Risk Culture and Strategic Planning Roles on Enterprise Risk Management and Firm Performance in Selected African Countries

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Abstract

Enterprise risk management (ERM) research has mostly been limited to factors determining its implementation and its effects on firm performance. Despite a clear need for its establishment in sound risk culture and its integration with strategic planning, organisational leaders continue to implement these management concepts in isolation. Academic research into these conjoint relationships has also received less attention in the literature. This study investigates whether ERM's effect on firm financial performance, measured by return on assets, is mediated by risk culture and strategic planning. The study provides empirical evidence that adopting ERM solely does not enhance a firm's financial performance. The ERM, risk culture, and strategic planning constructs are empirically determined to be correlated. Strategic planning has a direct and positive relationship with firm performance. The study further provides empirical evidence that the positive effects of ERM implementation on firm financial performance are mediated by risk culture and strategic planning. The size of a firm and its financial leverage are remarkable determinants of firm performance, while firm age and growth rate are not. The pieces of evidence have been presented from an under-investigated context in Africa with other contributions to the literature, such as, providing comprehensive measures of ERM and risk culture and responding to calls to synthesise risk and strategic management. This study also advances multiple mediation analysis and the use of PLS-SEM in the ERM literature.

Keywords: enterprise risk management, firm performance, risk culture, strategic planning, PLS-SEM, mediation

1. Introduction

COSO (2017) and ISO 31000 (2018) states that the purpose of adopting effective risk

management is to create and protect value. Effective risk management improves firm performance and supports the achievement of organisational objectives. Empirical investigations into these value-addition effects are widely available in the extant literature, with different conclusions. The mixed results are partly because of the insufficient specification of ERM frameworks and the absence of a general agreement on the constituents of ERM (Lundqvist, 2014; Mikes & Kaplan, 2015). The inconsistent findings on the value-creating ability of ERM have caused boards of directors and corporate management to be reluctant to embrace ERM as an effective risk oversight. According to Viscelli, Beasley, & Hermanson (2016), more research is needed to fully understand the various dimensions of ERM value creation.

COSO (2017) ERM stipulation and the framework first component places great emphasis on culture due to the increasing focus, recognition, and significance of risk culture within ERM. The behaviour of human beings in an organisation and their culture significantly influences all aspects of risk management at all levels and stages (ISO 31000, 2018). Risk culture is trusted to affect all ERM facets and likely affect decision-making. It is a strong foundation for ERM that holds together all the components of risk management and is crucial for successful risk management processes and practices. Organisations that think about their risk culture comprehend the changes and effectiveness of ERM practices better than their counterparts (Ahmed & Manab, 2016). The leadership of an organisation should implant its risk management framework into its risk culture, operations, and systems to realise an effective ERM (IRM, 2012). The inadequate empirical corroboration of the relationship between ERM and risk culture warrants empirical investigation into how risk culture relates to ERM implementation (Kimbrough & Componation, 2015; Viscelli *et al.*, 2016).

There is less research on the benefits of integrating ERM in the strategy-setting stage and their conjoint relationship (Pierce & Goldstein, 2018; Sax & Andersen, 2019). When ERM is integrated into strategy setting, organisational leaders can see the connection between risk, strategy, and value. The risk information obtained can help inform strategic decisions, which eventually affect performance. Corporate management can then manage risk in the context of a strategy to achieve its objectives. The integration of ERM at the strategy-setting stage enables value to be added to the organisation (Bromiley *et al.*, 2015). When organisations fail to do so, the impact of ERM on firm performance becomes minimal (Viscelli *et al.*, 2016). ERM is probably regarded as a strategic tool when the organisation expresses its risk appetite during the process of strategic planning (Beasley *et al.*, 2015). The integration also enables organisational leaders to direct their limited resources to the strategic risks that matter most. When ERM is integrated at the strategy-setting stage, the organisation is better placed to comprehend if the strategy correctly corresponds with the business intents, the amount and type of risk faced; and realised due to the strategy chosen (COSO, 2017).

ERM research has primarily aimed at factors determining its adoption and how its implementation affects firm performance. Majority of these investigations are carried out in the USA and Europe with less attention directed to Africa. According to the Chartered

Financial Analyst Institute Research Foundation (CFAIRF, 2019), Africa is characterised by smaller firms, capital markets, and less stringent regulations. This makes it difficult to relate ERM findings in the USA and Europe to Africa. The fragmented implementation of ERM, risk culture and strategic planning is partly because of the unavailability of empirical evidence on the value of their joint implementation. Studies on the conjoint relationship between ERM, risk culture, and strategic planning in a single model are absent in the literature. This study examines whether the effects of ERM on firm performance are mediated by risk culture and strategic planning in a single model. This is carried out through multiple mediations using partial least squares structural equation modelling (PLS-SEM). ERM and risk culture are measured from established frameworks grounded in theory using primary data from an online questionnaire targeting listed firms in three different African countries. The study findings have advanced the theory on the conjoint relationships of these strategic management concepts and the need for joint studies in risk and strategic management. Multiple mediation and PLS-SEM studies in the ERM academic domain are promoted, and organisational leaders advise on the significance of adopting an integrated approach of ERM, risk culture, and strategic planning.

2. Literature Review & Hypotheses Development

Implementing ERM aims to enable organisations to face uncertainties by dealing with threats and taking advantage of opportunities presented in the environment to improve financial performance. ERM implementation is costly. Therefore, its adoption must create value for the firm. However, empirical evidence on ERM value-creating ability is contradictory. Studies that have used the same ERM proxy have provided inconsistent results, while others with different proxies have produced the same results. For example, an analysis of 18 scientific research publications between 2010 and 2016 by Kopia *et al.* (2017) found 16 academic papers that failed to find a connection between ERM and firm performance. Likewise, Agustina & Baroroh (2016), Li *et al.* (2014) failed to find statistical evidence supporting the notion that ERM improves firm performance. In contrast, Baxter *et al.* (2013), Bohnert *et al.* (2018), and Lechner & Gatzert (2017) concluded that ERM implementation has a positive impact on firm performance. Given this contradictory evidence, the study probes into the following hypothesis.

H1 ERM and Firm Performance have a significant positive association.

Academic investigations on how risk culture and ERM are associated are limited (Viscelli *et al.*, 2016). This gap in the literature requires empirical research. A critical element of ERM is risk culture (COSO, 2017). An organisation's risk culture can positively influence its ability to undertake strategic risks and fulfill its stated objectives (IRM, 2012). Risk culture is an underlying instrument for successful risk management, and it is an integral part of ERM that determines and is determined by ERM (KPMG, 2018). There is a strong correlation between risk culture and ERM and that risk culture also affects organisational performance (Roslan & Dahan, 2013), an assertion that needs empirical investigation. The determination to implement ERM and the efficacy of its adoption are significantly dependent on an

organisation's culture (Viscelli *et al*., 2016). The effectiveness of ERM implementation depends on risk culture (Kimbrough & Componation, 2015). The successful implementation of integrated risk management depends on well-defined risk culture (ISO 31000, 2018). Thus, risk culture and ERM are related; hence the following hypothesis is proposed:

H2: ERM and Risk Culture has a significant positive association

The interest of strategy scholars is to see how organisations relate, cope, and change with their environment. Organisations become more involved in strategic planning when the environment is complex, ambiguous, uncertain, and volatile. Strategic planning is about establishing a vision, mission, objectives and the development of values and standards of behaviour in doing business. IIF (2013) requires boards to ensure that the culture matches the business model and continuously ask themselves, What is the organisation doing to support things we value? What are we doing to deter things that we do not value? Do we have an organisation that is constantly aware of risks? During the process of strategic planning, the organisation determines the significant risks of the strategy, its risk appetite, and how to manage these risks. The behaviour of employees as it relates to risk management in creating a general understanding of risk and forming a shared value and perception is also considered. The presence of sound risk culture in the strategic planning stage enables employees to detect and manage risks in their daily activities. Effective implementation of a strategic plan requires organisational employees with a risk-aware culture. They can correctly seek upside potential and manage the lower tail outcomes identified in the strategic plan. Therefore, this study hypothesises the following:

H3: Risk Culture and Strategic Planning has a significant positive association

Academic research on the effects of strategic planning on firm performance has provided mixed results with more studies providing a significant positive influence. Studies that have provided an insignificant or a small influence do have methodological problems (Miller & Cardinal, 2017). The impact of strategic planning on firm performance is direct, moderate, and significant and that the positive influence is strongest when both constructs are formally measured (George, Walker, & Moster, 2019). Though the positive influence holds across industries and countries (George *et al*., 2019), it is more significant in emerging economies than developed economies (Kyläheiko *et al.*, 2016). From an African perspective, Chavunduka *et al.* (2015), Donkor *et al.* (2018), and Namada *et al.* (2017) provide empirical evidence that strategic planning positively impacts firm performance. If strategic planning does not positively influence firm performance, then strategic planning did not prove its point. Therefore, this study posits the hypothesis that:

H4 Strategic Planning has a direct relationship with Firm Performance

The integration of ERM and risk culture has been advocated in the literature, parallel to ERM integration with strategic planning. Academics have also contended that risk culture and strategic planning are related. For example, COSO (2017) identified an organisation's culture and how long it takes to embrace a risk-aware culture to influence ERM integration with

strategic planning. An organisation's risk management culture is the thrust of its ERM process. ERM, risk culture, and strategic planning constructs relationships require simultaneous empirical investigation and the effects of the related relationships judged against a firm's financial performance. This study brings these relationships together and hypothesises the following:

H5   The Positive Effects of ERM on Firm Performance are mediated by Risk Culture and Strategic Planning

In line with prior research, certain control variables are included to control spurious effects in regression relationships.

2.1 Financial Leverage

Firms take up debt to undertake other investment opportunities that increase positive net present value projects (Li *et al*., 2014). The acquisition of debt reduces available cash flows through debt and interest repayments. Reduced cash flow likely impacts a firm's financial performance due to its inhibition of further investment opportunities. The higher the debt in a firm's capital structure, the higher the chance of suffering from financial distress. Scholars have provided empirical evidence that financial leverage is not significantly related to firm performance (Ali, Hamid, & Ghani, 2019; Bohnert *et al*., 2018). In contrast, empirical evidence reveals a direct and strong relationship between financial leverage and firm performance (Sax & Andersen, 2019). This study proxies financial leverage as the ratio of the total book value of liabilities to total assets (Ghazali & Manab, 2013; Wang *et al.*, 2017) and assumes that financial leverage has a remarkable indirect relationship with firm performance.

2.2 Firm Size

Scholars have argued that the principal-agency conflict is directly proportional to the size of the firm. This reduces shareholder wealth and, subsequently firm's value. Larger firms enjoy economies of scale, receives government assistance, can easily access capital markets, and have varied expertise with greater resources for mass production. Thus, firm value is expected to be positively affected by firm size. Empirical evidence provided by Abdullah *et al.* (2017) shows a positive effect of firm size on firm value. Contrary to these empirical findings, Ali *et.al.* (2019), Bohnert *et al*. (2018) found that firm size is not significantly related to firm value. Consistent with prior research (Anton, 2018; Lechner & Gartzert, 2017), firm size is calculated as the natural logarithm of total book assets.

2.3 Growth Rate

Firm growth is associated with an increased need for financial resources to fund future projects. Firm value is enhanced when firms make better strategic decisions regarding positive net present value projects that provide growth opportunities. Future earnings from such projects are uncertain and require more asymmetric information in the capital market. This is associated with an increased need for outside debt and a reduction in firm value. Bohnert *et al.* (2018) found that sales growth and firm value are not significantly related.

Sales growth is calculated as the proportion of the difference in the two consecutive annual sales to prior year sales.

2.4 Firm Age

Firm age is the number of years since the firm was officially established. The debate on the effects of firm age on financial performance has produced mixed results, and the literature on this theme has not yet developed a paradigm (Rossi, 2016; Coad *et al.,* 2018). Older firms have less need for debt capital because their growth opportunities requiring funding are limited, or they have resources at their disposal to fund growth opportunities without incurring debt. Therefore, they are more profitable because they do not have debt repayments. In addition, as firms get old, they are more careful than younger firms in following their financing policies (Sax & Andersen, 2019). However, as firms get old, they face the problems of contentment, bureaucratic procedures, and processes that might impede innovation. This has a negative effect on profitability. Pervan *et al.* (2017) empirically determined that firm age negatively affects firm performance in a study of 956 firms operating in the Croatian food industry. On the contrary, Mallinguh, Wasike & Zoltan (2020), confirmed a significant positive influence of firm age on performance Therefore, this study argues that firm age is not significantly related to firm performance.

3. Methods of Analysis

An appropriate analytical strategy to test the study hypothesis that risk culture and strategic planning mediate the positive effects of ERM on firm financial performance is multiple mediation. Multiple mediation allows the testing of theories in a single model. Mediation occurs when the causal effect of an exogenous variable on an endogenous variable is transmitted by a mediator (Zhao *et al.*, 2010). Multiple mediation occurs when two or more variables serve as mediators. Multiple mediation has received less attention in the literature and is absent in the ERM academic domain. This is due to the analytical methods that are somewhat arcane, relative to those of simple mediation (Preacher & Hayes, 2008). In the conceptualised model, risk culture and strategic planning mediate ERM effects on firm financial performance.

ERM and risk culture are abstract concepts that can best be measured by a second-generation multivariate statistical technique such as PLS-SEM, which can capture the construct sub-dimensions (Hair *et al.*, 2014). A major reason often cited for PLS-SEM use is the small sample size, although it has often been abused. From the statistical tables of Cohen (1992), a medium effect size ($f^2 = 0.15$), 0.80 statistical power, significance level $\alpha = 5\%$, and 7 explanatory variables), needs a sample size of 102. The study sample size of 141 is close to Kock & Hadaya (2018) Gamma Exponential method of 146 as the researcher has no previous understanding of the magnitude of the absolute minimum path coefficient (Memon *et al.*, 2020). Sample sizes ranging from 100 to 200 are considered medium and appropriate for parsimonious models (Kline, 2016). The study respondents are CEOs and directors since it is caried out at the organisational level. Top management support is a prerequisite for effective

risk management implementation (ISO 31000, 2018). They also have direct responsibility for strategic planning implementation. Therefore, they are the most suitable persons to complete the questionnaire. Thus, small samples characterise the research as opposed to research aiming at respondents such as employees and clients (Memon *et al.*, 2020). The data analysis software used in the study, SmartPLS (Ringle *et al.*, 2015), can handle small datasets. This is because, it separates the inner model from the outer model in estimating the entire model (Hair *et al.*, 2017). The research consists of financial ratios obtained from secondary data whose distribution is non-normal. Hence, PLS-SEM is an appropriate statistical technique to draw relevant conclusions on the various hypotheses. The study hypotheses are tested by bootstrapping the specific indirect effect to obtain confidence limits using 5 000 subsamples, two-tailed test, 0.05 significance level with the normal PLS algorithm. Risk culture and strategic planning mediate the positive effects of ERM on firm financial performance when the indirect effect is significant (Aguinis *et al.*, 2016; Zhao *et al.*, 2010).

A structured web-based questionnaire was used to obtain primary data on ERM, strategic planning, risk culture practices, and demographic statistics of the respondents. A five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used to obtain responses. The first part of the questionnaire explained the purpose and objective of the study and asked the respondent's readiness to take part in the survey and an assurance of anonymity. The second section asked 20 questions to solicit information on ERM practices in the organisation. The third section has seven questions that demand information on strategic planning practices within the organisation. The fourth section has 33 questions and deals with the risk culture practices of the respondent's organisation. The last section requests respondent's demographic information, such as gender, educational level, and professional membership. These questions are available at www.surveymonkey.com/r/PTR5SYC

3.1 Data and Descriptive Statistics

65.2% of the respondents hold a postgraduate degree, and 31.2% has a first degree. 79.4% belong to professional bodies in risk management and accounting etc. About 60.2% have more than ten years of experience, 53.9% are at directorate or senior level in their organisations reporting directly to the directors of the board. A total of 47.5% spent more than five years at their current position in the organisation. The respondents are considered to have the necessary professional background in risk and strategic management. They are also experienced and highly responsible in their organisations to respond to the survey questions reliably.

The industry representation is presented in Table 1. The sample firms are from 10 different sectors of the economy drawn from Nigeria, Kenya, and Ghana stock exchange listings having 270 firms as of December 2018. The overall response is 52.2%, with 93 firms from Nigeria, Kenya, 28 and Ghana, 20. This is a respective representation of 55%, 44%, and 54%. Kenya's Nairobi Securities Exchange is the most vibrant and diverse in eastern Africa (CFAIRF, 2019). The Nigeria Stock Exchange, based on Africa's largest economy, is the second most liquid debt market in sub-Saharan Africa, after South Africa (CFAIRF, 2019).

The Ghana Stock Exchange, though one of the youngest in Africa, has earned international recognition. They are the award winners of the African Investor (Ai) Most Innovative African Stock Exchange in 2009 and 2018 (CFA IRF, 2019). The three stock exchanges are all members of the African Securities Exchanges Commission, making them suitable for conducting such research. The three countries were sampled, and all industries listed in these three stock exchanges were targeted to obtain sufficient data for statistical analysis to provide a meaningful conclusion.

Table 1. Samples per Industry

Industry	No. of Firms	Percentage	Cumulative
Agriculture	6	4.3%	4.3%
Banking	32	22.7%	27.0%
Commercial & Services	27	19.1%	46.1%
Construction & Allied	4	2.8%	48.9%
Energy & Petroleum	10	7.1%	56.0%
Insurance	22	15.6%	71.6%
Real Estate & Investment	5	3.5%	75.2%
Manufacturing & Allied	27	19.1%	94.3%
Mining & Exploration	2	1.4%	95.7%
Telecommunication & Technology	6	4.3%	100.0%
Sample Total (N)	**141**		

Table 2 presents the descriptive statistics for the secondary data. All financial data are standardised to US dollars using the country's central bank exchange rate at the close of the firm's financial year. The variables firm size and firm age are not skewed or peaked as the results of their skewness and kurtosis lie within -1 and +1. The results of skewness and kurtosis for the variables return on assets, financial leverage, and growth rate are outside of -1 and +1. They therefore have peaked and skewed distributions. The Shapiro-Wilk (S-W) and Kolmogorov-Smirnov (K-S) tests were used to confirm non-normality. For small sample

sizes, the S-W test is more specific and powerful (Ryan, 2020). The data for the variable firm size follows a normal distribution since the K-S and S-W results are not significant. The size of the study firms varied greatly, hence firm size is calculated as the natural logarithm of the book value of assets to reduce this variance, thereby normalising this variable. The other variables are non-normal but can be manipulated using the non-parametric PLS-SEM method.

Table 2. Secondary Data Descriptive Statistics

Variable	Min.	Max.	Mean	Std. Dev.	Skew.	Kurtosis	K-S	S-W
Return on Assets	(5.302)	38.708	1.389	3.518	8.633	91.676	0.280 (0.000)	0.361 (0.000)
Firm Size	13.048	23.886	18.477	2.336	0.222	(0.595)	0.065 (0.200)	0.983 (0.075)
Financial Leverage	0.022	2.852	0.566	0.331	2.207	14.694	0.106 (0.001)	0.833 (0.000)
Growth Rate	(76.731)	209.951	8.255	29.292	2.433	16.850	0.130 (0.000)	0.802 (0.000)
Firm Age	9.000	125.000	51.745	27.031	0.714	0.123	0.097 (0.003)	0.941 (0.000)

Financial Data calculated in United States Dollars

3.2 ERM Measurement

COSO (2017) and ISO 31000 (2018) are two widely used frameworks for holistic risk management by organisations. Their focus is on risk evaluation, treatment, and continuous monitoring. One significant difference between them is that the risk process with ISO 31000 (2018) starts by defining the purpose and scope of ERM activities. With COSO (2017), the risk process starts with revising the organisation strategies and aligning risk to each of them. This study is conducted from a strategic management perspective to investigate how ERM is related to strategic planning. This motivated the use of the COSO (2017) ERM framework. COSO (2017) ERM framework principles were transformed into questions to estimate the five sections of the framework. The second-order ERM construct is measured formatively by the five first-order elements. The five lower-order components have connections between 0.552 and 0.923 that remarkably differ from zero. The results of a confirmatory tetrad analysis (CTA PLS) for 5 000 subsamples, two-tailed test, and 0.01 significance level revealed majority of the adjusted lower confidence intervals as negative and majority of the

adjusted upper confidence intervals as positive. The test statistic is not significant, and the alternative hypothesis is rejected. The estimation of the first-order components is thus reflective (Kono, Ito & Loucks-Atkinson, 2022). The model is then evaluated in line with internal consistency reliability, indicator loadings, discriminant, and convergent validity (Benitez *et al.,*2019; Hair *et al.,* 2019; Sarstedt *et al.,*2019). The complete indicator loadings for the standard PLS algorithm are shown in Figure 1.
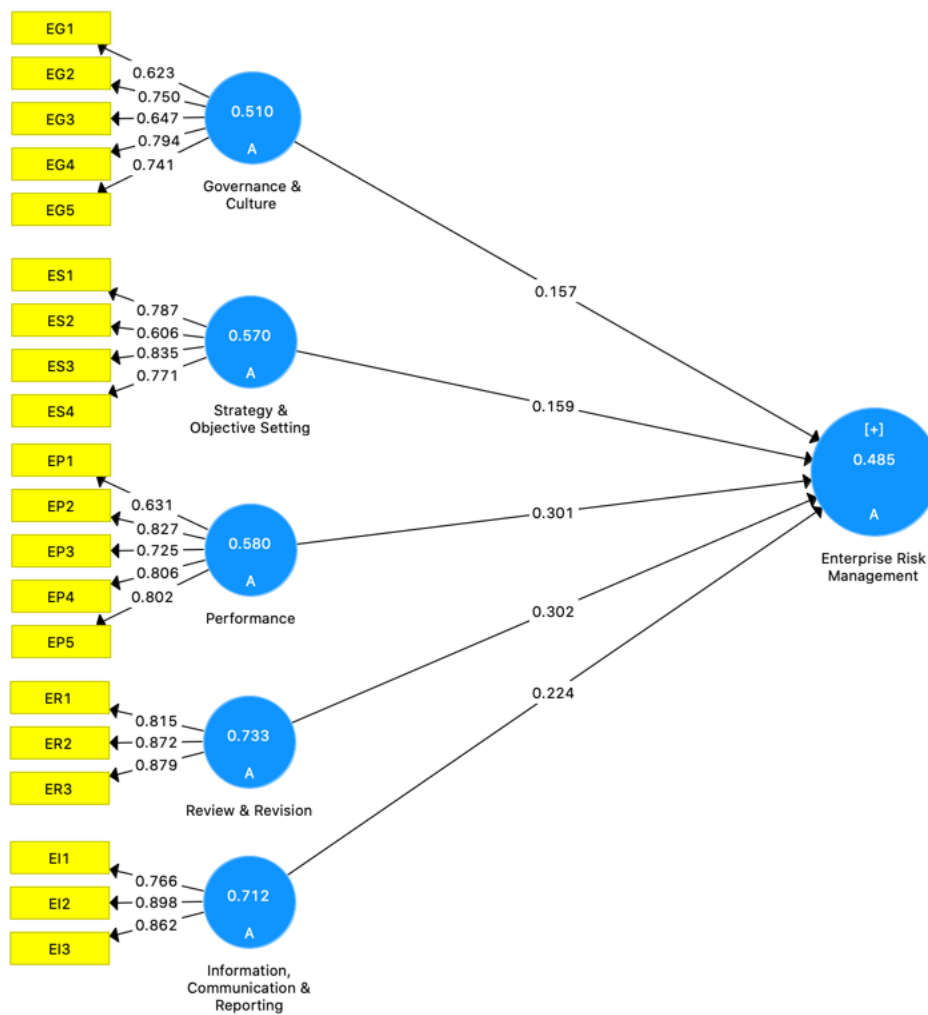

Figure 1. ERM Measurement Model

The loadings of the indicators EG1 (Exercise Board Risk Oversight), EG3 (Definition of Desired Risk Culture), ES2 (Defines Risk Appetite) & EP1 (Identification of Risks) are less than 0.708. Omitting them results to latent variables with a minimum of three indicators. The latent variables average variance extracted (AVE), which are theoretically connected, respectively improves from 0.510 to 0.661, 0.570 to 0.672, and from 0.580 to 0.652 (Appendix A). More than half of the indicator variance is explained by the constructs and that there is no other indicator that is more relevant (Hair *et al*., 2019). Internal consistency reliability estimated by Cronbach's alpha α, true reliability ρ_A, and composite reliability ρ_C have results between the thresholds of 0.700 and 0.950 (Appendix A). These results are acceptable, with no superfluous items that can diminish the legitimacy of the constructs (Hair

et al., 2019; Henseler *et al*., 2016). The AVE results are good and acceptable as they exceed the minimum threshold of 0.500 (Hair *et al*., 2019). Discriminant validity issues are absent. For each construct, the square root of its AVE exceeds the correlations concerning constructs (Fornell & Larcker, 1981). A cross-loading examination indicated no discriminant validity issues. The correlation of a measurement indicator with a construct to which it is not connected is lower than that to which it is connected (Gefen & Straub, 2005). The heterotrait-monotrait (HTMT) ratio of associations presents two results (Review & Revision -> Information, Communication and Reporting; Review & Revision -> Performance), signifying discriminant validity issues using the $HTMT_{0.90}$ threshold measure (Appendix B) (Henseler *et al.*, 2016; Franke & Sarstedt, 2019). The results of these constructs suggest that they are likely not empirically different and may be estimating similar things to certain respondents. Discriminant validity evaluation in PLS-SEM systematically limits comparing two constructs in pairs. This makes it challenging and requires future research to resolve (Franke & Sarstedt, 2019; Hamid *et al.,* 2017). The HTMT criterion has great sensitivity and specificity for discovering discriminant validity difficulties.

Sixteen of the 20 measurement elements are corroborated by means of the indicators loading, internal consistency, convergent validity, and discriminant validity. The embedded two-stage approach is then used to reduce the ERM second-order model to a first-order model. This is to make the model parsimonious and circumvent the use of higher-order models. This is done by saving the latent variable scores of the five lower-order constructs in the model as new variables to the data set. The five lower-order constructs are then estimated as definite items that take each construct's latent variable scores from the prior phase. Thus, ERM is estimated as a multi-item involving five measurement indicators.

3.3 Risk Culture Measurement

The loadings of the indicator variables, RTR1 (Distinct Tone at the Top), RCS2 (Visible Internal Controls) and RCS4 (Encouragement & Development of Risk Skills) are lower than 0.708 (Figure 2). RCS4 with a lesser loading of 0.636 was omitted. Keeping RCS2 gives three indicators to estimate the latent variable Risk Skills, with an AVE of 0.606 before deletion. The RTR1 associated with Risk Leadership construct was dropped to have four measurement indicators for the construct. With this, the AVE of the construct Risk Leadership improves from 0.580 to 0.595 and Risk Skills from 0.606 to 0.720.
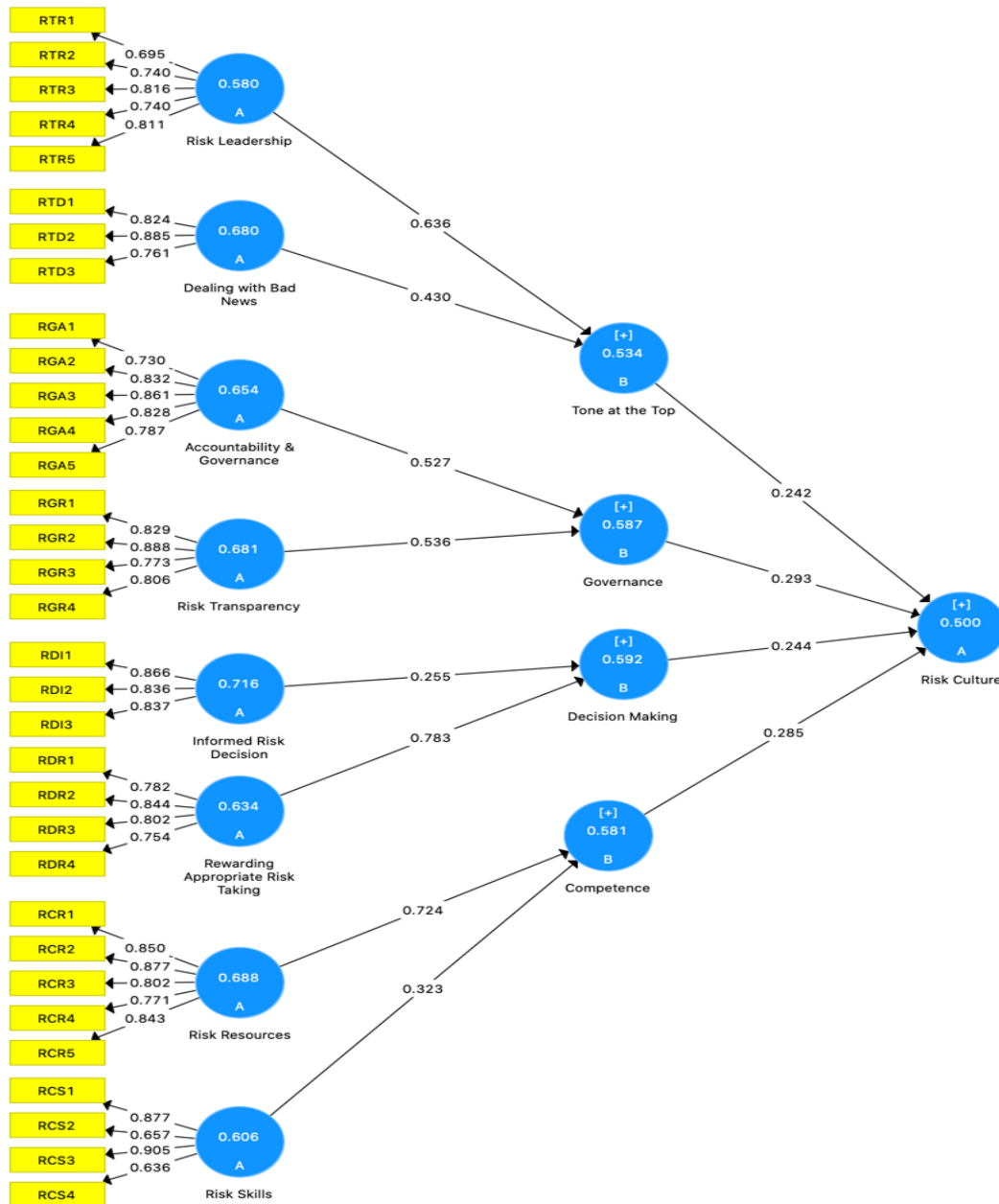
Figure 2. Risk Culture Measurement Model

The measures of internal consistency reliability lie between 0.700 and 0.950. These results are good and acceptable (Hair *et al.*, 2019). Convergent validity issues are absent since the AVE for all first, and second-order constructs in the outer model before and after the deletion of poorly loaded indicators are greater than 0.50 (Hair *et al.*, 2019). Apart from Rewarding Appropriate Risk-taking with Risk Leadership and Risk Resources, which are marginally higher, the AVE's square root for each first-order construct exceeds the correlation involving the constructs. These three first-order constructs are not empirically different in the model and may estimate similar thing to some respondents. Except RCS2 linked to the construct Risk Skills, the cross-loading results suggest that each measurement item correlates poorly with all other constructs except the one to which it is theoretically associated. This confirms the absence of discriminant validity issues (Gefen & Straub, 2005). Out of the twenty-eight

HTMT results, eleven are above the 0.900 limit. This is likely due to the supposedly comparable constructs in the model. Nine items have HTMT results slightly above one. It is reasonable to accept that discriminant validity problems between latent variables are not very serious (Hair *et al.*, 2017; Henseler *et al.,* 2016).

The scores of the four second-order latent variables are saved and added as new variables to the data set according to the embedded two-stage approach. The higher-order model is thus avoided in further analysis with risk culture estimated with multi-items, as suggested for abstract concepts (Hayduk & Littvay, 2012).

3.4 Strategic Planning Measurement

Sax & Andersen (2019) measured strategic planning using the Boyd & Reuning-Elliot (1998) model, that is established on seven planning indicators. Boyd & Reuning-Elliot (1998) failed to find a higher-order factor model that would comprise of at least one first-order factor, that is made up of various indicators. Strategic planning is therefore estimated as a first-order model, with measurement indicators confirmed in the mediation model (Figure 3). The indicator variables, SP2 (Trend Analysis), SP5 (Annual Goals), and SP6 (Short-Term Action Plans), are lower than the 0.708 limit and were contemplated for omission. Strategic planning concerns the formulation of long-term plans. SP5 and SP6 were therefore dropped since their values are lower than that of SP2. The deletion of these two indicators caused an improvement in AVE from 0.491 to 0.562, a result higher than the 0.50 limit. The result is considered good and acceptable (Hair *et al.*, 2019).
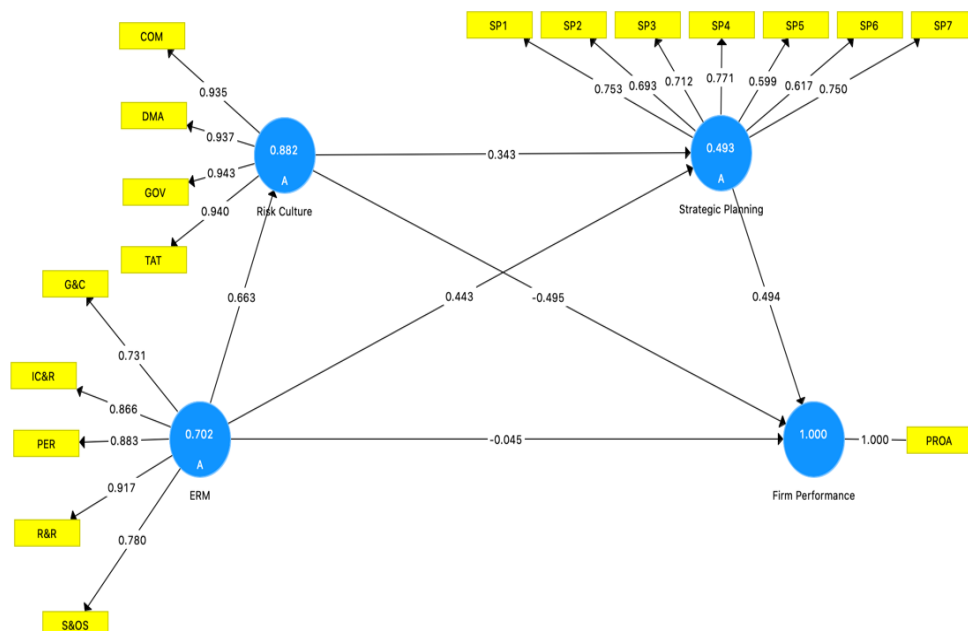

Figure 3. Multiple Mediation Measurement Model

3.5 Measurement of Firm Financial Performance

Consistent with previous research, the outcome variable (firm performance) is estimated as

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the ratio of the end of financial year net income to total assets (Sax & Andersen, 2019; Şenol & Karaca, 2017). The net profit of firms that seek upside potentials and circumvent negative lower-tail results is likely to improve if they implement adequate risk management and strategic planning programs.

4. Empirical Results and Discussions

4.1 Empirical Results

The direct path **ERM -> Risk Culture -> Strategic Planning -> Firm Performance** in the model investigates how ERM causally influences all two mediators with firm performance modelled as causally influenced by strategic planning. The ERM -> Firm Performance path in the model exhibit a weak and insignificant relationship ($\beta = -0.077$, t-value < 1.960, p-value > 0.05, and zero is within the lower and upper confidence intervals) (Table 3 and Figure 4).

Table 3. Path Coefficients of Model

| Path	Coefficient	p-values	t-values	2.5% CI	97.5% CI
ERM -> Firm Performance	-0.077	0.473	0.718	-0.283	0.148
ERM -> Risk Culture	0.664	0.000	11.977	0.552	0.766
ERM -> Strategic Planning	0.498	0.000	5.085	0.318	0.704
Risk Culture -> Firm Performance	-0.484	0.020	2.374	-0.768	-0.007
Risk Culture -> Strategic Planning	0.314	0.012	2.519	0.051	0.529
Strategic Planning -> Firm Performance	0.505	0.005	2.814	0.093	0.778

5 000 bootstrap samples, BCa, two-tailed, α = 0.05
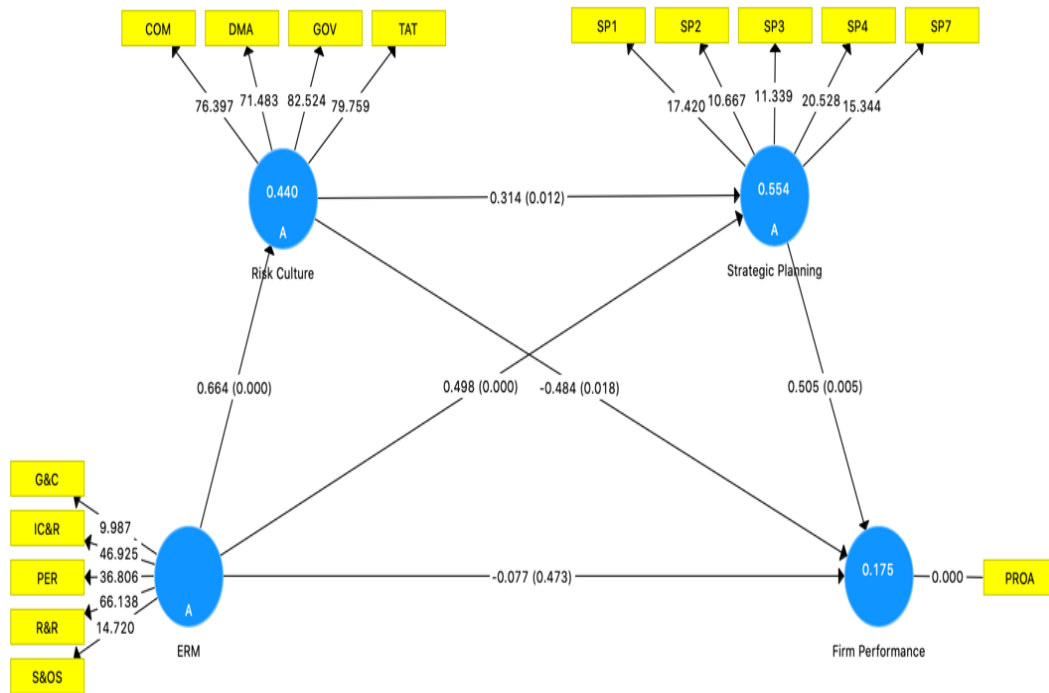
Figure 4. Multiple Mediation Structural Model

4.2 Discussion of Empirical Results

Risk culture is found to mediate the relationship between ERM and strategic planning, and ERM significantly correlates with strategic planning (Table 4). The specific indirect effect of risk culture is significant and positive (β = 0.208, p-value = 0.011, t-value = 2.529). The indirect path is significant, as is the direct path (β = 0.498, t-value > 1.960, p-value < 0.05) with both paths being positive. The mediation is Complementary with evidence for the hypothesised mediator, although there is a likelihood of an omitted mediator in the direct path (Zhao *et al.*, 2010). The theoretical framework is incomplete, and one should consider the inclusion of another mediator in the direct path. Empirical evidence also shows that strategic planning mediates the relationship between risk culture and firm performance. The indirect path is significant and positive (β = 0.158, 0.041-0.377 CI). Risk culture has a significantly negative relationship with firm performance. The indirect and direct paths are significant, a case of Competitive mediation with evidence for the hypothesised mediator provided (Zhao *et al.*, 2010). The theoretical framework is incomplete, and a possible mediator in the direct path is worth considering. Risk culture mediates the relationship between the ERM and firm performance. The specific indirect effect is -0.321, which is significant (p-value = 0.023, t-value = 2.278). The relationship between ERM and firm performance is insignificant and negative (β = -0.077, t-value < 1.960, p-value > 0.05). This is a case of Indirect Only mediation. These results provide evidence that risk culture mediates the relationship between ERM and firm performance.

Table 4. Specific Indirect Effects

Path	Coefficient	p-values	t-values	2.5% CI	97.5% CI
ERM -> Risk Culture -> Firm Performance	-0.321	0.023	2.278	-0.571	-0.035
ERM -> Strategic Planning -> Firm Performance	0.251	0.017	2.384	0.063	0.474
Risk Culture -> Strategic Planning -> Firm Performance	0.158	0.051	1.949	0.041	0.377
ERM -> Risk Culture -> Strategic Planning -> Firm Performance	0.105	0.049	1.968	0.028	0.255
ERM -> Risk Culture -> Strategic Planning	0.208	0.011	2.529	0.036	0.357

5,000 bootstrap samples, BCa, two-tailed, α = 5%

The model also provides evidence that strategic planning mediates the relationship between ERM and firm performance. The specific indirect effect ($\beta = 0.251$, t-value > 1.960, p-value < 0.05) is significant with the direct effect being insignificant, a case of Indirect Only mediation. The path ERM -> Risk Culture -> Strategic Planning -> Firm Performance has a specific indirect effect of 0.105, which is significant and positive, with a total indirect effect of 0.035. The ERM -> Firm Performance (direct path) of this model has an insignificant relationship. This is a situation of an Indirect-Only mediation. The empirical results provide evidence that risk culture and strategic planning transmit the positive effects of ERM on firm financial performance. These two mediators are consistent with the theoretical framework, with proof provided for the non-omission of a mediator (Zhao *et al.*, 2010).

4.3 Robustness Analysis

4.3.1 Model Measures of Fit

The estimated squared root mean residual of the model is 0.067. This is below 0.080, signifying a suitable model fit (Henseler & Sarstedt, 2013). The squared Euclidean distance ($d_{ULS} = 0.538$) is marginally higher than the 99% confidence interval ($HI_{99} = 0.531$), indicating that the model has a relatively poor fit. The geodesic distance ($d_G = 0.256$) is less

than the higher limit of the 95% confidence interval (HI_{95} = 0.283), indicating a satisfactory to good fit (Dijkstra & Henseler, 2015).

4.3.2 Common Method Bias

The likelihood of common method bias exists since the data for the independent and mediating variables were collected from a single source. Procedurally, this was treated by guaranteeing respondent privacy, the existence of no correct or incorrect response, and the choice to omit any question considered uncomfortable. A complete collinearity evaluation at the factor level and with all variables serving independently as the explained variable has inner VIF values less than 3.3 (Table 5). This confirms that the model is free from common method bias (Kock, 2015).

Table 5. Constructs Inner VIF values

Construct	ERM	Firm Performance	Risk Culture	Strategic Planning
ERM	-	1.377	2.059	1.795
Firm Performance	1.207	-	1.064	1.066
Risk Culture	2.025	1.871	-	1.875
Strategic Planning	1.973	1.687	2.096	-

4.3.3 Control Variables

The study supports the hypothesis that older firms are less profitable {β = -0.086, (-0.198, 0.059) confidence intervals}, Table 6. This result is different from the conclusions of Sax & Andersen (2019), who discovered an insignificant positive correlation, and the findings of Donkor *et al*. (2018), Mallinguh, *et. al.,* (2020) who established that firm age has a meaningful positive relationship with firm performance. This study supports the findings of Pervan *et al.* (2017) that older firms are less profitable. As a business grows, its current plans may need alteration, and innovative plans developed to meet the challenges in the business environment. Older firms are more likely to continue implementing the same old strategies as they fear future precariousness. This makes them myopic and content. They do not implement innovative products and strategies. This diminishes their financial performance. Thus, a firm's financial performance is independent of its age.

Table 6. Control Variables Path Coefficients

Path	β	2.5% CI	97.5% CI
Firm Age -> Firm Performance	-0.086	-0.198	0.059
Firm Size -> Firm Performance	0.100	0.004	0.352
Growth Rate -> Firm Performance	-0.167	-0.440	0.258
Financial Leverage -> Firm Performance	-0.126	-0.442	-0.028

Firm size improves meaningfully with the level of financial performance in the anticipated direction. The correlation is discovered as positive and substantial {β = 0.100, (0.004, 0.352) confidence intervals}. This suggests that larger firms are more rewarding in terms of return on assets than smaller firms. This conclusion opposes that of Ali *et.al.* (2019), Sax & Andersen (2019), who found the connection to be direct but not significant, and other academics who established a substantial indirect association between the two variables (Abdullah *et al*., 2017; Lechner & Gatzert, 2017). The study findings support those of (Anton, 2018; Şenol & Karaca 2017). Larger firms are more rewarding than their counter parts because they have greater access to capital markets, state support, economies of scale, and scope.

The correlation between growth rate and firm performance is not significant. The path coefficient is strong and negative {β = -0.167, (-0.440, 0.258) confidence intervals}. The findings provide empirical support for previous studies (Bohnert *et al*., 2018; Li *et al*., 2014), but contrary to (Abdullah *et al*., 2017 and Şenol & Karaca, 2017), who found a significant relationship. The financial performance of firms that embrace the right strategic decisions related to net present value projects increases because of the anticipated sales growth. As firms continue to grow, the need for additional financial resources to meet these growth opportunities increase. The increase in debt and its associated risks lowers the financial performance of these firms.

This study did not provide support to the findings of Ali *et.al.* (2019); Bohnert *et al*. (2018) and Lechner & Gatzert (2017). They did not find a strong correlation between a firm's financial leverage and its performance. Also, this research did not support Anton (2018) and Li *et al*. (2014) who revealed a remarkable and positive association between financial leverage and firm performance. The current study corroborates the findings of Sayilir & Farhan (2017) and Şenol & Karaca (2017) that financial leverage has an indirect but meaningful correlation with firm performance {β = -0.126, (-0.442, -0.028) confidence intervals}. Financial distress and default are likely to increase when a firm borrows for additional asset acquisition, though new investment opportunities can be created through

additional net present value projects. If such firms entirely and successfully execute an ERM program, they should minimise their financial distress and outside financing costs. Lesser levels of financial leverage can improve firm performance by reducing free cash flow, which can most possibly be invested in sub-optimal projects by self-centered management.

4.3.4 Model Predictive Power

When all control variables are omitted, the R^2 and adjusted R^2 for the explained variable are 0.175 and 0.157, respectively. With their inclusion, R^2 and adjusted R^2 are 0.206 and 0.165, respectively. The effect size is estimated as small, 0.04 (Chin, 1998) with an improvement in R^2. The coefficients of determination (R^2) for strategic planning and risk culture are 0.554 (p < 0.005) and 0.440 (p < 0.005), respectively, indicating that ERM has a high and significant predictive capability for both constructs.

5. Conclusion, Contribution, and Future Research

In line with prior findings, Agustina & Baroroh (2016), Li *et al.* (2014), the study provides evidence that ERM implementation and firm performance are not significantly associated. The propositions of KPMG (2018), COSO (2017), and ISO 3100 (2018), that risk culture is fundamental for effective ERM implementation, is empirically supported by the study findings. Empirical evidence of a significant direct relationship between risk culture and strategic planning has also been established. The findings of a direct relationship between strategic planning and firm performance support the findings of Chavunduka *et al.* (2015), Donkor *et al.* (2018), Namada *et al.* (2017) and Kyläheiko *et al.* (2016). The positive effects of ERM on firm performance are empirically determined to be mediated by risk culture and strategic planning. This finding supports an integrated approach in implementing ERM, risk culture and strategic planning in organisations if the objective is to enhance performance. Firm performance is significant when ERM is established in sound risk culture and incorporated into the strategic planning stage. This is because ERM and strategic planning do not function correctly without a risk-aware culture. ERM can review, inform, monitor, and measure risk but cannot control, decide, or abort management's role.

The ERM and risk culture measures provided advanced research that is less dependent on public information and construed dichotomous variables. This study responds to calls to synthesise the literature on risk management and strategic management (Bromiley *et al.*, 2015), investigates ERM across different industries (Baxter *et al.*, 2013), and analyses the effects of specific firm practices (Bromiley & Rau, 2014). It also answers to calls for management researchers to involve more in risk management research (Bromiley *et al.*, 2015) and the advancement of multiple mediation studies (Preacher & Hayes, 2008). The adoption of PLS-SEM in risk and strategic management literature has also advanced.

The sample size may impact the level to which these discoveries may be generalised to other developing markets. In addition, firms have been studied within industries with the possibility to reduce the direct effects of the researched variables on firm performance. How the firm's leadership and employees implemented the frameworks used in the study are not taken into

consideration. Firm performance is proxied by return on assets, while there are other accounting and non-financial measures. Therefore, further research is required in these directions.

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Conflict of Interest

None

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Appendix A Constructs Internal Consistency

Construct	α	ρ_A	ρ_c	AVE
Governance & Culture	0.742	0.740	0.854	0.661
Information, Communication & Reporting	0.796	0.806	0.881	0.712
Performance	0.822	0.829	0.882	0.652
Review & Revision	0.817	0.822	0.892	0.733
Strategy & Objective Setting	0.755	0.762	0.860	0.672
ERM	0.892	0.902	0.922	0.703
Strategic Planning	0.806	0.816	0.865	0.562

Appendix B HTMT RESULTS

Construct	Result	2.5% CI	97.5% CI
IC&R -> G&C	0.712	0.493	0.910
PER -> G&C	0.694	0.477	0.873
PER -> IC&R	0.855	0.744	0.959
R&R -> G&C	0.761	0.560	0.953
R&R -> IC&R	0.941	0.860	1.009
R&R -> PER	0.943	0.826	1.047
S&OS -> G&C	0.609	0.380	0.841
S&OS -> IC&R	0.705	0.532	0.863
S&OS -> PER	0.800	0.608	0.956
S&OS -> R&R	0.843	0.655	1.003
Firm Performance -> ERM	0.112	0.039	0.223
Strategic Planning -> ERM	0.819	0.697	0.920
Strategic Planning -> Firm Performance	0.158	0.068	0.259

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