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# Enterprise Risk Management Practices and Organizational Performance. Does Intellectual Capital Make a Difference?

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*Enterprise risks pose threats to the capability of an organization to accomplish business processes and create value. This research sought to add to studies done in the area of enterprise risk management (ERM) by focusing on the moderating effect of intellectual capital on the relationship between ERM governance practices and organizational performance of state corporations in Kenya. This study was guided by resource-based theory. The study used explanatory cross-sectional survey design. Primary data on ERM practices, intellectual capital and organizational performance was collected from structured questionnaires. A survey was carried out on 218 state corporations in Kenya. Data collected was analyzed by use of descriptive and inferential statistics. The research hypotheses were tested using multiple regression analysis. ERM governance practices were also found to significantly ($\beta$=0.412, $p$<0.05) influence organizational performance. Furthermore, the study found that intellectual capital had an enhancing and significant moderation effect on the relationship between ERM governance practices ($\beta$=0.658, $\rho$<0.05) and organizational performance. This study contributes to the body of knowledge by positioning intellectual capital on the empirical testing of resource-based theory as well as the impact of intellectual assets on the relationship between risk governance practices and organizational performance. Further, the study recommends that SCs need to define and document strategies for managing risks, in addition to ensuring that sufficient resources are availed towards the attainment of risk management.*

***Keywords:*** *Intellectual Capital, ERM Governance Practices, Organizational Performance*

***JEL Classification:*** *G32, L25, L30, O34*

## 1. Introduction

Successful economic performance and value creation are considered as the major drivers for an enterprise in a dynamic business environment. Enterprise risk management has been highly considered by today's corporate managers as a strategic approach to managing risks faced by business entities in a holistic

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way as oppose to traditional silo-based risk management. Despite there being growing concerns on the adoption of ERM practices with the key objective of enhancing firm value, there is little empirical evidence supporting the value relevance of the ERM implementation. Prior researchers have made some attempts to empirically verify the relationship between ERM and firm performance and mixed results have been observed on the value relevance of the ERM implementation.

A comprehensive program for managing business risks provides an important foundation for sustaining competitive advantage (Economist Intelligence Unit, 2007). Therefore, ERM frameworks adopted by organizations are based on practical issues and technical methodologies within the business environment. In view of risk governance practices, one of the core mandates of boards is risk oversight. Good boards hold all their members responsible for risk oversight. They interact directly with management on risk matters; ensure the ERM organizational model is optimized for each risk by reporting, evaluating and deciding the appropriate risk response. COSO, (2004) refers ERM as a top-down approach. Therefore, it is pre-requisite for board members and senior management to buy-in risk governance practices for meaningful ERM implementation and success. The author further states that, without support from the top-level, efforts made to identify, measure and control risks will fail to link up with business decision making, resulting to minimal impact on strategic planning and organizational performance. Consequently, risk governance practices ensure that an organization has developed procedures and internal controls which are essential in order to avoid loss, maintain security and enhance profitability. It also includes an infrastructure that enables everybody to improve transparency and know their responsibility (Lai, Azizan and Samad, 2010). In other words, it supports internal flow of information which is necessary for making relevant and timely decisions. Further, it allows the organization to flourish and survive in the market.

On the other hand, Hussinki *et. al*, (2016) states that intellectual capital (IC) focuses on all the intangible assets that an entity may consume to realize competitive advantage. Furthermore, IC includes three perspectives: human capital which discusses an entity's employees and their insights, abilities, education, aptitudes and attributes; besides, structural/organizational capital denotes that IC is possessed and rests with the entity even when individuals go home; and finally, relational/social capital is the worth entrenched in and gotten from relationships with clients, service providers, partners, organizations, and other equivalent stakeholders. According to Khan and Ali, (2017) valuable intellectual assets in an organization may resolve issues relating to risk management in respect to risk policy, oversight of internal controls, accountability, board strategy and monitoring of management functions.

Performance of SCs has been worrying over a period with the global reporting of high profile corporate failure (Enron, Worldcom), Global Financial Crisis (2008) and the reporting of corporate scandals within organizations Kenya. Consolidated financial statements for all State Corporations (SCs) for the period ending 30th June 2016 prepared by National Treasury indicate that there was a decline in surplus by fifty-nine per cent (59%) from an aggregate of Kshs 246 million reported in 2014/15 to Kshs 100 million in 2015/2016. An annex to the consolidated financial statement shows that forty-three per cent (43%) of the all the SCs reported losses in 2015/16FY. The poor performance has even extended to some major state corporations engaged in profit making activities. For instance, in the Ministry of Agriculture, all the four sugar companies reported significant losses including Muhoroni Sugar Company Ltd which has been placed under receivership for poor performance reported a deficit of Kshs 257 million.

Performance of SCs has a critical role in enabling the government achieve her constitutional obligation of bringing about social economic development in the country through provision of efficient services to the citizens (CGD, 2010). There have been great discussions on the causes of variations in performance of organizations. Ombaka *et al.*,(2015) posit that explaining why firms in the same industry and markets differ in their performance remains a fundamental question within management circles. ERM has partly been used to explain performance differences among organizations. Further, organization with higher intellectual capital are more likely to endure effects of unforeseen changes within the market. Studies by (Kamukama, Ahiauzi and Ntayi, 2011) show that organizations have assets which boosts their competitive advantage and performance. Porter (1999) opines that the crucial requirement for an organization's success in a competitive environment is to employ resources that are unique and specific to the firm. Consequently, organizations with high levels of intellectual capital are probably going to withstand the impacts of unexpected changes in business sectors. In addition, (Sofian *et al.*,2014) opines that such organizations can effectively anticipate their risk exposure and handle them in a better way. Therefore, this study explored the relationship between ERM and organizational performance when moderated by intellectual capital. As a result, the study hypothesized that:

*H: The effect of risk governance practices on organizational performance is moderated by intellectual capital.*

## 2. Literature Review

### 2.1 Theoretical Review

Resource-based theory proposes that resources owned by the firm positively influence its performance (Barney, 2002). Resource-based theory (RBT) considers internal resources and capabilities that an organization owns and evaluates the value potential of those resources in creating its worth. This aids the organization in defining its strategy so as to attain value maximization in a sustainable way. Therefore, RBT supposes that resources and capabilities are fundamental for superior performance. It assumes that there is a heterogeneity of resource endowments between organizations and explains the (sustained) competitive advantage of an organization through the possession of resources with certain characteristics. An organization should possess resources that are valuable (V), rare (R), inimitable (I) and non-substitutable (N) so as to achieve a sustainable competitive advantage. Grant (1991) opines that resources can be tangible or intangible assets that are important inputs in production and delivery of products and services. This study sought to apply the VRIN criteria as the basic pillars of holistic ERM. This is because ERM seeks to manage all risks in harmony within a coordinated and strategic framework rather than to manage risks independently (Nocco and Stulz, 2006).

Studies by Bromiley and Rau (2016) indicate that resources cannot be productive by themselves. Therefore, managers should be able to deploy those resources in an effective and efficient manner. Further, an organization's strategy should be synchronized to its environment of business operation. As defined by COSO (2004), ERM is part of an organization's strategy for enhancing performance. Thus, for an entity to achieve competitive advantage over others, its managers need to identify ERM practices that are critical for the firm and explore them into full capacity. RBT uses a strategic choice such as ERM to enable the organization identify, develop and deploy key resources so as to maximize its returns (Fahy, 2000). Hence, organizations invest in processes and routines underlying their dynamic capabilities so as to manage risks. The resource-based view provides a framework that helps to set priorities in risk management. Due to environmental complexities, organizations are subjected to an unlimited amount of potential risks (Bromiley and Rau, 2016, Burisch and Wohlgemuth, 2016). Management may not handle all of them once and needs to identify and focus on potential threats with the greatest impact on the firm. Applying the resource-based view clarifies which risks the firm should focus on.

### 2.2 Previous Studies

Erin, Asiriuwa, Olojede and Usman (2018) investigated the influence of risk governance on performance of money deposit banks in Nigeria. Panel data was collected from a sample of eleven listed Nigeria banks for the period of 2012 to 2016. Bank performance was measured using ROA while risk governance was measured by use of proxy variables such as presence of Chief Risk Officer (CRO), Centrality of CRO, independence of the Board Risk Committee, Activism of Board Risk Committee, Board's independence and ERM score. Secondary data the study variables were collected from annual reports of the selected banks. The study controlled for firm size, audit committee independence, board size, cost to income ratio and loan. The study used descriptive statistics, correlation and fixed effect regression model to analyze the data. The study found that all the risk governance variables except Centrality of CRO had a positive and significant impact on the performance of listed banks in Nigeria. The results of this study are consistent with those of (Nahar *et al*., 2016; Mollah et al., 2014).

Cavezzali and Garddenal (2015) examined the influence of risk governance on firm performance as evidenced by Italian listed banks. The study obtained data from twenty-one banks listed at *Borsa Italiana* for the period starting from 2005 to 2013.Secondary data was obtained from published reports on; financials, corporate governance and remuneration from the company websites and *Borsa Italiana* webpage. Firm performance was measured using both ROE and ROA while risk governance was measured by proxy using CRO presence, board of directors' independence, risk committee activism, CRO centrality and experience by risk committee. The study controlled for bank profitability, bank size, operating efficiency (cost to income ratio.) and capital structure. The data was analyzed using fixed effects regression model. The study obtained mixed results on the influence of risk governance on firm performance. CRO presence and CRO centrality were not statistically significant while Risk Committee experience and its activism level had a negative effect on ROE and ROA. Further, board independence was not significant. However, experience by risk committee representing their professional background could help lower the overall level of risk.

Aebi, Sabato, and Schmid, (2012) did an enquiry on whether risk management-related corporate governance instruments; for example, attendance of CRO in policymaking board of a bank; and whether the CRO is accountable to the Chief Executive or straight to the board of directors, were connected

with a superior bank performance for the period of 2007/2008 financial crisis. Bank performance was estimated by use of buy-and-hold returns and ROE. The study did control for the usual corporate governance factors like CEO ownership, board size, and board independence. Data was collected the year 2006 and time series regression used to analyze the data. The results indicated in banks which the CROs accounts for their activities directly to the board of directors and not to the Chief Executive (or other corporate organs) stock returns and ROE were considerably higher (i.e., less negative) stock returns during financial crisis. Unexpectedly, most standard corporate governance factors were irrelevant or even adversely related to the banks' performance during the crisis.

Similarly, Battaglia and Gallo (2015), studied the effect of risk governance on Asian bank performance during financial crisis. The paper investigated whether boards of directors and risk management mechanisms related to corporate governance are associated with better bank performance during the financial crisis of 2007/2008. The study focused on banks listed in China and India. Bank performance was measured using Tobin's Q, ROA, return on equity (ROE) and price–earnings ratio (P/E). The study had mixed results on the relationship between risk governance and bank performance. Banks with larger risk committee had better performance in terms of profitability (ROE and ROA) for the period 2007–2011. Contrary, market valuation and expected market growth rate (Tobin's Q and P/E) was greater for banks with risk committees which were smaller. This suggests that market valuation is adversely affected by risk committee size and significantly affected by the number of risk committee meetings. This indicates that the market, discounts as auspicious the information related to "strong" risk governance.

Ponnu (2008), examined the effect of corporate governance structures, particularly board structure and CEO duality, on the performance of Malaysian public listed companies. Data was collected from 100 Bursa Malaysia companies for the period 1999 to 2005. Firm performance as measured by return on assets and return on equity. Mann Whitney U Test was used to analyze the data. The study found that that there is no significant relationship between corporate governance structures and company performance.

Studies that have be carried out on ERM and organizational performance have focused on different study variables such as determinants of ERM adoption, characteristics of firms that adopt ERM, in addition to identifying ERM practices within an organization. Further, disentangling the influence of intellectual capital on organizational performance is of importance to SCs because they rely on intangible resources and capabilities to a great extent. Further, according to Togok and Suria, (2014), most studies done on the effect of ERM on performance or value creation are based on experiences from developed countries like USA, United Kingdom, Germany, Canada representing 75%. On the contrary, Asian and Middle East countries represent 18% and 5% respectively, while other developing countries represent 2% of the studies. Moreover, companies in high regulated nature of industries; insurance and financial services were always chosen in most ERM related studies. However, research posit that despite ERM being a concept that is accepted worldwide, it is always implemented and interpreted in local ways (Tekathen and Dechow, 2013). There is a gap believed to be in the wider social, institutional and organizational context in which ERM operates, rather than just focusing on the technical aspects of risk management (Soin and Collier, 2013). That is, examining the operations of ERM within the actual organization settings. The context of SCs in Kenya in this study is an area of interest because they were established to provide essential services as well as improve service delivery to the public and enhance efficiency. Therefore, their performance is of keen interest to government, general public and other stakeholders. In addition, Bhimani, (2009) posits that risk management is ultimately a social construct shaped by the contexts they inhabit. Consequently, this study sought to join this debate by investigating the moderating role of intellectual capital on the influence of ERM governance practices on organizational performance.

## 3. Research Methodology

### 3.1 Research design and target population

The study used explanatory cross sectional survey design. A survey was carried out on 218 state corporations in Kenya in the year 2019. Primary data on ERM governance practices, intellectual capital and organizational performance was collected from structured questionnaires. The questionnaire was designed on a five point Likert -type scale ranging from (1) - strongly disagree to (5) – strongly agree. The target respondents were Finance Managers in SCs because they are best placed to answer the research questions. Collier *et al*. (2007) asserts that finance managers play a critical role in risk management.

### 3.2 Measurement of variables

The study has operationalization and measured of the study variables as indicated in the Table 1.

***Table 1**. Operationalization and measurements of variables*

| Variables | Operational Indicators | Measure | Supporting Literature |
|---|---|---|---|
| Organizational Performance | Composite index of organizational performance (Financials, customers perspective, internal business process, learning and growth) | 5- point likert scale type questions | Calandro and Lane (2006) Marques and Simon (2006) |
| ERM Governance Practices | integrated ERM strategy, accountability, compliance and risk reduction | 5- point likert scale type questions | Lai and Shad (2015) Bozkus (2014) |
| Intellectual Capital | Human capital, structural capital, relational capital | 5- point likert scale type questions | Cabrita and Bontis (2008) Bontis *et al.*, (2000) |
| Firm Size | Measured as natural logarithm of total assets | Ordinal scale | Beasley *et al*., (2005) Hoyt and Leibenberg, (2008) |
| Growth rate | Percentage increase in revenue of the organization | Ratio scale | Beasley *et al*. (2005) |
| Industry differences | 1=financial sector, 2= commercial and manufacturing, 3= public universities, 4=training and research,5= service corporations, 6=tertiary education and training, 7=regional development, and 8=regulatory sector | Nominal scale | Waweru and Kisaka, (2013) |
| Level of ERM implementation | 1=Not at all, 2=Plans to introduce, 3= Adhoc implementation, 4=Implemented but needs improvement, 5=Robustly implemented | Nominal scale | Beasley *et al*. (2005) Waweru and Kisaka, (2011) |

Source: Researcher (2019)

### 3.3 Model specification

To test the moderation effect of intellectual capital on the relationship between ERM governance practices and organizational performance, the study used hierarchical regression model (baron and Kenny, 1986). Further, the study controlled for growth rate, industry differences and firm size. The effect on the dependent variable (organizational performance) was regressed on controls, exogenous variables and interactions terms. The hierarchical regression models were done by entering variables in lump of variables for control and exogenous variables including the moderator as well as each of the interaction terms and observing their results as outlined below in the equations:

$$Y = \beta_0 + \beta_1 C_1 + \beta_2 C_2 + \beta_3 C_3 + \xi_1 \quad (1)$$

$$Y = \beta_0 + \beta_1 C_1 + \beta_2 C_2 + \beta_3 C_3 + \beta_4 X_1 + \xi_1 \quad (2)$$

$$Y = \beta_0 + \beta_1 C_1 + \beta_2 C_2 + \beta_3 C_3 + \beta_4 X_1 + + \beta_5 M + \xi_1 \quad (3)$$

$$Y = \beta 0 + \beta 1 C1 + \beta 2 C2 + \beta 3 C3 + \beta 4 X1 + \beta 5 M + \beta 6 M.X1 + \xi 1 \quad (4)$$

where

$C_i$ : Represents Firm Characteristics (Control variables); where $C_1$ (Firm size), $C_2$ (Growth rate) and $C_3$ (Industry differences).

$X_i$ : Represents ERM Governance Practices (independent variables)

$M_i$ : Represent Intellectual Capital (moderator variable)

$Y_i$ : Represent Organizational Performance (dependent variable)

## 4. Results and Discussions

### 4.1 Response Profile

The study intended to collect data from 218 respondents. However, data was successfully collected from 197 respondents. This represents a response rate of 90.4 percent of the target population, which falls within the confines of a large sample size ($n \geq 30$). This provides a smaller margin of error and good precision (Draugalis et al., 2008). Further, to examine the level of ERM implementations in State Corporations, frequency tables and percentages were used as indicated in Table 2. The results indicate that 43.7% of the state corporations have implemented ERM but the need improvement and 18.8% have had ad hoc implementation. Only 15.7% of the state corporations have robustly implemented ERM. On the negative side, 4.6% of the not implemented ERM while 17.3% have plans to introduce it.

***Table 2.*** *Level of ERM implementation*

| | | Frequency | Percent |
|---|---|---|---|
| Implemented ERM | Not at all | 9 | 4.6 |
| | Plan to Introduce ERM | 34 | 17.3 |
| | Ad hoc Implementation | 37 | 18.8 |
| | Implemented but Improvements needed | 86 | 43.7 |
| | Robustly implemented | 31 | 15.7 |
| | **Total** | **197** | **100** |

Source: Research Data (2019)

### 4.2 Descriptive Statistics

Table 3 presents descriptive statistics for measures of organizational performance, risk governance and firm characteristics (control) variables in terms of mean, standard deviation, skewness and kurtosis. The mean gave indications on the average direction of the variables for each construct, while the standard deviation provided information on the level of dispersion from the mean. A low standard deviation meant that most of the responses group around the mean. In addition, kurtosis and skewness was used to establish the measures of the shape of the distribution. The results in Table 3 shows that ERM governance has a mean score of 3.562 and standard deviation of 0.705. It has skewness of -0.207 making it skewed to the left side of the curve along with a kurtosis -0.339. Intellectual Capital as the moderating variable in the study, accounts for a mean score of 3.618 and standard deviation of 0.611. The curve is negatively skewed to the left with a skewness of -0.409 and kurtosis of 0.156. Organizational performance as the dependent variable of the study, accounts for a mean of 3.612 and standard deviation 0.707. The curve is negatively skewed to the left with a skewness of -0.336 and kurtosis of -0.370. The control variables (industry differences, growth rate and frim size) had means of 4.244, 1.883 and 3.508 with corresponding standard deviations of 2.102, 1.112 and .799, respectively.

***Table 3****. Descriptive Statistics*

| n=197 | Minimum | Maximum | Mean | Std. Deviation | Skewness | Kurtosis |
|---|---|---|---|---|---|---|
| EG | 1.46 | 5 | 3.562 | 0.705 | -0.207 | -0.339 |
| IC | 2 | 5 | 3.618 | 0.611 | -0.409 | 0.156 |
| PERF | 2 | 5 | 3.612 | 0.707 | -0.336 | -0.37 |
| IND | 1 | 8 | 4.244 | 2.102 | 0.363 | -0.884 |
| GWTH | 1 | 5 | 1.883 | 1.112 | 1.223 | 0.648 |
| SIZE | 2 | 5 | 3.508 | 0.799 | -0.146 | -0.435 |

*Notes:* EG=ERM Governance, IC=Intellectual Capital, PERF= Organizational Performance, IND= Industry Differences and GWTH= Growth Rate

### 4.3 Correlation Results

In this study, Pearson correlation analysis was conducted to examine the relationship between variables (Wong and Hiew, 2007). The relationships among the dimensions of ERM practices and their relationships with organizational performance were examined. According to (Wong and Hiew, 2007), the correlation coefficient value (*r*) range of 0.10 to 0.299 is considered weak, 0.30 to 0.49 is considered medium and 0.50 to 1.0 is considered strong. However, Field (2005), suggests that correlation coefficient should not go beyond 0.8 to avoid multi-collinearity. The highest correlation coefficient in this research was 0.783 which is less than 0.8, indicating there is no multi-collinearity problem. The results displayed in Table 4 demonstrates a significant and positive correlation exists between ERM governance and firm performance ($r$ = 0.735, $p \leq 0.01$), as well as intellectual capital and performance (r = 0.783, $p \leq 0.01$). For the control variables, it is only growth rate that was positively correlated with SCs performance (r = 0.142, $p \leq 0.05$). Industry differences and firm size were not correlated with the organizational performance of state corporations in Kenya.

***Table 4.*** *Correlation Results*

| | PERF | EG | IC | IND | GWTH | SIZE |
|---|---|---|---|---|---|---|
| PERF | 1 | | | | | |
| EG | .748** | 1 | | | | |
| IC | .783** | .700** | 1 | | | |
| IND | 0.048 | -0.02 | 0.08 | 1 | | |
| GWTH | .142* | 0.064 | 0.091 | -0.058 | 1 | |
| SIZE | -0.075 | -0.017 | -0.076 | 0.041 | -0.054 | 1 |

Notes: ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Notes: EG=ERM Governance, IC=Intellectual Capital PERF= Organizational Performance, IND=Industry Difference, GWTH= Growth rate

### 4.4 Testing of Assumptions

The study conducted several statistical tests to fulfills the underlying assumptions of multiple regression analysis. This includes goodness of fit test for normal distribution, multicollinearity, linearity, outliers and homoscedasticity. In addition, Histograms and Kolmogorov-Smirnov test (K-S) one sample test were used in order to enable compare the shapes of the sample distribution to the shape of the normal curve and assumption of the normality of the population distribution. K-S results for normality assumption was not violated. The study tested for linearity using ANOVA test of linearity.

The results of linearity had a sig. for linearity of P<.05. More so, multicollinearity was tested using Variance Inflation Factor (VIF) and Tolerance (TOL). The VIF for all the estimated parameters were found to be less than 4, suggesting that there was no problem of multicollinearity and thus the variation contributed by each of the independent variables was significant and all the factors should be included in the regression model. The Levene statistic for equality of variances was used to test for the assumption of homoscedasticity. Results reveal that none of the Levene statistics was significant. Therefore, the assumption of homoscedasticity of variance was supported.

### 4.5 Testing Hypotheses

The objective of the study was to establish the moderating effect of intellectual capital on the relationship between ERM risk governance practices and organizational performance of state corporations in Kenya. The following steps were carried out. To begin with, the research standardized all factors so as to make interpretations simpler thereafter, in addition to avoiding multicollinearity. Secondly, the research applied regression model (model 3) so as to predict the dependent variable (organizational performance) from the independent variable (ERM governance practices). The coefficient of determination ($R^2$), over and above the regression model results should be significant. Thirdly, the research incorporated the interaction effect (IC*EG) to the earlier model (i.e. model 4) and check for $R^2$ change besides the effect of the new interaction term (IC*EG) which are expected be significant. If both of them are significant, it implies that moderation is occurring. Further, in the event that the independent and moderating variables are not significant with the interaction term added, at that point complete moderation has happened. If the predictor and moderator are significant with the interaction term added, then moderation has occurred according to (Marsh *et al*, 2013), however the main effects are also significant.

The hierarchical regression results are presented in Table 5 showed a positive and significant moderating effect of intellectual capital on the relationship between ERM governance and organizational performance ($\beta$ = .658 $\rho$< .05). Hence, the hypothesis was accepted. This was also supported by change of R squared of 2.8% ($R^2\Delta$= .028) indicating that intellectual capital moderates the relationship between ERM governance and organizational performance by 2.8%. This implies that intellectual capital strengthens the relationship between ERM governance and organizational performance of state corporations. The implication is that the inclusion of human and structural capital ensures that there is proper supervision. In addition, controls geared towards the implementation of risk governance practices in turn enhances the performance.

***Table 5.*** *Moderating effect intellectual capital on ERM governance practices and organizational performance*

| | **Model 1** | **Model 2** | **Model 3** | **Model 4** |
|---|---|---|---|---|
| | **B(Se)** | **B(Se)** | **B(Se)** | **B(Se)** |
| (Constant) | 0.002(.071) | 0.002(.047) | 0.008(.040) | (-0.013)(.038) |
| Zscore(IND) | 0.057(.071) | 0.069(.047) | 0.017(.041) | .029(.039) |
| Zscore(GWTH) | 0.14(.071) | 0.093(.047)* | 0.064(.040) | 0.054(.039) |
| Zscore(SIZE) | (-0.07)(.071) | (-0.061)(.047) | (-0.026)(.040) | (-0.021)(.039) |
| Zscore(EG) | | 0.742(.047)** | 0.412(.055)** | (0.002)(.107) |
| Zscore(IC) | | | 0.484(.056)** | 0.193(.085) |
| Zscore(EG_IC) | | | | 0.658(.149)** |
| **Model Summary** | | | | |
| R | 0.166 | 0.758 | 0.833 | 0.850 |
| R Square | 0.028 | 0.575 | 0.695 | 0.723 |
| Adjusted $R^2$ | 0.012 | 0.566 | 0.687 | 0.714 |
| Std. Error | 0.994 | 0.659 | 0.560 | 0.535 |

| | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|
| Change Statistics | | | | |
| $R^2\Delta$ | 0.028 | 0.547 | 0.120 | 0.028 |
| F Δ | 1.821 | 247.290 | 74.908 | 19.426 |
| df1 | 3 | 1 | 1 | 1 |
| df2 | 193.000 | 192.000 | 191.000 | 190.000 |
| Sig. F Δ | 0.145 | 0.000 | 0.000 | 0.000 |

Notes: Dependent Variable: Zscore (PERF) Significance level: **p<.01, *p.05
Notes: EG=ERM Governance, IC=Intellectual Capital, PERF= Organizational Performance and IND=Industry Difference, GWTH= Growth rate

The study also used Modgraphs as shown in Figure 1 to confirm presence of moderation as per Jose (2008) recommendation. The outcome is shown in Figure 1 that when state corporations have high levels of intellectual capital, ERM governance contributes more to organizational performance compared to when there are low levels of intellectual capital, as shown by the steepness of the slope. The rule for indicating presence of interaction advances that the graphs should have not parallel lines but have varying gradients and slope. Hence, the null hypothesis was rejected. This implies that intellectual capital positively and significantly moderates the relationship between ERM governance and organizational performance.

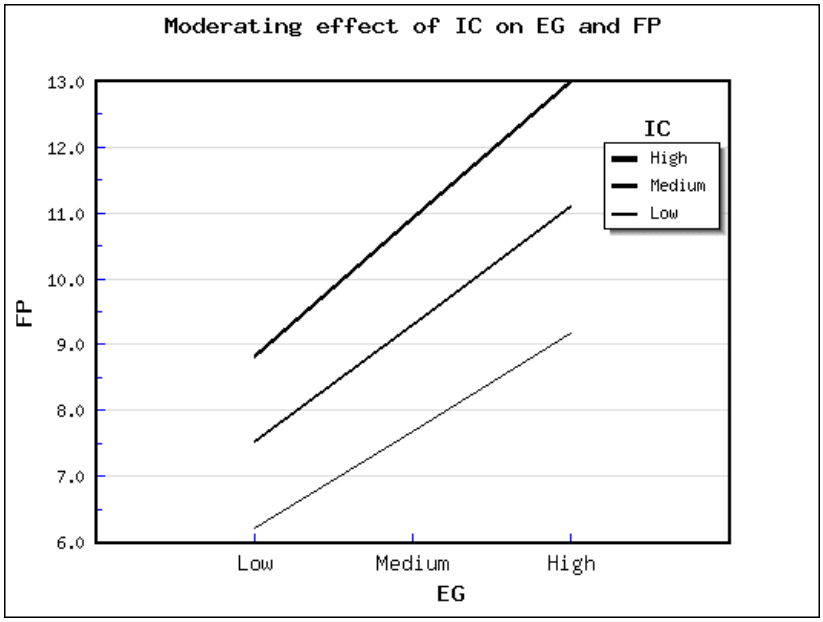


***Figure 1.*** *Moderated effect of intellectual capital on the relationship between ERM governance and organizational performance*

The results of this study are in agreement with those of (Nahar, Jubb and Azim, 2016) which found that there is a significant relationship between risk governance and bank performance. Similarly, Ping and Muthuveloo, (2017) found that implementation of ERM governance has a significant influence on firm performance. Further, Alnidawy (2013) found that intellectual capital risks significantly influence an entity's competitive advantage. On the contrary, they differ with those of Ponnu (2008) which found no significant relationship between corporate governance structures and company performance.

## 5. Conclusions and Recommendations

The study obtained that under higher levels of intellectual capital, ERM governance practices positively and significantly influences organizational performance. Therefore, effective risk governance is key in embedding the right risk culture which is key in enhancing the organizational performance of state corporations.

The results support policy implications of integrated risk management; encompassing all the activities that affect SCs risk profile. The reason for this is that risk governance is key in clarifying the roles and responsibilities across the different departments. Consequently, risks associated with IC can effectively be

managed. The fundamental contribution is that all the personnel (human capital) in SCs have a role to play in risk management with the board tasked with the oversight role and the establishment of a risk framework for good governance.

### 5.1 Limitations and Future Research Direction

The study focused on the moderating effects of IC thus there is possibilities of having mediating variables included. This study recommends that further research works should explore establishing the mediating effects of intellectual capital on the relationship between ERM practices and organizational performance. Also, the scope of the study was limited to SCs in Kenya. As a result, future research could be extended to other different regions and countries.

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