“An investigation into Nigerian property construction companies’ perception of critical risk”

AUTHORS	Abimola Windapo Olusegun Martins

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Abimbola Windapo (South Africa), Olusegun Martins (Nigeria)

An investigation into Nigerian property construction companies' perception of critical risk

Abstract

Everybody is exposed to risk daily, and property construction companies are not an exception. This study investigates the perception of Nigerian property construction companies to risk by identifying the risk factors perceived to be critical to the performance of these companies. The results are then compared with earlier risks surveys conducted in the US, Hong Kong and Malaysia. Relevant literature on risk and its identification was reviewed based on which a 30-point evaluation questionnaire was developed. The study questionnaire was then distributed to 50 property construction companies based in Lagos. The data collected were analyzed using descriptive statistics. The study indicates that the property development companies perceived Act of God as the risk most critical to the performance of property construction companies in Nigeria and that there are significant differences in the perceptions of contracting organizations based in the countries compared to what constitutes critical risk.

Keywords: natural disaster, perception, property development, risk and risk management practice.

Introduction

Risk management is one of those ideas that sense that a logical, consistent and disciplined approach to the future's uncertainties will allow us to live with them prudently and productively, avoiding unnecessary waste of resources. It goes beyond faith and luck, the twin pillars of managing the future before we began learning how to measure probability (Risk Management Reports, 1999).

The major wars, from the Russo-Japanese, World Wars I and II, and Korea, to the regional conflicts that have followed, earthquakes, typhoons, cyclones and hurricanes and their increasing frequency and severity have stimulated new studies on causes, effects and prediction, all parts of the evolution of risk management. In the 1970's and 1980's, risk management started to gain momentum having derived its origin from the insurance industry. Its early focus was on protecting against catastrophe and evolved to protecting unaffordable potential losses. Since these early beginnings organizations and individuals have realized that they are faced with risks beyond those that are normally insured.

In countries such as United States of America, United Kingdom and Canada, risk management has become a universal management process involving quality of thought, quality of process and quality of action (Sesel, 2003). In Nigeria, however, the adoption of the risk management concept has been largely a part of the banking and financial sectors of the economy arising from responses to crisis that evolved within the financial sector of the economy in the early 1990's.

With the emergence of the Project management profession in the late 1990's, however, the uncertainties in the Nigerian situation in terms of the economical, political, environmental, social, cultural and financial environment in which the project is operated increase the uncertain outcomes which the risk management concept essentially attempts to predict and avert, and the growing need to move organizations upward by adopting project management methodologies, risk management is gradually becoming an integral part of the project architecture being adopted by firms in Nigeria.

The outcomes of projects are, however, uncertain and there are many parameters and variables over which a company has little or no control (Herman, Getz and Michael, 2003). The current global economic crisis is one of these. This crisis was precipitated by a housing market crash in the United States of America. Yet, the US has a deeply rooted insurance culture and use of risk identification and management practices in its organizations (Petroni, 1999). To safeguard Nigerian property construction firms from failure and improve the company performance, Nigerian property construction firms will need to have a deeper understanding and awareness of risk-related issues as well as knowledge of the critical risk factors impacting their operations.

The article aims to find out the risk factors perceived as critical to the operation of property construction firms in Nigeria, compare the results obtained with that of other studies and explaine the differences. The survey is based on firms and projects that are located in Lagos, Nigeria. Special attention will be given to experienced professionals within property construction companies that span minor and major players in the industry.

1. Review and identification of risk

Risk has been defined in various ways. It can be expressed as an exposure to economic loss or gain arising from involvement in the construction process

(Harris and McCaffer, 2005; Kerzner, 1997). In order to emphasize the major objectives of survey on risk management action, risk is defined as the probability of occurrence of some uncertain, unpredictable and even undesirable event(s) that would change the prospects for the profitability on a given investment (Hassim, Jaafar and Sazalli, 2009).

Risk identification is the most important step in the risk management process and involves the identification of risks that threaten the outcome (time, cost, schedule or deliverables) of the project (Herman et al., 2003). Various tools and techniques are available to assist the risk identification process. These include:

- documentation reviews;
- information gathering techniques such as brainstorming; Delphi technique; interviewing; root cause identification; Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis;
- checklist analysis;
- assumption analysis; and
- diagramming technique.

For this survey, risks identified by other researchers based on previous studies conducted in Malaysia, Hong Kong, the USA, United Kingdom and Italy and on the basis of interviews with experienced building professionals in property construction organizations were used to identify the risks impacting projects. Hassim et al. (2009) identified 12 risks based on Industrialized Building System projects in Malaysia. Ahmed, Ahmad and De Saram (1999) studied 26 risks having an effect on construction contractors and owners in Hong Kong. Kangari (1995) outlined 23 risks obtained from a summary of ASCE identification of risks based on a survey of the top 100 large US contractors. Crawford and Stein (2002) carried out an exploratory study in 2001 of four large public and private organizations in the United Kingdom using 12 risks and Petroni (1999) mapped the diffusion of advanced risk management practices among Italian small and medium sized firms using 19 identified risks. A total of 43 risks were compiled from these previous studies and interviews. This was reduced to 28 based on the peculiarities of property development in Nigeria. Table 3 presents 28 risk types in the Nigerian property development situation.

The twelve risks common to this research and past studies by Kangari (1995), Ahmed et al. (1999), Petroni (1999), Crawford and Stein (2002) and Hassim et al. (2009) are conceptualized below:

Acts of God: According to Chappell, Cowlin and Dunn (2009), the Act of God is a sudden and inevitable occurrence caused by natural forces, independent of human intervention. Lightning, earthquake and extraordinary weather conditions fall within the concept. Chappell et al. (2009) stated that normally, Act of God does not in itself excuse contractual performance but it may do so on the interpretation of a particular contract. Force Majeure, a French term found in many standard contracts as a ground for granting an extension of time is similar to the Act of God but with a wider concept (Chappell et al., 2009).

This description of Acts of God by Chappell et al. (2009) is similar to that of Ahmed et al. (1999) who described it as Force Majeure – unforeseen/uncontrollable circumstances, whilst Kangari (1995) stated that Act of God for the most part are uncontrollable risks which can, however, be adequately covered by insurance. For purposes of this research, the Act of God will be taken to mean an uncontrollable/unforeseen event, which cannot be covered by insurance within the context of a developing economy like Nigeria.

Contractor competence: This would be taken in this study to mean the ability of a company that enters into a contract with an employer and undertakes to construct a building project to perform satisfactorily.

Differing site conditions: According to Chappell et al. (2009), site conditions refer to the nature of soil or the land described in the contract. In the context of this research, differing site conditions would mean when nature of soil or land is not the same as what is described in the contract conditions.

Contract delay and resolution: Kangari (1995) opined that many large construction firms retain lawyers or maintain them in their home office and thus feel more confident to engage in negotiations. Contract delay and resolution for this research will be taken to mean a situation in which a binding agreement between a contracting firm and its employer is carried out later than envisaged in order to sort out and clarify certain unclear issues.

Labor, equipment and material availability: This shall mean the ability to provide construction resources in sufficient quantity and quality at a place where the resources can be used or where the resources are required.

Changes in scope of work: For purposes of this research this shall be taken to mean substituting the extent of the operation on site required to produce a building or structure as stated in the contract documents for another.

Defective design: This is a design that has faults and is not in accordance with the scheme/plan/brief/initial ideas of the client. A contractor may, however, become liable for part of

the design if, in the absence of proper details, the contractor carries on construction to its own details without seeking instructions (Chappell et al., 2009).

Permit and ordinances: This risk is defined as a rule/law made by a government and the allowance given based on these laws by the same government for purposes of building construction.

Inflation: Whilst Ahmed et al. (1999) opined that the risk of inflation has to do with the fluctuations in labor wages, Kangari (1995) supposed that it is concerned with the economic conditions of a country. According to Kangari (1995), as the inflation rate increases, the owner tends to assume more of the risk and the importance rating soars; as the inflation rate decreases, the contractors are more willing to assume the risk and the importance decreases.

Inflation in the context of this research shall mean the general rise in the prices of building materials and labor wages.

Labor disputes: This refers to a disagreement between labor operatives and the construction companies that employ them. It is usually associated with adjudication or arbitration.

Site access/right of way: According to Chappell et al. (1999), this would be described as the right to pass across land belonging to another.

2. Research methodology

The property construction companies surveyed were based in Lagos, Nigeria. The study was carried out in Lagos basically because a large percentage of construction professionals are from Lagos. Moreover, Lagos boasts of a good number of on-going and recently completed property development projects ranging from minor to major. The study considered construction professionals with at least 5 years relevant/practical experience in property development projects.

The research approach adopted in this study comprised of a descriptive survey research design, involving a cross sectional survey approach. A non-probabilistic sampling approach was adopted for the research. Respondents were selected based on involvement in managing property development projects.

The research was conducted by means of interview and questionnaire survey. The questionnaire design was developed from literature review of past research focused on risks in construction. 28 risks were identified and included in the questionnaire. A total of 50 questionnaires were distributed to the property construction companies from which 31 usable questionnaires were gathered. Hence, the response rate was 62%. The questionnaire was grouped into two sections. The first section solicited general information about the respondent and the organization while the second section required the respondents to rate their perception of 28 risks. The respondents were requested to indicate the importance of each risk on a 5-point scale. Very high importance is accorded value of 5; high, average, low and very low are accorded values of 4, 3, 2 and 1, respectively.

In this research, data analysis sheets were prepared and used in collecting data extracted from the questionnaires filled by respondents and the risk factors were rated using the Mean Item Score (MIS) method of descriptive analysis.

$$MIS = \frac{5M_5 + 4M_4 + 3M_3 + 2M_2 + 1M_1}{5 \times (M_5 + M_4 + M_3 + M_2 + M_1)},$$

where M_5, M_4, M_3, M_2 and M_1 are frequencies of the rating responses given to each risk factor.

3. Data presentation and analysis

The data gathered for the study are presented under the following headings:

3.1. Primary responsibility. Table 1 and Table 2 present the classification of respondents according to their primary responsibility and number of property development projects managed.

Table 1. Classification of respondents according to primary responsibility

Responsibility	Frequency	Percent
Project manager	11	35.5
Engineer	7	22.6
Builder	5	16.1
Architect	5	16.1
Quantity surveyor	3	9.7
Total	31	100.0

Table 2. Classification of respondents based on the number of property development projects managed

No of projects	Frequency	Percent
10-15	4	12.9
16-20	23	74.2
21-25	3	9.7
Above 25	1	3.2
Total	31	100.0

Table 1 shows that 35.5% of the respondents are Project Managers, 22.6% are Engineers, 16.1% are Builders, another 16.1% are Architects, while 9.7% are Quantity Surveyors. This indicates that the survey covers the classes of professionals relevant in the construction industry.

Table 2 shows that 12.9% of the respondents have managed between 10 and 15 projects, while 74.2% have managed 16-20 projects, 21-25 projects have been managed by 9.7% of the respondents and 3.2% of the respondents have managed over 25 projects.

3.2. Risk critical to property development companies. Table 3 presents the identified risks based on the perception of importance to the performance of property construction companies.

Table 3. Identified risks, degree of importance and rank

Risk description	Very high	High	Average	Low	Very low	Total	Average	MIS score	Rank
Acts of God	9	11	10	1		31	121	0.78	1
Consultant competence	2	21	7	1		31	117	0.75	2
Contractor competence	1	18	10	2		31	111	0.72	3
Inadequate funding by the client	1	16	13	1		31	110	0.71	4
Social issues/area boys, original land owners		18	12	1		31	110	0.71	4
Differing site conditions	1	13	16	1		31	107	0.69	6
Funding cuts		15	14	2		31	106	0.68	7
Contract delay and resolution		12	17	2		31	103	0.66	8
Contractors underbidding		13	13	5		31	101	0.65	9
Unrealistic activity estimates		8	22	1		31	100	0.64	10
Inadequate project budget		11	17	2	1	31	100	0.64	10
Unclear definition of responsibilities	1	11	12	6	1	31	98	0.63	12
Unrealistic or inadequate cost		5	25	1		31	97	0.62	13
Labor, equipment and material availability		12	11	7	1	31	96	0.61	14
Poor project management processes		6	20	3	2	31	92	0.59	15
Financial instability of vendors & suppliers		9	12	10		31	92	0.59	15
Contract variation		4	22	5		31	92	0.59	15
Lack of skilled workmen		3	23	5		31	91	0.58	18
Changes in scope of work		7	12	11	1	31	87	0.56	19
Lack of involvement of end-users		6	12	12	1	31	85	0.55	20
Defective design		2	17	9	3	31	80	0.52	21
Incorrect project definition		7	13	9	2	31	80	0.52	21
Permits and ordinances			11	16	4	31	69	0.44	23
Inflation		4	2	15	10	31	62	0.40	24
Labor disputes		2	3	17	9	31	60	0.38	25
Complex technology		1	3	12	15	31	52	0.33	26
Weather issues		1	2	11	17	31	49	0.31	27
Site access/right of way		1	2	11	17	31	49	0.31	27

From Table 3 it can be observed that the respondents are of the perception that the Acts of God is the most important risk to property construction companies while weather issues and site access/right of way are risks of least importance. This perception might not be unconnected with the fact that in Nigeria not having the ability to deal with this risk is not insurable and it comes with it a high attendant costs and project delay.

4. Comparison of the survey results with those of previous studies

A comparison of the survey results with those of the risk perception of top 100 large US contractors by Kangari (1995), the study of the Hong Kong construction industry by Ahmed et al. (1999) and the Industrialized Building System Risks in construction projects in Malaysia by Hassim et al. (2009) was carried out to find out if there were any similarities or significant differences in the importance of risk factors.

The comparison was done by computing MIS scores for the risk factors identified in the previous studies thereby enabling the common risk factors in the different studies to be ranked. The ranks of the 12 risks common to the present survey and past studies are presented in Table 4.

Table 4. Ranking of 12 risks common to both this survey and past studies

Risk description	Present survey on a 28–Item scale	US contractors 23–Item scale	Hong Kong contractors, 26–Item scale	Malaysian contractors, 12–Item scale
Acts of God	1	21	22	11
Contractor competence	3	4	8	7
Differing site conditions	6	7	14	-
Contract delay and resolution	8	9	1	10
Labor, equipment and material availability	14	7	7	4
Changes in scope of work	19	6	15	1

Table 4 (cont.). Ranking of 12 risks common to both this survey and past studies

Risk description	Present survey on a 28–Item scale	US contractors 23–Item scale	Hong Kong contractors, 26–Item scale	Malaysian contractors, 12–Item scale
Defective design	21	2	5	1
Permits and ordinances	23	18	10	-
Inflation	24	20	21	-
Labor disputes	25	15	24	-
Site access/right of way	27	16	17	12

Visual inspection of Table 4 shows that there are significant differences between the perception of risks by the top US contractors, Hong Kong contractors, Malaysian contractors and Nigerian construction contractors. Areas of similarities could be seen in Contractor competence, differing site conditions and contract delay resolutions.

While the Nigerian construction contractors perceived Acts of God as an important risk factor, the US, Hong Kong and Malaysian contractors did not view it as such and as alluded to earlier, these other economies have well developed insurance industries, which can insure this risk, should it occur. However, in Nigeria, this type of risk is not insurable and should it occur, it comes with high costs and project delay which sometimes can lead to project abandonment, so therefore it is understand-dable if the Nigerian respondents perceive this risk to be of key importance. Also, while the US, Hong Kong and Malaysian contractors viewed defective design as being of important consideration, the Nigerian contractors did not view it as such.

Comparison of the present survey with that of Hassim et al. (2009) who surveyed the contractor perception towards Industrialized Building System (IBS) risk in construction projects in Malaysia reveals that the only area where the risk perceptions of the respondents were similar is in the site access/right of way which is considered the least important by both groups of respondents.

With respect to comparison between the present survey and the Hong Kong contractors studied by Ahmed et al. (1999), it can be seen from Table 4 that there are similarities in the area of inflation and labor disputes which are perceived to be of less importance to both groups of respondents.

5. Discussion of findings

The study findings reveal that Acts of God and consultant competence are the two most important risks perceived by Nigerian contractors to impact construction performance. Although researching in different periods and areas, this finding does not justify past research by Kangari (1995), Ahmed et al. (1999) and Hassim et al. (2009) who found out that quality of work, delays in resolving contractual issues and changes in work and defective design respectively are perceived by contractors to be the most important risk factors. More so that Act of God is considered to be of little importance to the contractors surveyed in the other studies.

For a developing country like Nigeria, Acts of God which include earthquakes, floods, uncontrolled fire etc. are of high significance because the insurance industry is not well developed to take care of this risk and the Government has little capacity/expertise to help contractors should this adverse situation arise. Contractors are left to help themselves with their limited capacity to deal with this adverse situation if it arises and they have to bear the entire burden alone. In contrast, the government and insurance industry in a developed country like the USA have the capacity to help contractors out in the event of a natural catastrophe. Malaysia and Hong Kong though developing also have well structured insurance industries and government support to help deal with any adverse situation.

Conclusions

Risk management is a process whereby potential risks are identified and quantified early enough whilst adequate steps would be taken to mitigate the risks when they occur. Nigerian property construction firms perceived Acts of God, which are unforeseen, unquantifiable and uninsurable by Nigerian insurance companies, as the risk of greatest importance. It can be concluded that for the property construction companies to perform in Nigeria, there must be available a support system that the companies would be able to transfer these risks to. The comparison with other countries shows that the Act of God is of least importance while risk is perceived to be of similar level of importance when ranked are Contractor Competence, Inflation, Labor Disputes and Site Access/Right of Way.

References

1. Ahmed, S.M., Ahmed, R., and De Saram, D.D. (1999), Risk Management Trends in the Hong Kong Construction Industry: A Comparison of Contractors and Owners Perceptions. Engineering, Construction and Architectural Management, 6 (3), 225-234.
2. Chappell, D., Cowlin, M., and Dunn, M. (2009), Building Law Encyclopaedia, Oxford: Wiley-Blackwell.
3. Crawford, M. and Stein, W. (2002), Auditing Risk Management: Fine in Theory but who can do it in Practice? *International Journal of Auditing*, 6, 119-131.
4. Harris, F. and McCaffer, R. (2005), Modern Construction Management, Oxford: Blackwell Publishing Company.
5. Hassim, S., Jaafar, M.S., and Sazalli, S.A.H. (2009), The Contractor Perception Towards Industrialized Building System Risk in Construction Projects in Malaysia, *American Journal of Applied Sciences*, 6 (5); 937-942
6. Herman, S., Getz, B. and Michael C. (2003), Project Management – A Multi Disciplinary Approach, South Africa: FPM Publishing.
7. Kangari, R. (1995), Risk Management and Trends of US Construction, *Journal of Construction Engineering and Management*, 422-429.
8. Kerzner, H. (1998), Project Management – A Systems Approach to Planning, Scheduling and Controlling, 6th Ed, New York: John Wiley and Sons, Inc.
9. Petroni, A. (1999), Mapping the Diffusion of Advanced Risk Management Practices Among Italian Small and medium Sized Firms, *Risk Management and Insurance Review*, 2 (3), 125-140.
10. Risk Management Reports (1999), Vol. 26, No. 12.
11. Sesel, J. (2003). Article on History of Professional Risk Management Austraila: Adison Wiley.