model develop contractual risk factors is the dependent variable while project time delivery and project cost delivery are the independent variable. The results of simple linear regression analysis are presented in Table 4.3 and Table 4.4.

Table 4.3 Model Summary (Project time delivery)

Model	R	R square	Adjusted R square	Std error of the estimate
1	.698[a]	.486	.486	1.54887

a. Predictors: (Constant): AVGPTD
b. Dependent Variable:AVGCRF
Source: Researcher analysis (2018)

Table 4.4 Model Summary (Project cost delivery)

Model	R	R square	Adjusted R square	Std error of the estimate
1	.710[a]	.499	.491	1.65488

a. Predictors: (Constant): AVGPCD
b. Dependent Variable:AVGCRF
Source: Researcher analysis (2018)

Table 4.3 shows that 48% ($R2 = 48$) of the proportion of variation in project time delivery is explained by the variation of level of contractual risks factors. The R2 adjusted is 0.486 implying that the model explains 49% of the variation in the project time delivery within the population leaving 51% unexplained. The influences of contractual risk factors fail to explain all possible variation in the project time delivery. Lack of individual competency understanding of workers and supervisors, ineffectiveness or lack of training and certification of competency, are responsible for such knowledge failure. Table 4.4 shows that 50% ($R2 = 50$) of the proportion of

variation in project cost delivery is explained by the variation of level of contractual risks factors. The R2 adjusted is 0.491 implying that the model explains 49% of the variation in the project cost delivery within the population leaving 51% unexplained. The influences of contractual risk factors fail to explain all possible variation in the project cost delivery. Lack of ownership, engagement and empowerment of, communication with responsibility for workers and supervisor are responsible for such knowledge failure.

5.0 CONCLUSION AND RECOMMENDATION

The influence of contractual risks factors on project time delivery and project cost delivery was determined. The study concluded that contractual risks have adverse consequences on the successful completion of projects in terms of project time delivery and project cost delivery. It was revealed that a reasonable correlation exists between contractual risks factors and project delivery (project time delivery and project cost delivery) as ($r = 0.698$, $P < 0.001$) for project time delivery and ($r = 0.720$, $P < 0.001$) for project cost delivery. This means contractual risks factors are significantly affect project delivery. The regression models finding indicate that additional influence of contractual risks factors on project delivery will spring up enormous effect of project delivery (project time delivery and project cost delivery). Those are the evidence that influencing contractual risks factors would affect project time delivery and project cost delivery. Risk management should be integrated into project management processes to minimize the effect of contractual risk factors on time and cost increase of building project. Also To mitigate the impact of contractual risks factors, the contractor must give early warning to the party that is likely to cause any delay and its implications.

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