

# Effect of Insurance Risk Management Strategies on Performance of Construction Firms in Selected Counties in Kenya

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**Abstract:** The construction industry entails high levels of risks, but often these risks are not dealt with adequately, resulting in poor performance, which is reflected in frequent cost and time overruns, as well as poor quality of work. Insurers traditionally avoid firms with high risk portfolios and subsequently will not offer insurance covers or may charge very high premiums to compensate for the increased risk. Previous studies have found an inconclusive relationship between adoption of risk management strategies and enhanced construction firm performance. As such, the general objective of this study was to determine the effect of insurance risk management strategies on performance of construction firms. The specific objective was to assess the moderating role of Government policy and regulation of the construction sector, on the relationship between risk management strategies and performance of construction firms in selected counties in Kenya. Performance was measured as a function of cost variance, time variance and quality control. This study used an explanatory research design and the research philosophy was based on positivism. The population of the study was all construction firms carrying out construction and public works in selected counties in Kenya, registered by the Republic of Kenya as of July 2011 to June 2012, a total of 2,414 construction firms. The sample size was 97 respondents, and simple random sampling was used for identifying respondent firms in Nairobi County, Nakuru County and Machakos County. Data collection was done using a self-administered semi-structured questionnaire. Data analysis was a mixture of descriptive statistics and inferential statistics.

**Keywords:** Insurance Risk Management Strategies, Performance of Construction Firms, Moderating Role of Government Policy, Regulation of the Construction Sector, Adoption of Risk Management Strategies.

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## 1. INTRODUCTION

In the developing countries, especially in Africa, risk management in the construction sector is an amorphous affair faced with higher levels of risk as compared to the developed countries. The level of adoption of formal risk management strategies is not widely studied either. In Ghana for instance, Boadua, Fianko and Chileshe (2015) observed a limited level of adoption of formal risk management strategies among construction oriented firms, with low levels of procedural documentation. One reason that was forwarded for this state of affairs was the low levels of awareness regarding appropriate tools and techniques to effectively manage construction risk. Consequently, the construction sector in Ghana faces many problems related to frequent cost and time overruns (Fugar & Agyakwah-Baah, 2010). Within the mass construction market in Ghana, Ahadzie, Proverbs and Olomolaiye (2008), observe that the most crucial project performance success criteria were overall project cost and quality.

Risk management among construction firms in Kenya has gained increased prominence owing to what Ngundo (2014) observes as an increase in infrastructure development in the country. The rise of many construction projects, most notable

in real estate at the mass market level, has been faced with a lot of uncertainty, resulting in outcomes that fail to meet minimum standards benchmarked against best practice in the sector. Ngundo (2014) attributed the low levels of project success to failure to develop proper procedures, lack of sufficient training and capacity building programs, incompetence among project staff, low levels of formal quality management support and low levels of management commitment. As a result, project risk management planning was characterised by poor risk identification, assessment, prioritization, mitigation and control. The overall outcomes were weak and inappropriate risk management measures that increased the vulnerability of the construction firms to risk.

In order to enhance the management of construction risks, the Republic of Kenya (RoK) enacted legislation such as the Engineers Act (2011) and the National Construction Authority Act (2011) for purpose of ensuring that legal compliance in the industry went a long way towards reducing the various risks associated with construction projects (RoK, 2011). Karimi (2004) further observed that key reforms proposed in the Kenya Vision 2030 that would have resulted in effective risk management of construction projects included the creation of the necessary institutional framework to improve policy implementation and enforcement of industry codes and standards among others. There was also recognition of the need to institute functional and comprehensive risk management strategies in the industry, in order to achieve performance objectives.

### **Insurance Risk Management Strategies and Firm Performance**

In practice, construction firms mainly adopt three strategies for risk transfer, these being through insurance, sub-contracting or through modifying contract conditions. Of these three, taking out an insurance cover is the one of the most commonly used method of risk transfer. Martz Jr, Neil and Biscaccianti (2006) define insurance as the equitable transfer of risk of a potential loss, from one entity to another (generally an insurance company), in exchange for a premium. The insurer is the entity that sells the insurance cover while the insured is the entity that purchases the insurance cover. Insurance covers are based on good faith between all the parties involved and this requires the insured to make full disclosure of all relevant facts that are known to them.

The use of insurance has demonstrated positive correlation with the value of a firm. For instance, Zhan (2007) conducted an empirical investigation on the cross-sectional relationship between firm value and the deployment of property insurance targeting 663 unlisted firms in Norway. The research used return on assets measures that had been adjusted for industry type as the proxy for firm value and was able to demonstrate a positive relation between firm value and property insurance. However, this relationship only applied to firms with above average financial performance and relatively high leverage (measured as long term debt scaled by total assets) in their sample.

From the findings of this study, it can be inferred that, in addition to risk transfer, insurance assists the contractor in managing risks by identifying the risks and reducing or mitigating their probability of occurrence by taking out policies, thus raising firm value. Additionally, by accepting to insure construction project risks, the insurer effectively commits to compensating any claims that may arise, thus absorbing the financial burden of such firms and improving firm profitability. One example of construction insurance coverage products is the Contractors' All Risks (CAR) insurance, an all-inclusive insurance cover used in construction contracts. The CAR policy is widely accepted, in the insurance sector worldwide, as a comprehensive cover in which all the material damages and third party damages are included (Zhan, 2007).

Perera et al. (2008) evaluated the efficiency of use of CAR insurance policy for civil engineering projects in Sri Lanka. Among the primal objective was to investigate those factors that affected the effectiveness of the use of this policy. Secondary data was collected relating to types of claim, amount claimed, amount settled, reasons for under-settlement or rejection and details of transferred amount including whether the remaining cost of damage had been transferred to any party other than the insurer. All the contractor respondents considered insurance as key to transferring construction risk.

Preliminary findings indicated that reasons by contractors for selecting insurance covers were client's requirement, conditions of contract, contractors own interest, knowledge and experience in descending order. On the other hand, key factors affecting the selection of an insurance company by contractors, included wordings of the policy, size of the premium, quality of service, reinsurance, economic potential and reputation, in descending order. Insurer willingness to assume contractor risks depended on the magnitude of risks, good cooperation between insurer and contractor, long term

relationship with contractor, contractor's performance, contractor's reputation and reputation of the insurance broker (Perera et al, 2008).

Successful claims were accompanied by certain attributes including correct estimate of settlement amounts by contractor, involving the insurer in all aspects of claim settlement, interactive and responsive cooperation with the insurer, full disclosure of all project information to the insurer, and also engaging in a negotiated settlement in case of any discrepancies. Insurers also inspected the construction site to assess risk as a basis for setting premiums.

Contractors who used this approach were much more likely to have their claims paid and reported overall better project performance compared to those who did not. For those claims that were rejected, this was largely attributed to lack of experience and knowledge on proper risk management and also due to foreseeable damage. Insurers also insisted on long term business relationships with their clients, rather than concentrating on stringent management of risks (Perera et al., 2008).

Liu, Li, Lin, and Nguyen (2007) conducted an empirical study on the key challenges in risk management and insurance in the Chinese construction industry and proposed recommendations to improve risk management. The research methodology relied on surveys conducted through e-mail, postal questionnaires and fax. The target population were those individuals with relevant knowledge of risk management and construction insurance in China. These included selected clients, construction firms (project director, project managers, and contract managers/administrators), insurers, brokers, consultants, claim advisors, and academics; and researchers in the Chinese construction industry.

The findings by Liu et al. (2007) revealed that the lack of expertise and experience prevented Chinese contractors from recognizing the importance and benefits of risk management. As a consequence, they negate the need for insuring construction risks and instead opt to manage such risks internally. The researchers identified a need for a collaborative approach between government, the construction sector, insurance industry and the academics to develop learning solutions targeted at contractors aimed at creating a favourable learning environment that boosts the adoption of risk management.

Additionally, in the developing countries, there are many contextual challenges faced by construction firms in securing insurance products and services. Such could include the lack of knowledge of available insurance products, actual lack of such appropriate products in the insurance industry, high premiums, or cultural apathy ingrained among local contractors towards use of insurance covers. These discourage construction firms from pursuing such services and eventually result in disinterest and cultural apathy. Martz Jr et al. (2006) also observed that the developing countries have a limited spectrum of insurance products and services and that although construction insurance is a huge financial opportunity for insurers; they lack the depth of experience to exploit such gaps.

## **2. RESEARCH METHODOLOGY**

### **2.1 Research Philosophy**

The research philosophy that was used in this study was based on positivism, which holds that reality is concretized and has an independent existence of its own (Ashley & Orenstein, 2005). Positivism as a philosophy adheres to the view that only factual knowledge gained through observation (the senses), including measurement, is trustworthy. In positivism studies, the role of the researcher is limited to data collection and interpretation through objective approaches and the research findings are usually observable and quantifiable. According to the principles of positivism, it depends on quantifiable observations that lend themselves to statistical analysis. This aspect of positivism was relevant to this study as the researcher only based the findings on data collected from the construction firms. Also, the researcher maintained minimal interactions with the research participants, to avoid influencing their responses.

### **2.2 Research Design**

This study used an explanatory research design, which connects ideas to understand causation, meaning the researcher wanted to explain the relationship among the study variables (Saunders, Lewis & Thornhill, 2003). This design was adopted since it involved the collection of data from the population, at one specific point in time. Explanatory research looks at how variables come together and interact (Babbie, 2007). Saunders, Lewis and Thornhill (2007) observes that the

explanatory design is best suited for gathering information where the researcher wants to elucidate a cause-effect relationship between independent variables and dependent variable in a *post facto* research study. Good explanatory researches effectively answer the why questions in research (Shields & Rangarjan, 2013). Since this study had the prime goal of determining the effect of risk management strategies on performance of construction firms in selected counties in Kenya, which was also subject to micro- and macro-economic variables, the explanatory research design would best help the researcher in understanding how the chosen independent variables affect the dependent variable.

### 2.3 Empirical Model

The study used a multiple linear regression model to establish the relationship between the dependent variable and independent variables. Multiple linear regression was useful for situations in which the researcher wanted to be able to predict the presence or absence of a characteristic or outcome based on values of a set of independent variables (Saunders Lewis & Thornhill, 2003). Given a dependent variable Y and a set of k explanatory variables,  $X_1, X_2, \dots, X_k$ , the general multiple linear regression model was represented by equation 3.1

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k + \varepsilon \quad 3.1$$

Where Y was the dependent variable;  $X_1, X_2, \dots, X_k$  were the explanatory variables,  $\beta_i$ 's are the regression coefficients and  $\varepsilon$  was the error term. To establish the direct relationship between the independent variables and the dependent variable the regression equation was used.

$$FP = \beta_0 + \beta_1 CRR + \beta_2 CIR + \varepsilon_1$$

where:

FP	=	Firm performance
CRR	=	Construction resource risk management strategies
CIR	=	Construction insurance risk management strategies
$\beta_0$	=	Constant
$\beta_1$	=	Coefficient of insurance risk management strategies
$\beta_2$	=	Coefficient of government policy and regulatory framework
$\varepsilon$	=	Stochastic error term

The moderator variable can change the strength and/or direction of any direct relationship.

(Government policy and regulation of the construction sector) and  $\beta_6$  was the coefficient of the moderating variable. The multiple linear regression model was characterised by the assumptions of linearity, independence of errors, homoscedasticity, normality and collinearity. When assumptions are violated, accuracy and inferences from the analysis are affected. If linearity is violated all the estimates of the regression including regression coefficients, standard errors, and tests of statistical significance may be biased. Independence of errors implied that the subjects are responding independently and do not influence each other. When errors are not independent, standard scores and significance tests will not be accurate and there is increased risk of type I error. This can cause underestimation of standard errors leading to declaration of variables as statistically significant when they are not (Babbie, 2012).

The assumption of homoscedasticity referred to equal variances of errors across all levels of the independent variables and if this assumption is violated, the standard errors will be biased. Collinearity referred to the assumption that the independent variables were not correlated. Multicollinearity occurs when the independent variables are highly correlated with one another, or when one independent variable is a near linear combination of other independent variables. In multiple linear regression, the independent variables are allowed to be correlated to some degree but if correlation is high, interpretations and conclusions based on the size of the regression coefficients, their standard errors, or associated t-tests may be misleading because of the confounding effects of collinearity. Lastly non-normally distributed variables could distort relationships and significance tests (Kothari, 2008).

2.4 Target Population

Table 2.1 Presentation of the classification of Micro and Small Enterprises in Kenya

No.	Category	Head Count	Annual Turn over Limit	Investment in Plant and Machinery + Registered Capital	Equipment Investment + Registered Capital
1	Large	>250	Not provided	Not provided	Not provided
2	Medium	<250	Not provided	Not provided	Not provided
3	Small	<50	Between KShs. 0.5 million to KShs. 5 million	More than KShs. 10 million but less than 50 million	More than KShs. 5 million but less than 20 million
4	Micro	<10	Not exceeding KShs. 500,000	Not exceeding KShs. 10 million	Not exceeding KShs. 5 million

Source: Micro and Small Enterprises Act 2012

The target population was defined as the entire group of people to which the researcher wishes to generalize the study findings (Babbie, 2012). This consisted all the construction firms listed in the contractors register from the Ministry of Transport, Infrastructure, Housing and Urban Development dated July 2011 to June 2012. These were a total of 2,414 construction firms (Ministry of Transport, Infrastructure, Housing and Urban Development, 2012). The construction firms were classified into small, medium and large, in accordance with the classifications of the Micro and Small Enterprises Act 2012. The classification used in this study was based on the firms’ number of employees. The rationale employed was that, as with all firms, construction firms can also be divided into small, medium and large-sized units.

Since the classification in relation to annual turnover limits and capital investments for medium and large enterprises was not provided, this study made use of the classification regarding headcount, as illustrated in Table 2.1. Staff numbers were also the most convenient way of classifying the firms, given the difficulty faced by the researcher in obtaining information relating to annual turnover limits. The accessible population, for the purposes of the study, is the portion of the population to which the researcher has reasonable access, that is, a subset of the target population (Babbie, 2012). The accessible population consisted of construction firms that are registered and/or operational in Machakos, Nairobi and Nakuru counties.

2.5 Sampling Design, Procedure and Sample Size

The sample size was computed as per the formula provided by Babbie (2012) given as,

$$n_e = \frac{z^2 \Pi(1 - \Pi)}{(p - \Pi)^2}$$

Π = Sample proportion

p = Population proportion

z = Standard normal deviate at the required confidence level

Since p and Π were unknown, both were set at 0.5, while at a 95 percent confidence level, z = 1.96 and the sampling error of (p- Π)<sup>2</sup> was taken to be 0.1<sup>2</sup>. Thus, the sample size n<sub>e</sub> was computed as:

$$n_e = \frac{(1.96)^2 (0.5)^2}{(0.1)^2} = 97 \text{ respondents}$$

This sample size was considered sufficient given the statistical rule of thumb that states that a sample size of 30 respondents or more is representative of any population (Sprinthall, 2011). The sampling strategy used was a simple random sampling, where the respondents were selected at random from the contractors register.

## 2.6 Data Collection Instruments

Data collection involved gathering primary data using a semi-structured questionnaire. Saunders et al. (2003) highlights that a questionnaire gives the respondents' adequate time to give well thought out answers. The questions in the questionnaire were a mix of open-ended, closed-ended and matrix type (monadic-type scales). Babbie (2012) notes that the open-ended types of questions give respondents freedom of response, the forced types facilitate consistency of certain data across respondents, while monadic-type questions help in assessing the level of agreement or disagreement among the respondents, regarding the individual indicators of risk management. The questionnaire was ideal for the survey, as it enabled quick collection of similar data across a relatively dispersed population. Using a questionnaire ensured that information sought was relevant to the objectives of the research, was standard and focused the research on collecting the relevant information.

## 2.7 Validity of the Research Instruments

Validity refers to whether the questionnaire or survey measures what it intends to measure (Saunders et al., 2007). Two types of validity were examined, namely, content and construct validity. Content validity examined whether the items in the scale fully captured the true nature of the construct being examined. This type of validity was assured by conducting a comprehensive literature review and confirmed by consulting an expert panel, consisting of the research supervisors. Further confirmation was done during piloting and after data collection for the main study. Construct validity on the other hand investigated whether the individual scale items correctly operationalized the study variables, as outlined in the theoretical framework. Construct validity was assessed through the expert panel of supervisors.

To ensure high levels of validity, the questionnaire items were aligned with the research objectives. Also, it was important to gather data from respondents who could contribute relevant information, even if they were hard to contact. Internal validity is affected by flaws within the study itself such as not controlling some of the major variables (a design problem), or problems with the research instrument (a data collection problem) (Kothari, 2008). Internal validity was enhanced through careful designation of the study variables, eliminating selection bias through thoughtful sampling, avoiding repeated testing of the subjects to avoid conditioning them, consistently using the research tools, eliminating researcher bias through maintaining high levels of objectivity and training the research assistants.

## 2.8 Reliability of the Research Instruments

Reliability of an instrument is the degree of consistency with which it measures a variable (Babbie, 2007). The reliability analysis procedure calculated a number of commonly used measures of scale reliability and provided information on the relationship between individual variables in the scale. All research instruments were pilot-tested in order to check their reliability, which was also done after data collection. This method was ideal for the study because it required a single administration of a test and was the most appropriate type of reliability for measures that contained a range of possible answers for each item of an instrument.

## 2.9 Data Collection Procedure

A letter of introduction was sought from Kenyatta University and the requisite research permit sought from the National Commission for Science, Technology and Innovation (NaCoSTI). This facilitated easy interaction with the respondents through formal procedures. The questionnaires were administered on the participants by the researcher with the help of one research assistant trained on the structure of the research instruments and their application using the 'drop and pick later' method. The respondents were contacted at their registered offices as contained in the register obtained from the Ministry of Transport, Infrastructure, Housing and Urban Development. Initial contact was through telephone, followed by physical visits to the offices, where the questionnaires were left for respondents to fill. The researcher and respondent agreed on a suitable timeframe after which the questionnaires were collected.

## 2.10 Data Analysis and Presentation

Data obtained through questionnaires were coded, keyed into Statistical Package for the Social Sciences (SPSS) software and edited. Descriptive statistics such as percentages, charts, mean scores and standard deviations were computed to

explain the characteristics of the data. Nachmias and Nachmias (2008) explain that the percentage distributions examine the pattern of response to each of the independent variables and the dependent variable under investigation and allow a comparison of two or more distributions. The means and standard deviations enabled description and comparison of the data using single values for each variable. According to Sekaran and Bougie (2011), frequency distributions provided the basic information and the measures of central tendency and dispersion helped in understanding the data better.

Inferential analysis was done using multiple linear regression, which was used to assess the degree and character of the relationship between the independent variables and the dependent variable. Multiple linear regression helped the researcher understand the direction and magnitude of the relationship between firm performance and the independent variables as well as the moderating influence of the moderating variable (Babbie, 2012). The regression coefficients ( $\beta_i$ 's) indicated the relative importance of each of the independent variables in the prediction of the dependent variable. The regression coefficients were tested at the 5 percent level of significance. To construct variables for the regression, summation of the monadic scale items for each variable were calculated to get a composite index for each variable. To test for the overall significance of the multiple linear regression equation, the F-test was used.

### 3. RESEARCH FINDINGS AND DISCUSSION

#### 3.1 Insurance Risk Management Strategies

**Table 3.1 Insurance Risk Management Strategies and Performance (Percent)**

Insurance Risk Management Strategies	Neither agree nor disagree	Strongly disagree	Disagree	Agree	Strongly agree	Mean	Standard Deviation
High insurance premiums lowered uptake of insurance covers by contractors reducing firms performance	3.8	.0	2.5	83.5	10.1	3.96	.688
Lack of re- insurance reduced firm performance	5.1	.0	6.3	75.9	12.7	3.91	.804
Experience of a good working relationship improved firm performance	6.3	2.5	.0	79.7	11.4	3.87	.882
poor services quality reduced firm performance	17.7	.0	.0	64.6	17.7	3.65	1.291
Favorable policy wording increased firm performance	22.8	6.3	2.5	64.6	3.8	3.20	1.324
<b>Overall</b>						<b>3.72</b>	<b>0.998</b>

Source: Survey Data (2016)

From Table 3.1, the percentages indicated a clustering around the column for 'agree'. All except one mean value clustered around the average of 4.00 (agree); the findings pointed out a need for improving insurer coverage through reduction of insurance premiums and use of re-insurance to improve firm performance. Low up-take of insurance products and lack of re-insurance may be consequences of what Martz Jr et al. (2006) observed as a limited spectrum of insurance products and services and that although construction insurance was a huge financial opportunity for insurers, they lacked the depth of experience to exploit such gaps.

**3.2 Government policy and regulation of the construction sector**

**Table 3.2 Policy and Regulatory Indicators and Firm Performance (Percent)**

Policy and Regulatory Strategies	Neither agree nor disagree	Strongly disagree	Disagree	Agree	Strongly agree	Mean	Standard Deviation
Efficiency of the legal system in dispute resolution improved performance	6.3	2.5	.0	70.9	20.3	3.96	.940
Enabling political environment improved performance	5.1	7.6	2.5	55.7	29.1	3.96	1.043
High interest rate in the economy reduced performance	11.4	3.8	3.8	60.8	20.3	3.75	1.171
High level of informal practices reduced firm performance	34.2	3.8	.0	44.3	17.7	3.08	1.607
Low standards of technology reduced performance	25.3	.0	10.1	58.2	6.3	3.20	1.353
Stringent regulatory requirements for registration and operations reduced performance	31.6	.0	10.1	50.6	7.6	3.03	1.450
<b>Overall</b>						<b>3.50</b>	<b>1.261</b>

Source: Survey Data (2016)

From Table 3.2, the indicators clustered at average means values of 4.00 (agree) or 3.00 (disagree). As seen in the literature by Isik et al. (2010), strategic performance of construction firms was influenced through impacting on the differentiation strategies, and market/project/partner selection strategies. In accordance with the institutional theory of the regulatory environment, formal control was reflected in an efficient legal system and enabling political environment, which had improved construction firm performance.

**3.3 Insurance Risk Management Strategies and Firm Performance**

The hypothesis that insurance risk management strategies had no significant effect on performance of construction firms in selected counties in Kenya. The beta coefficient was .083, while the *p*-value was .284, which was not statistically significant at the 5 percent level of significance. This implied that the null hypothesis was not rejected therefore insurance risk management strategies had no significant effect on the performance of construction firms. The findings of this study contradicted the observation that insurance risk management had been found to result in an increase in the value of firms, by lowering the adverse financial impact of material damages and third party damages among others. These findings were explained by Martz Jr et al. (2006), who found that there were many challenges construction firms faced in accessing insurance products. This included high premiums and lack of appropriate products, such as re-insurance, thus discouraging use.

**3.4 Government Policy and Regulatory Framework and Firm Performance**

The hypothesis that government policy and regulation of the construction sector had no significant moderating effect on the relationship between risk management strategies and financial performance of construction firms in selected counties in Kenya. The beta coefficient was -.175, while the *p*-value was .035, which was statistically significant at the 5 percent level of significance. This implied that the null hypothesis was rejected, implying that government policy and regulation of the construction sector had a significant moderating effect on the relationship between risk management strategies and financial performance of construction firms.

The beta coefficient further demonstrated that government policy and regulation of the construction sector decreased firm performance by .175, when all other variables were held constant. This was in line with the literature as observed by Farooqui and Ahmed (2008), where government policy and regulation of the construction sector was seen as both an enabler of innovation and performance, depending on the type of legislation. Performance oriented regulation, which



encourages growth, innovation and use of new technologies, may improve construction firm performance, while restrictive policies may hinder performance. Performance oriented policies may include an efficient legal system, enabling political environment and affordable interest rates.

#### **4. CONCLUSION**

##### **4.1 Insurance Risk Management Strategies and Firm Performance**

The objective of this study was to establish the effect of insurance risk management strategies on performance of construction firms in selected counties in Kenya. High insurance premiums lowered uptake of insurance covers by contractors thereby reducing firm performance, lack of re- insurance thus reducing firm performance and experience of a good working relationship that improved firm performance, had the highest perceived influence. On the other hand, favourable policy wording that increased firm performance was the lowest perceived influence on firm performance. Multiple linear regression findings indicated that the beta coefficient for insurance risk management strategies was .083, while the *p*-value was .284, which was not statistically significant at the 5 percent level of significance. This implied that the null hypothesis was not rejected and therefore insurance risk management strategies had no significant effect on the performance of construction firms.

##### **4.2 Government Policy and Regulation of the Construction Sector**

Another objective of this study was to assess the moderating role of Government policy and regulation of the construction sector on the relationship between risk management strategies and performance of construction firms in selected counties in Kenya. Findings from the research indicated that efficiency of the legal system in dispute resolution firms and enabling political environment were the Government policy and regulation of the construction sector indicators that most respondents perceived influenced firm performance the most. Stringent regulatory requirements for registration and operations thus reducing performance of the construction firms had the lowest perceived influence.

The Ministry of Transport, Infrastructure, Housing and Urban Development thus exerted a significant influence in the sector and indicators are for further performance-based regulations to increase sectorial performance. The beta coefficient for government policy and regulation of the construction sector was -.175, while the *p*-value was .035, which was statistically significant at the 5 percent level of significance. This implied that the null hypothesis was rejected, implying that government policy and regulation of the construction sector had a significant moderating effect on the relationship between risk management strategies and financial performance of construction firms.

Insurance risk management strategies had no statistically significant effect on construction firm performance, indicating that any influence of these strategies on firm performance could be due to chance and not due to any real impact on firm performance.

#### **5. RECOMMENDATIONS**

Insurance risk management strategies had no statistically significant influence on firm performance. In relation to the study objectives, these findings point out the need to deepen the application and implementation of the given risk management strategies in the sector. This may be achieved through increased engagement in capacity building activities in risk management and construction project management in general. This would help equip project management with the requisite managerial tools and techniques to effectively run construction projects.

There should also be a higher level of involvement of construction sector professionals charged with offering expert advice and assistance on implementation of risk management strategies. Awareness creation among clients was another front that was encouraged in order to optimize the benefits of risk management practice implementation, through increased uptake and compliance. Lastly, the government should encourage activities that encourage proper risk management and risk sharing cross the entire construction value chain. This would enable firm management make informed choices when assigning resources to maximize on efficiency and effectiveness in the construction firms leading to reduced risks and increased shareholder value.

The study also acknowledges scope for replicating the findings of this study in developing countries other than Kenya, given that they are all faced with similar challenges. This could for example, be the case for international construction firms seeking growth opportunities through partnership with firms in these developing nations. The findings of this study would form a basis for a preliminary assessment of the extent of adoption and usage of risk management practices among

the targeted local firms. This would not only inform on the current state of readiness of these firms with respect to risk management practices, but would form a basis for identifying capacity gaps and areas for further research.

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