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Significance of Construction Cost Estimating Risks in Nigeria

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Abstract

Risk and uncertainties are inevitable at every stage of construction process but can be managed; consultants determine the size and cost implication while contractors cope with it. Construction cost estimating, being the bedrock of the whole process of cost forecasting, determination and management cannot be left out. The need to assess inherent risk in estimating sage of construction project stems from this rationale. The paper examined risks in the construction cost estimating and its significant impact on project cost in Nigeria. The study data were collected through questionnaire survey administered on registered quantity surveyors in both the contracting and consulting organizations in Lagos Metropolis. Out of the list of the registered quantity surveyors in the study area, eighty-five (85) were randomly selected. Data collected were subjected to both the descriptive and inferential statistical tools. Risks associated with construction cost estimating were identified and categorized into bidding procedure, project characteristics, estimating process, project design, fiancé and personal risks. The selected quantity surveyors assessed the significance risks impacting construction cost estimating in the Nigerian construction industry.

1. Introduction

The construction industry is described to be unique from other industries in the global economy. The operational environment, number of parties and expertise involved and its proness to changes in terms of inherent uncertainties are the factors influencing success rate in the construction industry. This influence could be on cost, time, quality and client's satisfaction. In developing countries like Nigeria, construction industry plays important roles of providing adequate social amenities such as education facilities, health care facilities and network of roads as well as decent housing for its teeming population. Federal Office of Statistics (FOS) (1998) reported that about 69% of the nation's fixed capital formation in Nigeria is provided by the construction industry. Despite its significant position and important contribution to the economy, its performance has been and continues to be very poor. Studies by World Bank (1998) established that construction should account for between 3% and 8% of Gross Domestic Products (GDP) in developing countries. Over decades, the contribution of construction industry in Nigeria has been drifted steadily at around 2% (FOS, 1998) which was below the global projection, standard and expectation. Although, Aganga (2010) confirmed its growth to approximately 3% of GDP which was achieved over a period of three (3) decades. Construction industry in Nigeria demands an urgent growth, improvement and efficiency.

The performance of the construction industry can be improved through the application and implementation of appropriate and relevant management practices, one of which is risk management. Mills (2001) described construction industry as one of the most

dynamic, risky and challenging the industry and is exposed to a lot of unpredictable events among these are political risk, economic risk, technological risk and social risk. Smith (2003) also emphasized the fact that the project in the industry are executed under environment with varying degree of risks and uncertainties resulting from 'known', 'unknown-known' and 'unknown-unknown' conditions.

Inadequate identification and assessment of risks at different stage of construction projects has resulted in cost and time overruns of most construction projects. This inefficiency in project performance has been attributed to poor, incomplete and inconsistent communication of construction project risks (Carr and Tah, 2001); and assumptions of the level and magnitude of risk by project parties and participants (Mills, 2001) and the competence, willingness and understanding of accessing risk by the receiving party(ies). Kennedy (1999) established the fact that construction cost estimating is considered as one of the most essential tasks in the budget development of any project life cycle, often makes it to be carried out under conditions of uncertainty. Therefore, Laryea and Dontwi (2007) reported that contractors are quite often unable to effectively price for the risk in construction projects and risk management plays important role as it affect budget of a construction project. This study therefore identified the risks associated with construction estimating with a view to examining the risk inherent in construction cost estimating and assessed the effects of identified risk factors on construction project cost.

2. Risk in Construction

Risk! Construction projects have an abundance of it, contractors cope with it and owners pay for it" (Flanagan and Norman 1993). All projects or business ventures involve risks of various kinds and types. According to Flanagan and Norman (1993), the construction industry is subject to more risks than other industries. Dada and Jagboro (2007) described risks as exposure of construction activities to economic loss, due to unforeseen events for which uncertainties were not properly accommodated. In construction projects, risks and uncertainties are of several types. Some of these are: political, financial, economical, environmental and technical. Many of these uncertainties will involve a possible range of financial outcomes that could be better or worse than predicted. Compared with many other industries, the construction industry is subject to more risks due to the unique features of construction activities, such as long period, complicated processes, abominable environment, financial intensity and dynamic organization structures (Flanagan and Norman, 1993; Akintoye and MacLeod, 1997; Smith, 2003). Typically, owners are at risk for the financing, payments to the designer and contractor, and site conditions. The design professionals are at the risk to ensure that the design meets the aesthetic and functional requirement established by the owner, and the design is code compliant. The quantity surveyor is at the risk of ensuring that estimated cost not exceeding final cost i.e. client receives value for money. The contractor is at risk to ensure the construction is completed on time, within budget and with the quality specified.

The construction industry in particular has been slow to realize the potential benefits of risk management (Flanagan and Norman 1993). Ward and Chapman (1995) established that risk management has not been effectively used in construction due to 'cultural issues' such as lack of knowledge, negative attitudes and mistrust of risk analyses. Risk management can is "a systematic way of looking at areas of risk and consciously determining how each should be treated. It is a management tool that aims at identifying sources of risk and uncertainty, determining their impact, and developing appropriate management responses" (Uher, 2003).

An effective risk management method helps to understand not only what kinds of risks are faced, but also how to manage these risks in different phases of a project. Owing to its increasing importance, risk management has been recognized as a necessity in most industries and different set of techniques have been developed to control the influences brought by potential risks (Baker and Reid, 2005). Hence, taking effective risk management techniques to manage risks associated with various construction activities has been vey germane for the successful delivery of a project. Risk identification and analysis have been highlighted as part of risk management process. Moreover, estimating of construction cost is an important stage in construction projects execution and risk associated with this stage has not been managed effectively and/or accurately determined overtimes. Hence, there is a need for identifying the estimating-related risks and assess their significance in achieving value for money.

Substantive researches had been done in the field of risk management for construction projects, a significant outcome of which is the identification of risks that influence the construction project delivery. Chen *et al.* (2004) proposed 15 risks associated with project cost and divided them into three groups: resources factors, management factors and parent factors. Chen *et al.* (2004) discovered that price escalation of material, inaccurate cost budget, supplier or subcontractors' default and excessive interface on project management were the most significant risks in West Rail Project of Hong Kong. Shen *et al.* (2001) in another study identified eight major risks in relation to project delay proposed risk management actions to cope with these risks. Chen *et al.* (2004) focused on the impacts of risks on project cost while Tam *et al.* (2004) investigated risk impacts on time and safety respectively. Others investigated risk management for construction projects in the context of a particular project phase, such as conceptual/feasibility phase (Uher and Toakley, 1999), design phase (Chapman, 2001) and construction phase (Abdou, 1996). Uher and Toakley (1999) found that most

respondents were familiar with risk management whereas its application in the conceptual phase was relatively low.

Abdou (1996) classified construction risks into three groups, i.e. construction finance, construction time and construction design, and addressed these risks in the light of contractual relationships existing among the functional entities involved in the design, development and construction of a project. Risk classification is a significant step in the risk management process, as it attempts to structure the diverse risks affecting a construction project. In order to manage risks effectively, many approaches have been suggested in the literature for classifying risks. Perry and Hayes (1985) presented a list of risks and divided them in terms of risks retainable by contractors, consultants and clients. The study combines the holistic approach of general systems theory with the discipline of a work breakdown structure as a framework, Chapman (2001) grouped risks into four subsets: environment, industry, client and project. Shen *et al.* (2001) categorized the risks in accordance with the nature of the risks, i.e. financial, legal, management, market, policy and political, as well as technical risks. Hence, different approaches can be used in classifying the risks associated with construction projects and the rationale for choosing a method must service the purpose of the research. Moreover, dearth of researches had probed risks from the perspectives of construction cost estimating. The paper examines risks associated with construction cost estimating and evaluated the impact of those risk on construction cost estimating in Nigeria.

3. Cost Estimating-Related Risk

Estimating construction cost is one of the essential tasks in the budget development phase in a project life cycle. However, it is often carried out under conditions of uncertainty. The preparation and accuracy of any type of cost estimate will depend heavily on the amount of information available and tools used during different project phases (Abdoul, Lewis and Alzarooni, 2004). Traditional methods of cost estimating are proved to be unsatisfactory in decision making due to the lack of accuracy especially in the feasibility or appraisal stage (Alkass and Jard 2000). During that phase, most budgets are made using a "cost per gross floor area" basis regardless of the risks associated with project risks and their impact on cost and time parameters. Cost estimating techniques/methods can be categorized into various forms ranging from order of magnitude to usage of artificial intelligent (AI). In most of these methods or techniques, the estimator uses references, manuals or databases for cost-rates. These are normally derived from previous projects or tenders and need to be adjusted for time of use (Abdoul, Lewis and Alzarooni, 2004).

Previous research on the causes of budget-related problems in US federal construction projects found that 35% of the projects in their sample encountered budget related problems (Committee on Budget Estimating Techniques 1990). Abdoul, Lewis and Alzarooni (2004) showed that variations between the actual and contract cost of UAE public projects estimates were at an acceptable level, while there were high variations (positive or negative) between feasibility and contract cost, ranging between -28.5% and +36%, with no clear pattern for those variations. They argued that applying risk assessment techniques in pre-design stages will lead to better cost estimating and hence better decision-making.

Therefore, assessing risk associated with project cost estimating will improve the project performance in terms of cost. Smith (2003) and Dada and Jagboro (2007) described risk to be uncertain occurrences and can be expressed as factors affecting construction cost. All factors affecting cost of construction project were identified from literature and assessed as risks associated with construction cost estimating. Among previous studies on factors affecting cost of construction was work of Shash and Abdul-Hadi (1992) who classified the factors affecting the accuracy of cost estimating as financial issues, bidding situations, project characteristics and estimating process itself? Ashwarth (1994) summarized nine factors that have some influence on the accuracy of estimating the cost of construction work and these include availability of the design information, type and quality of cost data, type of the project, project size, number of bidders on competitive projects, stability of market conditions, personal factors, proficiency in estimating and sheer quantitative experience. Akintoye and Fitzgerald (1999) and Shash (1993) also classified factors that affect the accuracy of cost estimating to include financial issues, bidding situations, project characteristics and the estimating process itself. Akintoye (1998) also established that the cost estimator is expected to carry out some tasks while preparing a cost estimate which include thorough examination of tender documents, a site visit, the preparation of methods statement and tender program, a visit to the project consultants, and to make inquiries and receive quotation for materials, plant and subcontractors.

In this regards, the major problems facing cost estimators in preparing cost estimates, according to Akintoye and Fitzgerald (1999) and Shash (1993) were: tough competition, contract period, incomplete drawings and specification, incomplete project scope definition, unforeseeable changes in materials, changes in owners requirements, current workload, errors in judgment, inadequate production time data, lack of historical data for similar jobs and lack of experience in similar projects. In another vein, project complexity, project information, technological requirements, contract conditions, contractor's efficiency, market requirements, project duration were identified as factors which affect the accuracy of cost estimation (Sey and Dickbas, 1983; Shash, 1993; Shash and Abdul-Hadi, 1992; Ashworth, 1994; Ahuja *et al*., 1994; Baccarini, 1996; Akintoye, 1998; Akintoye and Fitzgerald, 1999). Based on this, a list of thirty-two (32) factors (Table 2) was made which were further sub-grouped into six (6). This form the list of risks associated with construction cost estimating and the study assessed the level of occurrence of

those factors, their impacts on construction cost estimating in Nigeria and their interacting effect based on the type of the firm surveyed.

4. Methodology

The literature reviewed provided a basis for developing the questionnaire used in this survey. The study identified thirty-two (32) risks (Table 2) associated with construction cost estimating in the Nigerian construction industry and these were grouped into six (6) categories which include bidding procedure, project characteristics, estimating process, project design, personal factors and financial. The study population constituted quantity surveyors in consulting and contracting practices in Lagos being the state with larger numbers of building construction projects (Ogunsemi and Jagboro, 2006) and high concentration of construction activities in the region (Odeyinka et al., 2006). There are one hundred one (101) registered quantity surveyors in the study area as obtained from list of the registered quantity surveyors published by Quantity Surveyors Registration Board of Nigeria (QSRBN) in 2005. Sample of eighty-five (85) respondents were randomly selected representing eighty-four percentages (84%) of study population in the area. All the study population was targeted but 85 copies of questionnaire were returned and found useful for the analysis. The survey questionnaire for this study was divided into 2 sections. The first section focused on the general information of the respondents and the firms which include their academic and professional qualifications, years of work experience e.t.c. The second section focused on questions relating to the risks associated with construction cost estimating and the impact of those risks on construction cost estimating in Nigeria. The respondents' opinions on the research questions were examined using five-point Likert scale from 5(very high), 4(high), 3(moderate), 2(low) to 1(very low). The data collected were analyzed using Relative Significance Index (RSI) computed from mean scores. Other analytical statistical tools employed includes Analysis of Variance (ANOVA)which tests the effect of firms size on the occurrence of the risks associated with construction cost estimating.

5. Results and Discussion

5.1. General Information About the Firms and Respondents

Table 1 shows the characteristics of the firms surveyed and the no of employees, educational and professional qualifications and work experience of the surveyed respondents. This is to establish the reliability of the data and information supplied by the respondents. The surveyed firms consisted of 22.4% small-sized firms, 54.1% medium-sized and 23.5% large-sized firms. The year of establishment of the firms was averaged at 12 years and more than 70% of the firms have been in existence for more than 11 years. Table 1 also reveals that 84.7% of the respondents had minimum of B.Sc., 92.9% of them were members of the Nigerian Institute of Quantity Surveyors with work experience of average 12 years. This indicates that 65% of the respondents had more than 12 years of working experience.

In summary, the results shown in Table 1 above justified that, the data for this study had been obtained from qualified firms with reasonable years of existence and who had on her pay roll or engaged employees with adequate academic and professional qualifications. They are also members of the appropriate professional bodies relevant to their professional services as construction cost managers. All these information provide basis for the reliability of the data provided by the respondents.

Table 1. *Demographic Information of the Quantity Surveyors and Firms*

Demographical Information		
Type	**Frequency**	**Percentage (%)**
Small	19	22.4
Medium	46	54.1
Large	20	23.5
Total	85	100.0
Firms' Years of Establishment		
<10	23	27.1
11 – 20	47	55.3
Above 20	15	17.6
Total	85	100.0
Numbers of Employees in the Firms		
<10	19	22.4
11-50	37	43.5
51-250	11	12.9
< 250	18	21.2
Total	85	100.0
Educational Qualification of the Respondents		
OND	1	1.2
HND	12	14.1
B.Sc.	46	54.1
M.Sc.	26	30.6
Total	85	100.0
Professional Qualification of the Respondents		
MNIQS	79	92.9
Others	6	7.1
Total	85	100.0
Work Experience of the Respondents		
< 10 years	28	33.0
11-20 years	53	62.4
> 20 years	4	4.6
Total	85	100.0

Table 2 gave the result on the assessment of the level of occurrences and degree of impact of estimating-related risks. This paper focused on the most occurred risks with very high impact. Therefore, the risks between 1st and 10th ranks in both the occurrence and impact levels were considered. This result is appropriate because all these risks were germane in the determination of a realistic estimate of any projects. It also emerged that all the risks identified have high level of occurrence with RSI values range from 0.922 to 0.504 and the degree of impact with RSI values ranged from 0.916 to 0.664. This implied that all these risks were significant during the process of estimating construction cost.

Table 2. *Significance of Construction Cost Estimating Risk Factors Based on Level of Occurrences and Degree of Impact*

S/N	RISK FACTORS	LEVEL OF OCCURRENCE		DEGREE OF IMPACT	
		RSI	RANK	RSI	RANK
1	Contract conditions	0.922	1	0.916	1
2	Market requirements	0.838	3	0.876	2
3	Type of project	0.812	4	0.850	3
4	Fluctuation in labour prices	0.690	20	0.836	4
5	Contractor's efficiency	0.754	12	0.828	5
6	Contract period	0.804	6	0.822	6
7	Error in judgement	0.868	2	0.820	7
8	Type of bidding	0.776	10	0.812	8
9	Lack of historical data for similar project	0.782	9	0.810	9
10	Incomplete project scope definition	0.788	8	0.804	9
11	Availability of design information	0.630	26	0.804	9
12	Project location	0.644	25	0.794	11
13	Lack of experience on similar project	0.748	13	0.780	12
14	Current workload	0.690	19	0.778	13
15	Error in design and specification	0.652	23	0.778	14
16	Type of cost data	0.648	24	0.776	15
17	Changes in owner's requirements	0.758	11	0.774	16
18	Unforeseeable changes in material prices	0.590	29	0.770	17
19	Project complexity	0.714	18	0.768	18
20	Access to site	0.740	15	0.764	19
21	Quality of cost data	0.630	27	0.762	20
22	Project duration	0.738	16	0.758	21
23	Project information	0.792	7	0.742	22
24	Availability of material	0.558	32	0.738	23
25	Size of project	0.584	30	0.736	24
26	Sheer quantitative experience	0.674	21	0.716	25
27	Proficiency in estimating	0.610	28	0.712	26
28	Incomplete design and specification	0.510	33	0.712	27
29	Access to the consultants	0.660	22	0.710	28
30	Availability of labour	0.730	17	0.704	29
31	Stability of market conditions	0.584	31	0.696	30
32	Number of the bidders	0.504	34	0.664	31

However, contract condition was the risk with the highest level of occurrence and impact (ranked 1). Other highly occurred and impacted risks were market requirement (ranked 3rd in occurrence and 2nd in impact), types of projects (ranked 4th in occurrence and 3rd in impact), contract period (ranked 6th both in occurrence and impact), error in judgement (ranked 2nd in occurrence and 7th in impact), technological requirements (ranked 5th in occurrence and 8th in impact), type of bidding (ranked 10th in occurrence and 9th in impact) and lack of historical data for similar project (ranked 9th in occurrence and 10th in impact). This agreed with the earlier works of Akintoye and Fitzgerald (1997), Shash (1993), Akintoye (1998).

Table 3. *Classification of Construction Cost Estimating Risk Factors*

S/N	RISK FACTORS
	BIDDING PROCEDURE
1	Contract conditions
2	Type of bidding
3	Contract period
4	Number of the bidders
	PROJECT CHARACTERISTICS
1	Size of project
2	Type of project
3	Project complexity
4	Project information
5	Project location
6	Project duration
	ESTIMATING PROCESS
1	Incomplete scope definition
2	Quality of cost data
3	Lack of experience on similar project
4	Proficiency in estimating
5	Current workload
6	Sheer quantitative experience
7	Type of cost data
8	Access to the consultants
9	Inadequate tendering period
10	Access to site
	DESIGN
1	Availability of design information
2	Error in design and specification
3	Incomplete design and specification
	PERSONAL FACTORS
1	Changes in owner's requirements
2	Contractor's efficiency
3	Error in judgement
4	Availability of labour
5	Availability of material
	FINANCIAL
1	Fluctuation in labour prices
2	Market requirements
3	Stability of market conditions
4	Unforeseeable changes in material prices

The assessment of the level of occurrence and degree of impact showed that most of the risks with high level of occurrence have high impact on construction cost estimating. The highest being contract conditionswas supported by the opinions of Shash (1993), Ashworth (1994), Ahuja et al. (1994) and Sey and Dickbas (1996). Others include market requirements, type of project, contract period, error in judgement and technological requirements which agreed with the work of Akintoye and Fitzgerald (1997), Shash (1993) and Akintoye (1998). This means that construction cost estimators together with the professionals designers should carefully spelt out the conditions under which a contract will be executed at the early stage of any project so as to avoid any future changes which could result in claims and loss of money to the client. Market conditions and requirements must also be established to avoid future price increase and cost indices must be carefully determine for forecasting purpose. The nature and characteristics of each project must be understood for efficient delivery as the project characteristics has a great influence on its probable cost. Adequate tool must be adopted in determining project duration and enough time must be provided for estimator to prepare her estimate as a hurry made estimate means provision for claims and fluctuations. The soundness of estimator's judgement in cost determination will go a long way in influencing the accuracy of construction cost. Estimator judgement however must be based on accurate cost information, cost indices, recent market prices and sound knowledge of the scope and nature of the project under consideration. The aggregate of these will produce a sound professional judgement during construction cost estimating. Identified risks were grouped into six main categories as shown in Table 3. Their level of impact based on the size of the surveyed firms, interaction of these risks within different sizes of firms and the degree of impact were assessed as indicated in Table 4.

The risks were categorized into bidding procedure, project characteristics, estimating process, project design, finance and personal risk. Also, firms were categorized into large, small and medium sized. The result obtained showed that bidding procedure was the risk with the highest impact for all sizes of firms (rank 1st) except small sized firms (ranked 2nd) followed by project characteristics which was ranked 2nd in large-sized firms, 3rd in medium sized firms and 4th in small-sized firms. It was also ranked 3rd in all firms. This agreed with Shash and Abdul-Hadi (1992) who classified risks affecting the accuracy of cost estimating as financial issues, bidding situations, project characteristics and estimating process itself. It is important to note that all categorized risks had very high impact on construction cost (RSI values ranged between 0.683 to 0.519) except project design with values of 0.470 for large firms and 0.497 for all firms.

Table 4. *Categorized Risk Factors Associated with Construction Cost Estimating among Firms and Degree of Impact*

S/N	RISK FACTORS	LARGE FIRMS		MEDIUM FIRMS		SMALL FIRMS		ALL FIRMS		DEGREE OF IMPACT	
		RSI	RANK	RSI	RANK	RSI	RANK	RSI	RANK	F-Stat	Sig.
A	Bidding Procedure	0.628	1	0.683	1	0.615	2	0.663	1	1.256	0.290
B	Project Characteristics	0.608	2	0.637	3	0.604	4	0.623	3	1.148	0.322
C	Estimating Process	0.530	5	0.611	4	0.565	5	0.582	5	3.488	0.035
D	Project Design	0.470	6	0.500	6	0.519	6	0.497	6	0.363	0.697
E	Finance	0.593	3	0.607	5	0.608	3	0.604	4	0.141	0.869
F	Personal Risk	0.560	4	0.663	2	0.642	1	0.634	2	3.977	0.022

It could be inferred from this result that the most significant risk factors as ranked by the three categories of firms are bidding procedure, personal risk, project characteristics, finance, estimating process and project design. This means that bidding procedure and estimators' personal factors have great influence on construction cost estimating. This was also in agreement with general assessment by all the firms. This therefore means that method adopted by the client or his team of consultants in tendering/bidding for a project will go a long way in influencing the accuracy of cost of construction project. Also, personal characteristics of the estimator in term of his experience, market knowledge and information, ability to interpret cost information to suite present situation among others are risk associated with accuracy in cost estimating of construction project which demand a good care.

Further analysis was conducted on the six categories of risks to examine the impact based on the classes of firms using Analysis of Variance (ANOVA) and test of hypothesis, the result was as shown in Table 4.

5.2. Hypothesis

H_0: There is no statistically significant relationship between size of firms and the impact of occurrence of risks in construction cost estimating.

H_1: There is statistically significant relationship between size of firms and the impact of occurrence of risk factors in construction cost estimating.

The result from Table 4 reveals that F=1.256 for bidding procedure, F=1.148 for project characteristics, F=3.488 for estimating process, F= 0.363 for project design, F= 0.141 for finance and F=3.977 for personal risk all at $p>0.05$. Therefore, H_0 could be accepted because there is no statistically significant relationship between size of firms and the impact of occurrence of these risk factors (bidding procedure, project characteristics, project design and finance risk). This means that the firms' size had no influence on the occurrence of risks in construction cost estimating. It could be interpreted that all firms surveyed perceived the occurrences of risks related to bidding procedure, project characteristics, finance and project design when estimating for cost of construction project.

However, a statistically significant relationship existed between size of firms and the impact of occurrence of estimating process risk and personal risk as indicated in their results. F=3.488 for estimating process and F=3.977 for personal risk at $p< 0.05$.Therefore, H_0 was rejected for these categories of risks, which means that there is statistically significant relationship between size of firms and the impact of occurrence of estimating process and personal risks in construction cost estimating. The implication is that the risks related to estimating process and personality had different impact on construction cost based on firm size groupings. Also, different firms react to or perceive estimating risk impact in different ways and effects of personal risk on construction cost determination was viewed by different firms in different ways, therefore, this affects their perception on the risk impact. Different personal view should be properly managed to reduce its effect in the course of estimating construction cost of project and achieving a realistic figure on projects. Other risks identified by this paper should be managed from the inception of the project as these will go a long way in achieving the purpose of estimating for the project cost.

This may be connected to the fact that the personal views can be varied and direct estimating process is a matter of the institution or experience coupled with other factors. All these may vary based on different firms. Personal views on estimating within large size firms may be different across sizes of firms. The perception of the estimators varied significantly from large-sized firms to medium-sized and small-sized firms.

6. Conclusion and Recommendations

Risk and uncertainty are both the positive and negative implications of changes that occur in the construction processes. Although estimating provides the basis for contract formation but its level of accuracy is being influenced by lots of factors. Therefore, the paper examined risks associated with construction cost estimating and its significant impact on project estimateand the interactive effect on different sizes of firm in the Nigerian construction industry. The paper established that the most occurring and impacting risks in construction cost estimating was contract conditions. Others were error in judgement, market requirements, type of project and technological requirements.

All the categorized risk factors had significant impact on cost except risk related to project design.Risk related to bidding procedure has the highest impact. Size of firm had no significant influence on the occurrence of risk related to bidding procedure, project characteristics, project design and finance while there was variability on the perception of the estimators on the occurrence and effect of personal risk and direct estimating process based on different sizes of firms. Significant estimating related risks should not be taken for granted during project planning. Also, size of firms is an influencing variable to be taken into consideration and management of risks associated with construction cost estimating in other to achieve a reliable and realistic figure.

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