Managing Risks in Public Private Partnerships (PPP) in Housing in Nigeria: Methodological Perspective

Yakubu Nehemiah Sanda¹, Natalia A. Anigbogu² & Jurbe Joseph Molwus²

Correspondence: Yakubu Nehemiah Sanda, Department of Estate Management, Faculty of Environmental Sciences, University of Jos, Nigeria. E-mail: sanda yakubu@yahoo.com

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Abstract

It is generally accepted that effective risk management is key to successful project management. However, relevant questions pertinent to risk management can only be answered satisfactorily when the appropriate research methodology is adopted. This paper presents the research methodology adopted for a doctoral research aimed at managing risks in Public Private Partnerships in housing in Nigeria. The paper adopted the research 'onion' as a guide in the designing the research. The study outlines the research philosophy, approach, strategy, choice, time horizon and techniques and procedures for conducting the research and at the same time tries to justify those choices based on the nature of the research and the research questions as recommended in research methodology literatures. The paper contributes by highlighting justifications for the adoption of research methods to address the research objectives.

Keywords: risk, management, partnership, housing, methodology

1. Background to the Study

The problem of adequate housing has been major problem in most developing countries including Nigeria. As a result, the provision of housing has remained a key agenda in most governments in these countries. In attempt to ameliorate this problem different governments have adopted different strategies for the purpose of providing housing to their teeming population. One of such strategies is collaboration between the public agencies and private sectors known in the business parlance as the Public Private Partnership. Public Private Partnership (PPP) is a contractual arrangement between a public agency and a private sector party, with the clear agreement on shared objectives for the provision of public infrastructure and services traditionally provided by the public sector (Republic of Ghana, 2011). These collaborations are based on the principles of comparative advantage because PPP recognizes that there are some activities that the public sector does best and others, where the private sector has more to offer (Pessoa, 2006). The basic assumption behind PPP is that in collaboration, the strength of one sector will help to overcome the weakness of the other sector thereby increasing efficiency and effectiveness in the delivery of basic services (Payne, 1998).

Nigeria is one of the many countries that have adopted PPP in the provision of housing at various levels of government across the country. Theoretically, PPP was meant to enhance government capacity to develop integrated solutions, facilitate creative and innovative approaches that could reduce the cost and time spent to implement the project, transfer certain risks to the private partner, facilitate larger productivity and attract more sophisticated bidders to projects while at the same time providing an avenue to access better skills, expertise and technology (Li and Akintoye, 2003) for improved housing provision in Nigeria. However, in practice these have not always been achieved as previous researchers have identified inadequate risk assessment and management as one of the major reasons for failures of PPP in housing (Susilawati, 2009; Shrestha, 2011; Mouraviev, 2012). Like any other construction business, PPP arrangement is prone to risk. In fact PPP projects are perceived to have more inherent risks due to the involvement of many stakeholders with varied interests in addition to the economic, political, social and cultural conditions where the projects are to be undertaken. This therefore underscores the importance of risk management in PPP projects which have been adjudged to be riskier than the traditionally procured projects (Carbonara, Costatino, Pellegrino and Sciancalepore, 2011).

¹ Department of Estate Management, Faculty of Environmental Sciences, University of Jos, Nigeria

² Department of Building, Faculty of Environmental Sciences, University of Jos, Nigeria

It is to this end that, authors have formulated this study on managing risks in PPP housing in Nigeria with specific interest on the methodological aspect. The research is expected to answer the following research questions "what are the essential risks associated with Public Private Partnership (PPP) in housing in Nigeria?', 'what are the measures used in mitigating risks in Public Private Partnership projects in housing in Nigeria and how effective are these measures?', 'what are the barriers to effective risk management in Public Private Partnership (PPP) in housing in Nigeria and how can these be overcome?', and 'how can risks in Public Private Partnerships (PPPs) projects in housing be effectively managed? These questions can only be answered if the right methodology for conducting the research is adopted. The objective of this paper therefore is to discuss the process of the research methodology selection appropriate for conducting this research. The study is based on a review of related literature in which different research designs were compared in order to determine the relevant and appropriate methodology for the research.

2. Research Design and Methodology – Literature Review

2.1 Research Design

Research, from a broader perspective relates to set of activities undertaken with the purpose of providing solution(s) to a problem. Rowley (2002) defines research design as the logic that links the data to be collected and the conclusions to be drawn to the initial questions of a study. Furthermore, it is the framework that guides the conduct of a particular research constituting the blue print for the collection, measurement and analysis of data. Research design therefore covers the overall strategy that the researcher chooses to integrate the different components of the study in a coherent and logical way, to ensure the research problems are effectively addressed. It therefore follows, that a good research design is one which provides logical progression of the entire research process from the problem definition to data analyses and conclusion. For the purpose of this study, some research designs were analysed and compared with the view to adopting an appropriate research design for undertaking the research.

The research designs considered include the Iterative Model (Maxwell, 1998); The Research 'Onion' (Saunders, Lewis and Thornhill, 2007) and Research Design Framework (Cresswell, 2009) as shown in Figures 1, 2 and 3. By way of comparison, the three models captured the basic tenets of research design and can guarantee success if carefully designed and implemented. However, the research 'onion' (Figure 2) presents a step-by-step process that makes the design more explicit and logical than the iterative model (Figure 1) and research framework (figure 3). In addition, the "time horizon" and "techniques and procedure" layers of the research onion set it apart. Therefore, this research has been structured based on Saunders, Lewis and Thornhill (2009) research 'onion'.

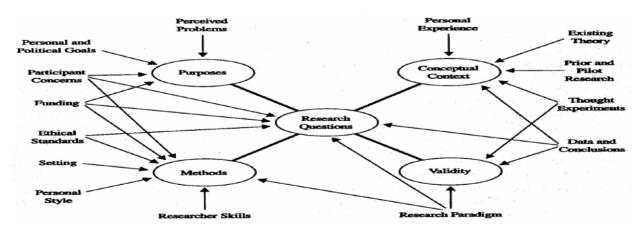


Figure 1. Iterative model (Maxwell, 1998).

Source: Adopted from

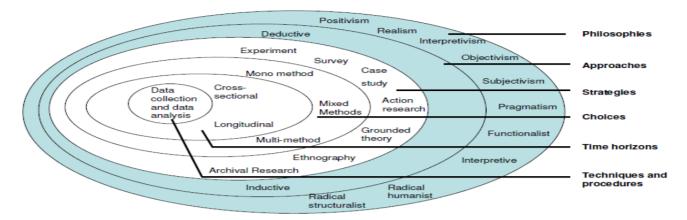


Figure 2. The research 'onion' research design

Source: Adopted from Saunders et al., (2007)

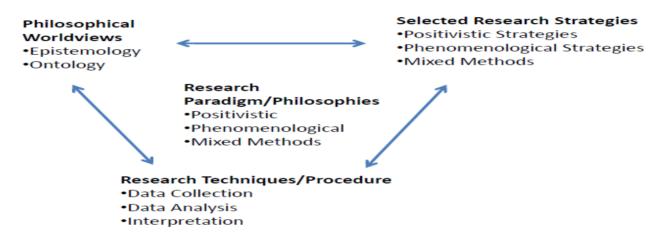


Figure 3. Framework for Research Design

Source: Adopted from (Cresswell, 2009).

2.1.1 Research Philosophy

Researches are conducted basically to solve societal problems and to advance knowledge. Three philosophical thoughts through which researchers lay claim to knowledge exist which include ontology (what is knowledge), epistemology (how we know it) and axiology (what value goes into it) (Cresswell, 2003; Saunders, Lewis and Thornhill, 2009). This study therefore examined these components with the view of adopting a philosophical stand for this research.

Ontology is the study of being and is concerned with the nature of reality (Crotty, 1998; Ritchie, Lewis, Nicholls and Ormston, 2013). It is simply researchers' view of the nature of reality (Saunders, Lewis, and Thornhill, 2009). Does reality exist or is it the creation of the mind? Two branches of ontology exist and these include the objectivist and subjectivist. The objectivists posit that, social entities exist in reality external to social actors concerned with their existence. Subjectivists however, stressed that reality is actually created by the mind. Therefore, social phenomena are created from the perception and consequent actions of those social actors concerned with their existence.

Epistemology is concerned with the basis of the knowledge and what we accept as being valid knowledge (Crotty, 1998; Ritchie, et al., 2013). Two extreme epistemological schools of thoughts exist which include the positivists and interpretivists. The positivists believe that meaningful realities exist apart from the operation of any consciousness and only phenomena which are observable and measurable can be regarded as valid knowledge (Saunders, Lewis and Thornhill, 2009). The interpretivists on the other hand posit that knowledge is based on the perception of the individuals (Samuel, 2012): truth and meaning come into existence in and out of

our engagement with the realities in our world. Meaning is not discovered but constructed; only subjective meanings and social phenomena constitute valid knowledge (Crotty, 1998). In between these extreme beliefs are the pragmatists who believe, that either or both phenomena and subjective meaning can provide acceptable knowledge (Saunders, Lewis, Thornhill, 2009).

Axiology relates to philosophical thought that explains the value system. It refers to relationship between personal values, feelings and beliefs, of the researcher and how these influence the connection between 'facts' and 'value'. Where the phenomenon being researched is seen as independent of and unaffected by the behavior of the researcher, the investigation can be viewed as value free; value laden arises when the relationship between the researcher and social phenomena is interactive such that the researcher can neither be neutral nor produce an objective account; value neutral is a position that recognizes that research cannot be value free but researchers can make their assumptions, biases and values as transparent as possible (Ritchie, et al, 2013).

This study which methodology is presented in this paper, aims at managing risks in Public Private Partnerships in housing in Nigeria. The concept of risk and the meaning ascribed to it are dependent on people's perception and interpretations; the research questions are both descriptive and explanatory in nature suggesting the use of objective and subjective data; and in conducting the research, the researcher may not be totally independent due to interactions between the researcher and the researched. However, it is possible for the researcher to maintain certain degree of transparency. The appropriate philosophical stand for this study therefore is pragmatism which assumes the subjective ontology and value neutral axiological position.

2.1.2 Research Approach

Research approach is found in the second layer of the research 'onion' adopted for this study. It is concerned with how theories are used or how Knowledge is gained (Ritchie, et al., 2013; Saunders et al., 2007). Theories are either tested deductively (Quantitative) or built up inductively (Qualitative). In the former method, research is designed to test an existing theory. Deduction views knowledge acquisition as a 'top-bottom' process whereby logically derived propositions or hypotheses are tested against observations; knowledge is therefore gained deductively. Deductive reasoning is used to search for causal relationships between variables through deducing a hypothesis (Saunders, Lewis and Thornhill, 2003). In the later, data are collected and analysed and a theory is developed based on the research outcome. In inductive way of reasoning, knowledge is acquired in a 'bottom-up' process through which patterns are derived from observations. Knowledge is therefore gained inductively (Saunders, Lewis, and Thornhill, 2009; Ritchie, et al., 2013). It is a means for exploring and understanding the meaning individuals or groups ascribe to problem. In theory, these two approaches appeared discrete and independent. However, in practice they only represent different ends of the continuum in the middle of which mix research resides (Newman and Benz, 1998 in Cresswell, 2008). Creswell and Clark (2011) defined mixed method as a type of research which combines elements of qualitative and quantitative research approaches for the purpose of breadth and depth of understanding and corroboration. Levin-Rozalis (2004) qualifies it as 'abductive' approach arguing that we cannot ignore the process of discovery in science, leaving it to the history of science or psychology.

The choice of a research design is determined by the nature of research questions, the researcher's experience and the significance and purpose of the study as well as the state of knowledge in the subject area. The first research question in this study is the 'what' type of question which is exploratory in nature leading to qualitative research; the second and third questions involve both the 'what' and 'how' types of questions requiring the use of both qualitative and quantitative approaches while the fourth research question 'how' calls for the qualitative method (Morse, 1991; Yin, 2009). Furthermore, the concept of PPP housing in Nigeria can be seen as a recent innovation and there are little or no work related to risk in PPP housing. This also underscores the need for adopting mixed method (qualitative and quantitative) in order to provide in-depth understanding of these factors. In addition, the purpose of the study is managing risk in PPP in housing which combines both aspects of qualitative and quantitative approaches. Based on these arguments; the appropriate research approach adopted for this study would be the mixed method approach. In this study therefore, quantitative and qualitative approaches are not viewed as part of incompatible dichotomy, rather they are adopted together as complementary approaches towards addressing the research questions.

2.1.3 Research Strategies

The research strategy occupies the third layer of the research onion. The basic strategies for conducting research includes survey, experiments, ethnography, archival research, grounded theory, case study and action research (Saunders, Lewis and Thornhill, 2003; Yin, 2009). Survey research is often adopted in answering the 'who', 'what' 'where', 'how many' and 'how much' questions normally used in deductive research; Experimental

research is employed in answering the 'how' and 'why' questions when control and or comparison of behavioural event is required (Yin, 1994). It attempts to manipulate independent variables in order to observe the relationships between two or more dependent variables (Collis and Hussey, 2009). Ethnography on the other hand is a strategy of inquiry in which the researcher studies an intact cultural group in a natural setting over a prolonged period of time by collecting, primarily, observational and interview data (Creswell,2007) and the researcher is regarded as part and parcel of it in order to enable extensive observation and description as well as explanation of the phenomenon. Grounded theory is a research inquiry in which the researcher derives a general, abstract theory of a process, action, or interaction grounded in the views of participants; Action research is a strategy adopted with the purpose of providing a tentative solution to an existing problem. It is seen as participatory in nature as the researcher is directly involved; knowledge and theory are thus advanced by learning(Taggart, Koskela and Rooke, 2015). Case study on the other hand is a strategy of inquiry in which the researcher explores in depth a program, event, activity, process, or one or more individuals (Cresswell, 2003). It is applied when a research addresses either a descriptive question (*What* happened?) or an explanatory question (*how* or *why* did something happen?) (Yin, 2006).

Having explored the basic research strategies and their associated characteristics, the next step is to choose an appropriate strategy for the research. Yin (2009) stresses that the choice of research strategy is determined by the type of research questions, the extent of control the researcher has on the actual behavioural events and the degree of focus on the contemporary as opposed to historical events. The purpose of this study presents a type of research in which the researcher has influence on the methods and process of data collection and may likely exert control over the phenomenon being researched; moreover, risk is more of a contemporary issue than historical; the research does not aim at developing a new theory; the research questions posed by this study are basically 'what' and 'how' questions seeking to explore, explain and describe the phenomenon being studied. In addition, the research as well as data collection is a one-off exercise. Going by these points advanced above, the appropriate strategy for conducting this research would be case study. Moreover, the case study is applicable in quantitative, qualitative as well as mixed research which makes it suitable for use in studies with pragmatic philosophical view and 'abductive' ontological stance.

A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident (Yin, 2009). This strategy focuses on a particular case which could be something relatively concrete such as organisation, a group or an individual, or something more abstract such as event, a management decision or a change programme (Rose, Spinks and Canhoto, 2015). Case study is useful both in theory testing and theory building because it uses both qualitative and quantitative information and research approaches (Schell, 1992; Rose, Spinks and Canhoto, 2015). Furthermore, case study strategy can be used in either explanatory (which addresses the 'how' and 'why' questions) or descriptive (which addresses the 'what' questions) studies. The 'what' questions can also be used in addressing researches that are exploratory in nature (Yin, 2009). The case study method therefore is best applied when the research addresses descriptive, exploratory or explanatory questions with the aim of producing a firsthand understanding of people and events as is the case in this research.

a. Case Study Design

This refers to the step-by-step process or framework for undertaking the case study research. The case study for this research was designed according to Yin's (2009) presentation (Figure 4). The research problem has been formulated following a thorough review of relevant literature. The 'case' selection comes next to problem formulation and concern whether to do a single case study or multiple- case study. A single case is often used where it represents a critical case; an extreme case; unique or typical case; revelatory case; or longitudinal case; multiple-case strategy on the other hand is used when there is the need to establish whether the findings of the first case occur in other cases and, as a consequence, the need to generalise from these findings (Yin, 2009; Sounders, Lewis and Thornhill, 2009). This research intends to study a number of housing estates constructed in Abuja through PPP approach in order to determine whether or not the associated risks cut across the selected projects. This therefore suggests the use of multiple cases as against the single case.

The study protocol which is a written statement of what the research seeks to achieve and how to achieve it (Rose, Spinks and Canhoto, 2015) has been prepared. This is to serve as a project plan for the case study field work. It also provides clear link between the research questions, the data needed to answer the questions and the plan for collecting and analysing that data. The study also intends to embark on pilot study to explore both substantive themes and method issues which will help to sharpen the focus of the research as well as ensure the effectiveness of the field procedures (Yin, 2009). Being a multiple case research, the study shall collect detailed information from individual cases, analyse those information at the case level as well as across the cases for the

purpose of drawing cross-case conclusions. This will be followed by summary of findings and implications for policy makers then the cross-case write up.

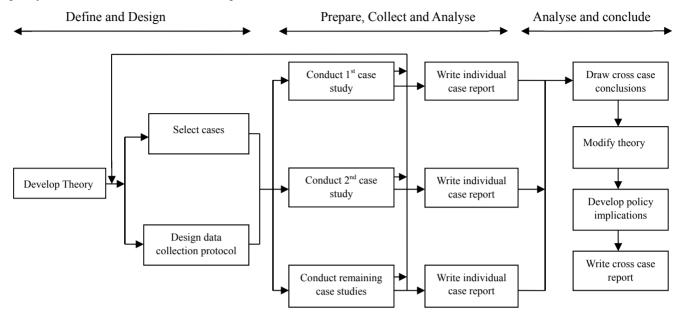


Figure 4. Replication approach to multiple-case study design

Source: Yin (2009)

b. Validity and reliability in case study research

Since case study research is subject to criticisms, managing and maintaining the quality of the research becomes a key requisite issue. It is therefore important that validity and reliability of a case study research is established (Wedawatta, Ingirige and Amaratunga, 2013). Four tests are commonly used to measure the quality of case studies being conducted and these include; construct validity, internal validity, external validity and reliability.

Construct validity relates to identifying correct operational measures for the concepts being tested to address the criticism that case study investigators often fail to develop sufficient operational measures and that 'subjective' judgments are used to collect data; internal validity tests the truism of the relationships between the research variables as established by the researcher; external validity is concerned with defining the appropriate domain to which a study's findings can be generalised which has been a major challenge of case study research; reliability on the other hand refers to the possibility of repeating the operation of a study and obtaining the same results (Yin, 2009). Several tactics for dealing with these tests have been identified including the cross-reference to the phase of research when the tactic is to be used as presented in Table 2. Yin (2009) further stressed that, these tactics, if applied correctly help to guarantee the validity and reliability of case study research strategy.

Table 2. Case study tactics for four design test

| Tests | Case study | Phase of research in which tactics occurs |
|--------------------|--|---|
| Construct validity | Use multipleevidence from different projects | Data collection |
| | Establish chain of evidence | Data collection |
| | Have key informants review draft case study report. | Composition |
| Internal validity | Do pattern matching | Data analysis |
| | Do explanation building | Data analysis |
| | Address rival explanations | Data analysis |
| | Use logic models | Data analysis |
| External validity | Use theory in single-case studies | Research design |

| | Use replication logic in multiple-case studies | Research design |
|-------------|--|-------------------------------------|
| Reliability | Use case study protocol | Data collection |
| | Develop case study data base | Data collection |

Source: Adapted from Yin (2009)

2.1.4 Research Choices

Research choices (fourth layer of the research 'onion') refer to how a researcher chooses to combine the quantitative and qualitative techniques and procedures in a particular research (Saunders, Lewis and Thornhill, 2009). The researcher can either use a single data collection technique and corresponding analysis procedures (mono method) or use more than one data collection technique and analysis procedure to answer the research questions (multi method); mixed method approach on the other hand connotes the use of quantitative and qualitative data collection techniques and analysis procedures either at the same time (parallel) or one after the other (sequential) but does not combine them (Tashakori and Teddlie, 1998).

This study adopts both qualitative (using interview) and quantitative (using questionnaire and documents) data collection and analyses techniques and procedures to answer the research questions. The data collection procedure is planned to be carried out concurrently for the purpose of triangulating data outcomes and using the results of each method to complement the other. This will help immensely in strengthening the validity of the research as the researcher will review and analyse all the data that cut across different cases (Creswell, 2007). Accordingly, this research is a parallel mixed method research.

2.1.5 Time Horizon

Time horizon is another important element in planning any research project and occupies the fifth layer of the research 'onion'. It concerns the time under which the planned research would be carried out. There are two perspectives for time horizon namely cross sectional studies and longitudinal studies (Saunders, Lewsi and Thornhill (2007). Cross-sectional time horizon is when the researcher investigates particular phenomenon at a particular time and the research will be a 'snapshot' taken at a particular time; when the researcher investigates variables or group of subjects over a long period of time it is termed longitudinal time horizon (Saunders, Lewis and Thornhill, 2009; Collis and Hussey, 2009). As earlier stated, the study is on managing risks in Public Private Partnerships (PPPs) in housing in Nigeria. Being a doctoral work with time frame it does not support an investigation over a long period of time. Moreover, the cases considered in the study are completed and reported projects. This study therefore is cross-sectional study.

2.1.6 Techniques and Procedures

This occupies the last layer in the research 'onion' and refers to research methods (data collection and analysis techniques). The methods for collecting research data is often determined by the research strategy. This study adopts the case study strategy in line with the research questions. Techniques for collecting data in a case study research include interviews, questionnaire survey, documentation, archival records, observations, physical artifacts and participant observation (Tellis, 1997, Yin, 2009). In line with the research questions and purpose of the study this research shall adopt interviews, questionnaires and documents as techniques of data collection for the research. Interviews and questionnaires shall provide primary data while documents such as memorandum of understanding (MoU) and building plans shall provide secondary data for the research. The stakeholders and household heads made up the unit of the study as a result, key stakeholders: representatives of the government and private sectors, financial institutions, consultants as well household heads would be requested to fill the questionnaires. The interest of the participants in both interviews and questionnaire survey would be protected by allowing complete anonymity and assured confidentiality at all stages of the study.

There are basically two ways of posing questions in designing questionnaire: opened and closed (Fellows and Liu, 2008). The open questions enables the respondents to answer the questions in whatever form and at the same time have the opportunity to freely express their experience relating to the subject which the researcher is interested. The closed questionnaire consists of questions with set of number of options for the respondents to choose from. The study adopts both forms of questions. This is to afford the researcher the opportunity to obtain information on specific subjects as well as expert opinions on areas where experience of the respondents will be useful to the study. The questionnaire will target the background information of the respondents, models of PPP used, financial arrangements for PPP housing, methods of acquiring land for PPP projects, the generic and project specific challenges of adopting PPP in housing, risks associated with PPP in housing, methods of risks

identification, quantification and response used by the respondents, how identified risks are shared among the stakeholders, use of risk management plan in PPP projects among others.

In order to allow the respondents to freely express themselves regarding the subject of discuss, the study adopts the semi-structured interviews. This was considered appropriate because semi-structured interview is vital when a phenomenological approach is being taken where the objective is to explore subjective meanings that respondents ascribe to concepts or events (Gray, 2009). Key themes covered in the interview design includes challenges faced at the contract negotiation stage, the essential risks encountered during the implementation stage; issues relating to project financing as well as honouring contractual arrangement by the stakeholders. Given the nature of this study, the face-to-face in-depth interview would be appropriate because of ease of control and transcribing of the information (Sobuza, 2010). Audio recording (where permitted) and note taking are considered ideal for gathering the responses of the interviewee.

The documents to be used shall include policy documents, contract documents, and project reports among others. The purpose of examining these documents is to determine the adequacy or otherwise of available regulatory frameworks for executing PPP projects; study the initial contract sum and duration as well as actual cost of executing the contract and delivery period with the view to determining the cost overrun risks and delay or time overrun risks. The researcher shall also embark on direct observation and collection of pictures of houses constructed using PPP arrangement through personal visits to sites where those houses were constructed. These pictures will be used to illustrate the effects of risks on PPP housing projects in the study area.

The data would be analysed using appropriate techniques as determined by the nature and type of data collected which is a function of the research approach adopted in the study. This study shall adopt the mixed research approach suggesting the use of both qualitative and quantitative data. These forms of data shall therefore be analysed accordingly using the appropriate techniques. The relevant techniques of data analysis would include Mean rating, Mann-Witney U test, Kruskal-Wallis test, Analysis of Variance and Factor Analysis. Mean rating uses the numerical values assigned to factors or propositions to calculate their mean scores by all the respondents of the survey. This technique shall be used to analyse the respondents' rating of different risk factors in PPP housing, the impact of the identified risks, and the effectiveness of various risks mitigation measures as contained in objectives 1 and 3. Mann-Witney U test is used to test for difference between two independent groups on a continuous measure (Pallant, 2005). It shall be used to explore the differences in perception of risk between Public sector and Private organizations and to determine their differences in approach to risk management which is an aspect of objective 2. The Kruskal-Wallis test is a non-parametric test that is used to test for differences between several independent groups (Field, 2005); Pallant, 2005). This shall be used to test whether there are differences in the risk factors between PPP projects; and whether there are differences in the techniques of risk identification and quantification used by the independent stakeholders as contained in objectives 1 and 4. Analysis of Variance (ANOVA) is a technique used to determine the significant difference in the means of two or more groups (Oladunmi, 1995). The participants in this study comprise of the various stakeholders in PPP housing whose expectations and understanding of the subject varies. Therefore this technique (ANOVA) shall be used to analyse the differences among the means of these groups. Factor Analysis takes large set of variables and looks for a way that the data may be 'reduced' or summerised using smaller set of factors or components. It shall be used in this research to explore relatively small number of risk factors that can be used to represent the large number of risks factors identified in the literature which is an aspect of objective 1. These will aid the researcher in categorizing the identified risks into groups of related risks in the framework development stage. Being a multiple case research, the data will be analysed at individual cases and theme, then analyses across the cases will follow. Data collection and data analysis would be done concurrently for the purpose of triangulation in order to establish convergent lines of evidence to make the research findings as robust as possible (Yin, 2006).

3. Conclusions

The paper presents the research methodology of a doctoral research aimed at managing risk in Public Private Partnerships (PPP) in housing in Nigeria. The paper provides step-by-step process of adopting research methods to address research objectives. In this paper, the researchers have made effort to discuss the existing literature related to research methodology by analysing and comparing some selected research designs. The paper adopted the research 'onions' in designing the research. Through the discussion, the authors have argued that this particular research on risk management in Public Private Partnerships (PPPs) in housing takes the pragmatic philosophical stand on the ground, that the nature of the research questions can neither be answered quantitatively nor qualitatively but by adopting both approaches. Case studies have been selected as the preferred research strategy and the rational for selecting the case study strategy has been presented. The research adopted a

multiple case design in which some housing estates have been selected as the units of analysis. Questionnaires (containing structured and Semi-structured questions) have been designed to be administered within the case study and semi-structured interviews would be conducted together with document reviews. The research is still in progress, and the measures taken to ensure the acceptability of the research findings are also discussed in this paper.

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