RISK RESPONSE STRATEGIES AND COMPLETION OF CONSTITUENCY FUNDED CONSTRUCTION PROJECTS IN NYAMIRA COUNTY, KENYA

Oruru, J. M., & Juma, D.

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[1*] Oruru, J. M., & [2] Juma, D.

[1*] Master of Science in Project Management Student, School of Business and Entrepreneurship, Jomo Kenyatta University of Agriculture and Technology [JKUAT], Kenya

[2] Lecturer, School of Business and Entrepreneurship, Jomo Kenyatta University of Agriculture and Technology [JKUAT], Kenya

ABSTRACT

The general objective of the study was to establish the influence of project risk response strategies on completion of constituency funded construction projects in Nyamira County, Kenya. The specific objectives of the study were; -to determine the effect of project risk avoidance strategy on completion of constituency funded construction projects, to establish the effect of project risk reduction strategy on completion of constituency funded construction projects, to find out the effect of project risk transfer strategy on completion of constituency funded construction projects, to establish the effect of project risk retention strategy on completion of constituency funded construction projects in Nyamira County, Kenya. The total population was 719 persons from the 216 National Government Constituency Development Fund (NG-CDF) construction projects that were completed in the financial years 2018/2019 and 2019/2020 that constituted 44 NG-CDF Committee members, 432 project management committee members (chairmen and secretaries), 12 NG-CDF key staff, 15 consultants and 216 contractors from the county. The study adopted stratified random sampling method to select 251 respondents from the target population. Questionnaires were used in collection of primary data from the field. The questionnaires were pre-tested among 25 respondents randomly selected from the sample. They were found to be valid and reliable. Data was analysed descriptively using weighted means and standard deviation and inferentially using correlation and regression analyses. Results showed that risk avoidance strategy has a positive statistically significant effect on completion of constituency funded construction projects in Nyamira County; risk reduction strategy has a positive statistically significant effect on completion of constituency funded construction projects in Nyamira County; risk transfer strategy has a positive significant effect on completion of constituency funded construction projects and that the risk retention strategy has a positive significant effect on completion of constituency funded construction projects in Nyamira County.

Keywords: Risk avoidance, Risk reduction, Risk transfer, Risk retention, Construction Projects

INTRODUCTION

The performance of public projects is a major concern of stakeholders worldwide as most construction projects have delays and overruns of costs which adversely affected their performance (Wachuru, 2013). In addition, many of these projects are very vulnerable to risks, with a significant time, cost, and quality impact on their performance (Kahungura, 2017). As construction projects grow in size and complexity, managing risk throughout the construction process becomes a key element in preventing the adverse effects of risk. In general, risk response aims at reducing the negative impact of slow project completion (Junior & Carvalho, 2013).

Risk is the uncertainty of the occurrence of a loss or financial value event (Gorrod, 2014). Previous literature review demonstrates that public sector construction projects are subject to weaknesses that interfere with their success and final project performance. With time, and as project complexity and scale expand, it becomes clear that risk response is the crucial factor in avoiding unnecessary consequences (Fang *et al*., 2015). Gorrod (2014) has defined risk response as a continuous process that runs throughout the project's life. Therefore, risk response happens when an organization identifies hazards and chooses an adequate strategy to deal with these exposures.

A project risk response strategy adopted by an organization provides a good opportunity to improve the project's performance (Fang *et al*., 2015). It gives a better understanding of possible threats and opportunities that could interfere with project performance. It reduces the likelihood of failure and uncertainty and increases success, thereby fulfilling the organizational goals. Different theoretical and empirical investigations have presented several risk response strategies. However, risk prevention, risk mitigation, risk transfer, and risk retention are the most frequent (Gitau, 2015). The effect of these risk response strategies has however not been experimentally assessed on the execution of public construction projects, especially the ones carried out by the National Government Constituency Development Fund (NG-CDF) in Kenya. The completion rate of government-funded construction projects differs from country to country with those projects in the developed countries having higher completion rates compared to those in the developing world.

Studies in Kenya show a low completion rate of government-funded projects. Wafula (2017) who carried a study in Kenya public construction projects showed that out of 100 projects 73 % did not meet projects duration, while 38% experienced cost overruns which result in poor performance. Moreover, another study by Mbada (2016) carried out for both private and public construction projects shoed similar findings. The failure to meet cost and time will result in wastage of resources and consequently poor performance. A preliminary informal review by the researcher showed that most of the construction projects in Murang'a County have major challenges. In fact, the majority of the projects had not been completed on time and budget, while others have stalled and others are abandoned resulting in poor performance.

A study by Malala, Ndolo and Njagi (2015) on completion of construction projects in the public sector in Kenya found that all stakeholders with a variety of gray areas such as tender or quotation advertising, opening process, unjustified tender/ quotations assessment, unclear award of bids and inactive or total failure of a receipt, inspection and acceptance committee were questionable. The results of these difficulties are that several CDF projects, about 60% remain behind schedule. Resources committed into project implementation often go to other personal activities to the detriment of community development interventions, which culminate in several stopped projects (Richard, 2013). Most projects depreciated under incomplete conditions and hence did not meet the recipients' criteria. A few enterprises were identified to start without the receivers being

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included in their distinctive proof and priority which omitted to ask for their help.

In Kenya, through the CDF Act 2003, the National Government Constituencies Development fund (NG-CDF) was established to provide resources to achieve socio-economic objectives which the central government had previously not been effective at meeting (Kimani, 2016). The Kenya Institute for Public Policy and Research (KIPPRA) (2017) report indicates that the NG-CDF has transferred billions of Kenya shilling to rural and city areas utilizing constituency-based development projects. By 2017, some 43000 NG-CDF projects were formed in various parts of Kenya, with KES 620 million allocated to projects in the financial years 2015/2016 to 2018/2019 in four constituencies, Borabu, North Mugirango, Kitutu Masaba, and West Mugirango. Despite this large allocation, only 57 of the 183 projects underway were well constructed and completed and represented only 31 percent of the initial projects. This has seen delayed projects, cumbersome works, and the countryside's incomplete and low absorption rate. While previous empirical studies tried to explain the cause of these low completion rates, the role of project risk response strategies when construction projects were completed in Nyamira County has not been empirically assessed.

Problem Statement

In Kenya, evidence suggests that the public sector construction industry is growing and is a crucial sector for the growth of the economy. For example, according to the reports of Kenya National Bureau of statistics (KNBS, 2018) and the Kenya Economic Outlook (2018) the public-sector construction sector grew by 8.6% in 2017. In the same period, the Gross Fixed Capital Formation increased by 15.9% for dwellings and 13.6% for other buildings other than dwellings respectively compared to 2016. The robust growth in the sector is attributed to inter alia the improved infrastructural networks which seek to enhance connectivity and mobility in the Country. Specifically, the CDF Act 2003 established the National Government

Constituencies Development Fund (NG-CDF) in Kenya to accelerate construction of public projects to offer services to the public (Mwangi, 2013) has also contributed to this growth. While statistics show that the NG-CDF has transferred billions of Kenya shillings to rural and urban communities through constituency projects, there is evidence that the projects are still prone to project delays. This is especially true for CDF funded construction projects in Nyamira County whose statistics show that only 57 of the 183 projects started in the financial year 2015/2016 to 2018/2019 in four constituencies of Borabu, North Mugirango, Kitutu Masaba, and West Mugirango were well constructed and completed and represented only 31 percent of the initial projects.

Several empirical studies have examined the role of risk response techniques in project completion rates. The findings show mixed results. In its study, Goble and Bier (2013) assessed risk response tactics in Brazil across several industries, showing a beneficial impact on the success of a project through optimum risk management strategies. In their study, Carvalho and Junior (2013) surveyed risk response strategies in various industrial sectors in Brazil. The finding of the study showed that embracing best risk response strategies had a positive result on the success of a project. Rubio, Ferrada, Serpella, and Howard (2013) surveyed construction projects in Chile and the findings revealed that failure to use risk response practices in construction projects resulted in no significant results.

In Kenya, Ngugi and Odhiambo (2014) contended that effective risk response treatment resulted in the success of the projects as it lowers chances of occurrence of undesirable risk and reduces the risk impact when it occurs. Wachuru (2013) surveyed twenty-four constituency development fund (CDF) projects in Kiambu County. The findings of the study project success were limited due to a dismal application of risk response practices. Kahungura (2017) argued that efficient risk response treatment has led to project success since it reduces the

likelihood of the undesirable risk occurring and lessens the risk impact when it occurs.

Empirical literature review suggests that strategies of risk response have proved to enhance the performance of a project. But, the applicability of these strategies has not been tested and empirically studied in case of construction projects for the NG-CDF Funded projects in Nyamira County. For instance, it is not even clear whether using certain risk response strategies has quantifiable effects on completion of construction projects for the NG-CDF Funded projects in Nyamira County. Numerous studies on effects of risk response strategies on the performance of projects have been conducted in other sectors with little attention being given to the NG-CDF Funded projects in Nyamira County. Based on the research gap, the aim of this study was to analyze the influence of project risk response strategies on completion of national government constituency's development fund construction projects in Nyamira County, Kenya.

Objectives of the Study

The general objective of the study was to establish the influence of risk response strategies on completion of constituency funded construction projects in Nyamira County, Kenya. The specific objectives were;

- To determine the influence of project risk avoidance strategy on completion of constituency funded construction projects in Nyamira County, Kenya.
- To establish the influence of project risk reduction strategy on completion of constituency funded construction projects in Nyamira County, Kenya.
- To find out the influence of project risk transfer strategy on completion of constituency funded construction projects in Nyamira County, Kenya.
- To establish the influence of project risk retention strategy on completion of constituency funded construction projects in Nyamira County, Kenya.

LITERATURE REVIEW

Theoretical Framework

Stakeholder Theory

The theory explains how organizations work in different constituencies with whom they are intricately integrated. Stakeholder development theory focuses on establishing the stakeholder notion and dividing stakeholders into categories that provide knowledge of the different connections between stakeholders. Freeman defined stakeholder as any group or person that can influence the attainment of the company objectives and continues to establish the limits of what defines an interest in the company (Waddock, 2002). He contends that a stakeholder has some sort of financial or human capital at risk, and hence has something to lose or gain depending on the behavior of a company. Waddock (2002) adds a tie to these pieces that establishes a connection of a kind. The stakeholder organization theory demands an awareness of the sorts of stakeholder influence and how companies react to these effects (Waddock, 2002). Each company encounters a different mix of players, who combine into unique patterns of influence.

The theory anchored the first objective of the study risk of risk avoidance strategy since the response of organizations to their stakeholders involves an examination of the complex array of numerous interdependent linkages existent in the stakeholder environment. The conceptual struggle between legitimacy and power within stakeholder theory is represented in almost every major theory of the company, especially in agencies, behavioral, institutional, population ecological, resource dependence, and transaction cost theories (Waddock, 2002).

Theory of Constraints

Constraint Theory is a theory devised for the management study by Goldratt (1974). The theory proposes that managers may manage institutions efficiently using system thinking and limit management. The theory identifies bottlenecks to

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increase process and system performance. The idea recognizes the four key project performance limitations: time, cost, scope and quality. The theory posits that the system usually only has one component, which limits it to most goals. This limited problem must be found and the complete system regulated (Wangechi, 2016). The theory is focused on three layers of organizational change: mental thinking, guiding measures and organizational approaches (Gupta and Agrawal, 2013).

Uncertainty Theory

As a result of the generalization of the field of insecurity, Liu (2010) presented uncertainty theory. Li and Liu (2010) employed the idea of uncertainty as a precarious logic in which the correct value is defined as a precise measure of the true statement. Liu had uncertain effects to compute the true value of an uncertain formula if the true values of other uncertain formulas were given. Uncertainty is not, of course, a forgotten idea of project management. The differences in the time of the tasks were observed early in the establishment of network activities in the 1950s, such as PERT. These techniques have been extended to incorporate graphical assessment and evaluation, probabilistic branching, for example, in the 1960s.

The project manager should not only be able to tackle problems, but should also be a reactive consolidator of the results produced at a particular stage of the project. Any environmental concerns or project outcomes must be continuously monitored and communicated to the project stakeholders. In the decision tree, flexible dependent actions should be projected according to the results of important criteria for influencing (Zwikael & Ahn, 2011). This notion demonstrates that all the dangers are due to the unpredictability of a project. The theory therefore assists the planning, monitoring, management and mitigation of risks related to design, legal, contractual and real project implementation.

Enterprise Risk Management Theory

According to Nocco and Stulz (2006), Enterprise Risk Management (ERM) is a theory for risk management that promotes the measurement and management of a notable risk for a particular entity as well as the independent management of each risk. The major purpose of the organization is to unite risk management silos into a holistic and complete framework. The ERM Risk Management Framework stresses that senior managers and staff should actively participate in the risk management process of analyzing and responding to a variety of company risks. This approach encourages all members of the organization and not just one or a few individuals to participate in risk management. The ERM also highlights the significance of defined risk management processes and rules.

The theory also states that organizations can adopt formal rules which specify risks, tolerance, strategic objectives and systematic procedures to enhance their risk management ability to identify, analyze and deal with risks, according to Olson and Wu (2010). Despite being established for the control of corporate risks, ERM theory has grown popular in project management practices. Drumll (2001) explains that ERM philosophy is a sensible approach for industries with very high fault rates such as the building industry. The failure to identify, mitigate and control the risks throughout the entire business makes this theory important to this research.

METHODOLOGY

This study adopted a descriptive survey design with quantitative and qualitative approaches. The total population of this study was 719 stakeholders in the 216 construction projects that were on-going in Nyamira County in the financial year 2019/2020. The Krejcie and Morgan Table (1970) (Appendix IV) was used to determine the sample size. According to the Table, for a population of 700, the sample size should be 248 while for a population of 750; the sample size will be 254. By interpolation, the present study's population of 759, the sample was found to be 252. Primary data was collected through a survey questionnaire. Data was analyzed

through descriptive and inferential statistics. Regression analysis was done to determine the extent of that relationship between the independent variables and the dependent variable. The prediction of Y was accomplished by the following regression model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y = Completion of Constituency Funded Construction Projects

X_1 = Project Risk Avoidance,
X_2 = Project Risk Reduction,
X_3 = Project Risk Transfer,
X_4 = Project Risk Retention,
$\beta_0, \beta_1, \beta_2, \beta_3$ and β_4 = Regression Coefficients for the independent variables
ε = Error term, depicting residual or disturbance factors which was assumed to be normally distributed.

FINDINGS

Table 1: Descriptive Results of Risk Avoidance

Key: SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree

Statements	SD	D	N	A	SA	Mean	Std. Dev.
The CDF construction projects have in place alternative strategies for risk avoidance	21.3%	14.5%	3.6%	42.5%	18.1%	3.21	1.45
The CDF construction projects are incorporated with safety systems	21.3%	17.6%	2.7%	45.2%	13.1%	3.11	1.41
There are safety inspections on CDF construction projects being executed	20.8%	18.1%	12.7%	44.8%	3.6%	2.92	1.26
The CDF construction projects are implemented with detailed work plans in response to risk avoidance	20.4%	43.1%	2.7%	15.2%	18.6%	3.28	1.43
The CDF Projects have less risks due to avoidance of the same risks	20.4%	62.2%	0.0%	17.4%	0.0%	3.14	1.26
The risk avoidance programs are well instituted in the projects	18.4%	12.2%	0.9%	44.5%	24.0%	3.37	1.47
Average						**3.17**	**1.01**

Six statements were used to measure risk avoidance. Of the six statements, the respondents generally neither agreed nor disagreed on whether risk avoidance strategies were instituted in the NG-CDF construction projects. This is shown by the weighted average means of between 2.92 and 3.37 which are all close to 3. However, out of the six statements, the respondents rated the statement that the risk avoidance programs are well instituted in the projects highest with a weighted average mean of 3.37 while the statement that there are safety inspections on CDF construction projects being executed received the lowest rating with a weighted mean of 2.92. The weighted average of 3.17 shows that generally, the respondents were undecided on whether risk avoidance strategy was instituted in the projects.

Table 2: Descriptive Results of Risk Reduction

Key: SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree

Statements	SD	D	N	A	SA	Mean	Std. Dev.
The CDF construction projects have quality assurance checks	20.4%	14.0%	5.4%	39.4%	20.8%	3.26	1.45
The CDF construction projects all passed through signed agreements	20.4%	13.1%	5.0%	41.2%	20.4%	3.28	1.45
During CDF construction projects there is continuous checks and monitoring of the	21.3%	14.5%	3.6%	38.5%	22.2%	3.25	1.48
The CDF construction projects are exposed to internal auditing	21.3%	14.9%	3.6%	40.7%	19.5%	3.22	1.46
Risks are always reduced by deliberate actions	21.7%	16.7%	4.1%	42.1%	15.4%	3.12	1.43
The risk reduction programs are well instituted in the projects	21.3%	16.3%	4.5%	37.6%	20.4%	3.19	1.47
Average						**3.22**	**1.24**

For the risk reduction strategy, six statements were also used as a measure of the variable. As it can be observed from Table 2, of the six statements, the respondents generally neither agreed nor disagreed on whether risk reduction strategies were instituted in the NG-CDF construction projects. This is shown by the weighted average means of between 3.12 and 3.28 which are all close to 3. However, out of the six statements, the respondents rated the statement that the CDF construction projects all passed through signed agreements highest with a weighted average mean of 3.28 while the statement that risks are always reduced by deliberate actions received the lowest rating with a weighted mean of 2.92. The weighted average of 3.22 shows that generally, the respondents were undecided on whether the risk reduction strategy was instituted in the projects.

Table 3: Descriptive Results of Risk Transfer

Key: SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree

Statements	SD	D	N	A	SA	Mean	SD
The CDF construction projects are considered as insuring projects	22.2%	14.9%	2.7%	29.4%	30.8%	3.31	1.57
The CDF construction projects transfer risk to the third party using legal agreements	20.4%	13.6%	4.1%	31.2%	30.8%	3.38	1.53
The CDF construction projects involves outsourcing some of the activities which results to risk transfer	22.6%	15.4%	9.5%	24.0%	28.5%	3.20	1.55
Some of the CDF construction projects have fixed price contracts	21.3%	19.0%	6.3%	27.1%	26.2%	3.18	1.52
Risk transfer practices exist in all construction	25.3%	23.1%	5.4%	26.2%	19.9%	2.92	1.51
The risk transfer programs are well instituted in the projects	21.3%	12.2%	0.5%	29.0%	37.1%	3.48	1.58
Average						**3.25**	**1.31**

For the risk reduction strategy, six statements were also used to measure the variable. As it can be observed from Table 3, of the six statements, the respondents generally neither agreed nor disagreed on whether risk transfer strategies were instituted in the NG-CDF construction projects. This is shown by the weighted average means of between 2.92 and 3.48 which are all close to 3. However, out of the six statements, the respondents rated the statement that the risk transfer programs are well instituted in the construction projects highest with a weighted average mean of 3.48 while the statement that risk transfer practices exist in all construction projects received the lowest rating with a weighted mean of 2.92. The weighted average of 3.25 shows that generally, the respondents were undecided on whether the risk transfer strategy was instituted in the projects.

Table 4: Descriptive Results of Risk Retention

Key: SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree

Statements	SD	D	N	A	SA	Mean	SD
The CDF construction projects have an element of self-insurance	22.2%	19.9%	5.4%	21.7%	30.8%	3.19	1.58
The CDF construction projects have contingency plans	22.2%	20.4%	10.4%	24.0%	23.1%	3.05	1.50
The CDF construction projects are implemented in a way that they absorb the risks	33.9%	24.0%	16.7%	10.0%	15.4%	2.48	1.43
There is an aspect of planning with buffers during implementation of CDF construction projects	31.7%	25.3%	17.2%	11.3%	14.5%	2.51	1.40
Project risk retention practice exists in all construction projects in the county	24.0%	22.2%	9.0%	28.1%	16.7%	2.91	1.46
6. The risk retention programs are well instituted in the projects	22.2%	18.6%	8.6%	34.4%	16.3%	3.04	1.44
Average						**2.86**	**1.11**

Of the six statements that were used to measure risk retention, the respondents generally neither agreed nor disagreed on whether risk retention strategies were instituted in the NG-CDF construction projects as shown in the results. This is shown by the weighted average means of between 2.48 and 3.19 which are all close to 3. However, out of the six statements, the respondents rated the statement that the CDF construction projects have an element of self-insurance highest with a weighted average mean of 3.19 while the statement that there is an aspect of planning with buffers during implementation of CDF construction projects received the lowest rating with a weighted mean of 2.92. The weighted average of 2.86 shows that generally, the respondents were undecided on whether the risk retention strategy was instituted in the projects.

Table 5: Descriptive Results of Completion Rate of Projects

Key: SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree

Statements	SD	D	N	A	SA	Mean	SD
The CDF construction projects have cost benefit when the risks are mitigated	20.4%	19.0%	3.2%	22.6%	34.8%	3.32	1.59
The CDF construction projects can be completed within the least duration when the risks are avoided	20.4%	14.0%	0.9%	33.9%	30.8%	3.40	1.53
The CDF construction projects are made to meet stakeholder expectations	20.8%	12.2%	0.9%	35.3%	30.8%	3.42	1.53
The CDF construction projects are expected to be completed within the budget and time frame	20.8%	12.7%	1.4%	43.4%	21.7%	3.32	1.47
The projects are constructed as per the specifications	21.3%	15.4%	4.1%	36.7%	22.6%	3.23	1.49
The construction project risks are always minimal	21.3%	19.5%	5.4%	40.3%	13.6%	3.05	1.41
Average						**3.29**	**1.31**

The dependent variable of the study was completion of constituency funded construction projects. Descriptive statistics for the analysis are shown in Table 5 below. The dependent variable was also measured by six statements. Out of the six statements that were used to measure it, the respondents generally neither agreed nor agreed on whether completion rate of the construction projects was effective or not. This is shown by the weighted average mean of 3.29.

Inferential Results

Correlational Results of Study Variables

In the present study, correlation was used to explore the relationship among a group of variables as suggested by Pallant (2010). A correlation coefficient of +1 indicates that two variables are perfectly related in a positive linear sense; a correlation coefficient of -1 indicates that two variables are perfectly related in a negative linear sense, and a correlation coefficient of 0 indicates that there is no linear relationship between the two variables. A correlation coefficient of between 0.0 and 0.19 is considered to be "very weak", between 0.20 and 0.39 is considered to be "weak", between 0.40 and 0.59 is considered to be "moderate", between 0.60 and 0.79 is considered to be "strong" and between 0.80 and 1.0 is considered to be "very strong" Pallant (2010). The results of the correlation analysis are presented in Table 6.

Table 6: Correlation among Study Variables

Variables		X_1	X_2	X_3	X_4	Y
$_1$	Pearson Correlation	1				
	Sig. (2-tailed)					
X_2	Pearson Correlation	.393[**]	1			
	Sig.(2-tailed)	.000				
X_3	Pearson Correlation	.420[**]	.307[**]	1		
	Sig. (2-tailed)	.000	.000			
X_4	Pearson Correlation	.407[**]	.391[**]	.443[**]	1	
Y	Pearson Correlation	.719[**]	.585[**]	.654[**]	.768[**]	1
	Sig. (2-tailed)	.000	.000	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation analysis shows the direction, strength and significance of the relationships among the variables of study (Sekaran, 2000). The correlation analysis shows the direction, strength, and significance of the relationships among the variables of the study. A positive correlation indicates that as one variable increases, the other variables will also increase. On the other hand, a negative correlation indicates that as one variable increases the other variable decreases (Sekaran, 2003). As it can be inferred from Table 6 above, there is a high correlation between the study independent variables (X_1, X_2, X_3 and X_4) and the dependent variable (Y).

Specifically, the association between risk avoidance (X_1) and project completion is positive and significant ($r = 0.719$; $p = 0.00$). This implies that for every unit increase in risk avoidance, there is a positive increase of 0.719 in project completion. However, this does not show causation. Similarly, the association between risk reduction and project completion is positive and significant ($r = 0.585$; $p = 0.00$). This implies that for every unit increase in risk reduction, there is a positive increase of 0.585 in

project completion. Additionally, the association between risk transfer and project completion is positive and significant ($r = 0.654$; $p = 0.00$) implying that for every unit increase in risk transfer, there is a positive increase of 0.654 in project completion. Lastly, Table 6 shows that the association between risk retention and project completion is positive and significant ($r = 0.768$; $p = 0.00$). This implies that for every unit increase in risk retention, there is a positive increase of 0.768 in project completion.

These results agree with those by Wanyonyi (2015) who conducted a survey on risk response strategies and those Merna (2014) who found a positive association between risk response strategies and project management. The results also agree with those by Koolwijk (2015) who also studied risk elements in two separate project partnerships between a customer and a contractor. The results of the study demonstrated a strong match between the risk items. In this study, Ahamed and Azhar (2014) evaluated modern risk assessment and management strategies adopted by Florida construction firms.

Regression Results

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.927[a]	.859	.855	4.76657

a. Predictors: (Constant), X_1, X_2, X_3, X_4

b. Dependent Variable: Y

As shown in Table 7 above, there is a positive combined association between the variables and project completion. This is shown by the multiple correlation coefficient value of 0.927. The coefficient of determination value (R^2) of 0.859 shows that the combined variables measuring risk

response strategies predict 85.9% of project completion with the remaining 14.1% being predicted by factors not included in the model.

Table 8 shows the significance of the model using the analysis of variance (ANOVA).

Table 8: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	9646.126	4	2411.532	441.511	.000[b]
1	Residual	884.833	162	5.462		
	Total	10530.959	166			

a. Dependent Variable: Y
b. Predictors: (Constant), X_1, X_2, X_3, X_4

The ANOVA summary above shows that the whole model is statistically significant in predicting project completion using the risk response strategies. This is revealed by the F-value of 441.11 which is significant at $p = 0.00$.

Table 9 presents the regression coefficient values (beta values) for each of the elements of risk response.

Table 9: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	1.775	.860		2.064	.000
	X_1	.205	.095	.251	2.165	.001
1	X_2	.302	.077	.302	0.020	.000
	X_3	.253	.010	.268	0.487	.000
	X_4	.294	.018	.369	2.486	.000

a. Dependent Variable: Y

From Table 9 above, several inferences can be derived. The constant term in the regression equation of 1.775 indicates the level of project completion that is present in the construction projects in the county.

The first objective of the study was to establish the influence of project risk reduction strategy on completion of constituency funded construction projects in Nyamira County, Kenya. Results in Table 9 shows that risk avoidance strategy (X_1) has a positive statistically significant effect ($β = 0.205$, $p = 0.000$) on completion of constituency funded construction projects in Nyamira County. This implies that holding all factors constant, a unit increase in risk avoidance leads to a 20.5% significant increase in completion of constituency funded construction projects in Nyamira County. These results agree with those by Wanyonyi (2015) who conducted a survey on risk response strategies and those Merna (2014) who found a positive association between risk response strategies and project management. The results also agree with those by Koolwijk (2015) who also studied risk elements in two separate project partnerships between a customer and a contractor. The results of the study demonstrated a strong match between the risk items. In this study, Ahamed and Azhar (2014) evaluated modern risk assessment and management strategies adopted by Florida construction firms.

The second objective was to determine the effect of risk reduction strategy project risk reduction strategy on completion of constituency funded construction projects in Nyamira County. Table 9 shows that risk reduction strategy (X_2) has a positive statistically significant effect ($β = 0.302$, $p = 0.000$) on completion of constituency funded construction projects in Nyamira County. This implies that holding all factors constant, a unit increase in risk reduction leads to a 30.2%

significant increase in completion of constituency funded construction projects in Nyamira County. These results are in tandem with those by Mhetre, Konnur and Landage (2016) who found that risk reduction is the best way to address risk exposure. The results also agree with those by Koolwijk (2015) who also studied risk elements in two separate project partnerships between a customer and a contractor. The results of the study demonstrated a strong match between the risk items and project completion.

Regression results based on the third objective which was to establish the effect of risk transfer strategy on completion of constituency funded construction projects in Nyamira County show that the risk transfer strategy (X_3) has a positive significant effect on completion of constituency funded construction projects (β = 0.253, p = 0.000). The implication of this finding is that a unit increase in risk transfer strategy leads to a 25.3% increase in completion of constituency funded construction projects in Nyamira County, all factors held constant. In their study, Renault and Agumba (2016) found that risk response positively impacts the building sector in their study. In their study, risk management technique entails detecting, assessing, prioritizing risk by monitoring and using money to mitigate the risk impact in order to achieve project goals. In addition, risk management can lead to various advantages, such as more trust in achieving projects objectives, boosting the likelihood of success and identifying a good alternative course of action. The study findings have also shown that the risk needs to be identified before it is minimized or controlled. The study also indicated that risk prevention, risk reduction, risk retention and transfer are often employed in risk response approaches.

The fourth objective of the study find out the effect of risk retention strategy (X_4) on completion of constituency funded construction projects in Nyamira County. Regression results show that the risk retention strategy has a positive significant effect (β = 0.294, p = 0.000) on completion of

constituency funded construction projects in Nyamira County. This implies that when all other factors are held constant, a unit increase in risk retention strategy results into a significant increase in completion of constituency funded construction projects in Nyamira County by 29.4%.

After the analysis, and based on the results from the analysis, the following model was fitted in the study;

$$Y = 1.775 + 0.205X_1 + 0.302X_2 + 0.253X_3 + 0.294X_4$$

CONCLUSIONS AND RECOMMENDATIONS

Results based on the first objective showed that risk avoidance strategy has a positive statistically significant effect on completion of constituency funded construction projects in Nyamira County. It is concluded that the risk avoidance strategy is a statistically significant positive predictor of completion of constituency funded construction projects in Nyamira County.

Results for the second objective showed that risk reduction strategy has a positive statistically significant effect on completion of constituency funded construction projects in Nyamira County. It is concluded that the risk reduction strategy is a statistically significant positive predictor of completion of constituency funded construction projects in Nyamira County.

Regression results based on the third objective which was to establish the effect of risk transfer strategy on completion of constituency funded construction projects in Nyamira County showed that the risk transfer strategy has a positive significant effect on completion of constituency funded construction projects. It is therefore concluded that the risk transfer strategy is a statistically significant positive predictor of completion of constituency funded construction projects in Nyamira County.

Regression results based on the fourth objective showed that the risk retention strategy has a positive significant effect on completion of constituency funded construction projects in

Nyamira County. It is therefore concluded that the risk retention strategy is a statistically significant positive predictor of completion of constituency funded construction projects in Nyamira County.

Regression results based on the first objective showed that risk avoidance strategy has a positive statistically significant effect on completion of constituency funded construction projects in Nyamira County. It was concluded that the risk avoidance strategy is a statistically significant positive predictor of completion of constituency funded construction projects in Nyamira County. It is recommended that; the CDF construction projects have in place alternative strategies for risk avoidance, the CDF construction projects are incorporated with safety systems, that the PMCs ensure that there are safety inspections on CDF construction projects being executed, that the CDF construction projects are implemented with detailed work plans in response to risk avoidance, and that the risk avoidance programs are well instituted in the projects.

Regression results for the second objective showed that risk reduction strategy has a positive statistically significant effect on completion of constituency funded construction projects in Nyamira County. It is concluded that the risk reduction strategy is a statistically significant positive predictor of completion of constituency funded construction projects in Nyamira County. Based on this conclusion, it is therefore recommended that; the CDF construction projects have continuous quality assurance checks, the CDF construction projects all passed through signed agreements, that during CDF construction projects there is continuous checks and monitoring of the process, and that the CDF construction projects are exposed to internal auditing.

Regression results based on the third objective which was to establish the effect of risk transfer strategy on completion of constituency funded construction projects in Nyamira County showed that the risk transfer strategy has a positive significant effect on completion of constituency

funded construction projects. It was therefore concluded that the risk transfer strategy is a statistically significant positive predictor of completion of constituency funded construction projects in Nyamira County. Based on this conclusion, it is recommended that; the CDF construction projects are considered as insuring projects, the CDF construction projects transfer risk to the third party using legal agreements, the CDF construction projects involve outsourcing some of the activities which results to risk transfer, some of the CDF construction projects to have fixed price contracts, and that the risk transfer programs are well instituted in the projects.

Regression results based on the fourth objective showed that the risk retention strategy has a positive significant effect on completion of constituency funded construction projects in Nyamira County. It was therefore concluded that the risk retention strategy is a statistically significant positive predictor of completion of constituency funded construction projects in Nyamira County. The following recommendations can therefore be made; the CDF construction projects have an element of self-insurance, the CDF construction projects have contingency plans, the CDF construction projects are implemented in a way that they absorb the risks, that there is an aspect of planning with buffers during implementation of CDF construction projects and that the risk retention programs are well instituted in the construction projects.

Suggestions for Further Research

The study generally sought to establish the influence of risk response strategies on completion of constituency funded construction projects in Nyamira County, Kenya. Therefore, the findings, conclusions and recommendations from this study will not be used to reflect on other organizations which are not in the group of constituencies funded construction projects. It is therefore suggested that a study be conducted incorporating construction projects from other sectors such as non-government organisations.

Moreover, the study did not take into consideration all other aspects of project management such as management, organizational culture and staffing which might also affect the completion rate of the projects. Also, such issues like governance policies, politics, and the country's economic standards were not reflected in this study because they are beyond the researchers' control and have no relationship with the topic of study. It is recommended that future studies incorporate these aspects to find out their contribution to project completion.

In addition, the study was limited only to construction projects, which leaves out many non-construction projects. Future studies should be conducted on non-construction projects.

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