Conceptual Enterprise Risk Management Framework for Small and Medium Construction Enterprise

Isah, Bishir Malumfashi.[1]; Usman, Yunusa Kofar-Sauri.[2];
Abdulrazaq, Mustapha.[3]; Musa-Haddary Y. G.[4]; Ahmadu, A. Hassan.[5]

[1,2]Department of Quantity Surveying, Hussaini Adamu Federal Polytechnic, Kazaure, Nigeria
[3,4,5]Department of Quantity Surveying, Ahmadu Bello University, Zaria, Nigeria

ABSTRACT

Small and Medium Enterprises (SMEs) constitute significant portions of the economy in both developed and developing countries and SMEs are the biggest contributors to employment across countries and this contribution is greater in low-income countries than the higher income ones., Most of the frameworks for managing risks focus on large scale businesses where well establish systems and processes are in place plus risk management expert on duty. The study adopted a quantitative approach to assess relevant ERM framework constructs and SMEs variables to develop conceptual ERM framework for SMEs. The research was conducted by examining literature followed by field survey. The aim of the study is to develop a Conceptual Enterprise Risk Management (ERM) framework for construction SMEs with the view to enhance their risk management effort. ERM framework constructs and SMEs organizational structure variables were identified through literature review. The data was collected using structured questionnaire. Similarly, the study employs Mean(M), Standard Deviation(SD), Factor Analysis (FA) and Structural Equation Modelling(SEM) methods of analysis was used to analyzed the collected data. A comprehensive list of 11,904 Construction Small and Medium Enterprises (SMEs) were obtained from Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) with a sample size of 371. The study identified sixteen (16) ERM framework variables and thirteen (13) SMEs organizational structure variables. The research provides an understanding of ERM framework constructs as ERM Process, ERM Control, ERM Context and construction SMEs organizational structure variables as Lower Management, Middle Management, Top Management The conceptual framework developed expressed the relationship between ERM framework constructs and SMEs Organizational Structure Constructs.

1. INTRODUCTION

The relevance of enterprise risk management is increasing (Brustbauer, 2016; Chimwai & Munyanyi, 2019; Gordon et al., 2009), as a result of enterprises are confronted with a rising dynamic, complex, and uncertain environment (Davis et al., 2009; McMullen & Shepherd, 2006; Slagmulder & Devoldere, 2018). In order to meet these challenges, enerprises should be aware of possible threats and opportunities or, in other words, of the two sides of risks (De Araújo Lima et al., 2020), as it can contribute to the development of a business strategy, maintain competitiveness, reduce losses, promote the exploitation of opportunities, and improve the enterprise's performance (Brustbauer, 2016; Gordon et al., 2009; McShane, 2018). However, numerous studies on risk management in large enterprises exist (Golshan & Rasid, 2012; Lundqvist & Vilhelmsson, 2018; Tahir & Razali, 2011), little is known about enterprise risk management in SMEs (Dana et al.,

2021; Hiebl et al., 2019; Mitter et al., 2020; Naldi et al., 2007).

Similarly, the effect of globalization on small and medium enterprises (SMEs) has received much more attention than the other enterprise types in international circles because the SMEs make significant contributions to the economy of both developing and developed countries. Globally, SMEs are the biggest contributors to employment across countries and this contribution is greater in low-income countries than the higher income ones. SMEs with 250 employees or fewer generate 86% of the jobs. Their contribution is higher (93%) in the countries that had a net positive job creation across all firms in the country (Ayyagari, 2011). SMEs are the backbone of the European economy with 20.7 million firms accounting for more than 98% of all enterprises, 67% of total employment and 58% of gross value added (European Commission, 2012). In low-income countries, the SME sector makes a critical contribution to GDP and employment (Dalberg, 2011).

Furthermore, SMEs are the most widespread enterprise form worldwide and generate a significant contribution to economic output (Hiebl, 2014; IFERA, 2003; Jocic et al., 2021; McConaughy et al., 2001). However, the failure rate among SMEs is high (Boyle & Desai, 1991; European Commission, 2018) and enterprise risk management should accordingly possess a great relevance. Numerous studies on risk management in large enterprises exist (Golshan & Rasid, 2012; Lundqvist & Vilhelmsson, 2018; Tahir & Razali, 2011), little is known about enterprise risk management in SMEs (Dana et al., 2021; Hiebl et al., 2019; Mitter et al., 2020; Naldi et al., 2007). And risk management of SMEs differs from that of large enterprises; for instance, available resources (financial and human) are often limited (Brustbauer, 2016; Falkner & Hiebl, 2015; Marcelino-Sádaba et al., 2014), instruments are designed for large enterprises and are too complex for SMEs (Pereira et al., 2015), and risk management is often informal or little formalized (Faghfouri et al., 2015; Gao et al., 2013). The research aim at developing conceptual ERM framework for construction SMEs.

2. Literature Review
SMEs form a significant portion of the global economy, especially in developing countries but faces excessive financial barriers which keep them from developing. The costs and risks of serving SMEs are frequently perceived to be too high by commercial finance. Microfinance loans, on the other hand, are too small to meet SME capital needs. These result in SMEs to face a financing gap. Financing for SMEs is limited, particularly when compared to commercial debt for large firms and microfinance (World Bank, 2008). Financial constraints are greatest in low-income countries. The World Bank Enterprise Surveys reveal that, in low-income countries, on average 43% of businesses with 20 to 99 employees rate access to finance or cost of finance as a major constraint to current operations. In high income countries, only 11% of businesses of the same size rate access to finance as a constraint (International Finance Corporation, 2013). Access to finance is rated as major constraint by around 30% of small and medium enterprises, a similar proportion as economic policy uncertainty and corruption. Further, financing is one of the few characteristics of the business environment that – together with crime and political instability - is robustly linked to firm growth, while other features have at most an indirect effect on firm growth (Ayyagari, et.al. 2006). Financing obstacles in small firms are reported to have almost twice the effect as obstacles in large firms. This might be due partly to a lack of other financing sources, and partly because it hinders SMEs from taking advantage of economies of scale. Production technologies follow a step function, and that credit might be needed for SMEs to make the jump to the next step (Thorsten, 2007).

Furthermore, Olokoyo (1999), reveal that SMEs are characterised by the organizational structure, the company registration grade, the number of skilled and unskilled labour, the number of full-time employees, the average annual turnover, collected company worth, year of establishment, year of incorporation, coverage of operation, area of specialisation, sources of project finance, sources of equipment, major client of the enterprises, tendering procedure for securing contracts, and procurement method adopted by these enterprises.

However, several researchers have identified a link between ERM practice and SMEs performance (Rehman and Anwar, 2019; Callahan and Soileau, 2019; Yang et al., 2018). This was created in response to the perceived shortcomings of traditional risk management (Ade et al., 2020). According to Rehman and Anwar (2019), ERM can assist SMEs in reducing the considerable losses that may arise as a result of risk management failure (Rehman and Anwar, 2019). It is supported by Ade et al. (2020), who found that enterprise risk management impacts the survival of SMEs in Lagos State (Ade et al., 2020). Enterprise risk management is being used by a growing number of businesses because it has been shown to boost a company's worth (Sutan Maruhun et. al., 2018) and enhance the performance of SMEs (Callahan &

Soileau, 2017). And an ERM practice can be achieved through well-articulated Framework (Defikpaku, 2011). Defikpaku (2011), further, defined ERM framework as a specific set of functional activities and the associated definitions that define the ERM system in an organization and its relationship with the organizational structure.

2.1. Relationship Between ERM framework and Organizational Structure

Literature established a relationship between risk management process and organizational structure. Smith (1999), emphases that the management of risk is a continuous process and should span all the units/departments in an organization. Similarly, Renault et al., (2016) encourage the needs to embed ERM in to the organizational structure to ensure its alignment with organizational success through the enhancement of consistent risk informed and evidence based strategic decision making process. Adeleke et al., (2016), described organizational structure as an important influencer of ERM, described as a 'robust tool'.

Furthermore, Hoyt & Liebenberg (2011), and Zhao et al., (2013), stressing the need for an enterprise –wide approach to risk management to aligned with organizational strategy and designed to build an array of risks by assembling individual risks from diverse organizational sources and levels, through managing them within a framework of an integrated organizational risk portfolio where interaction and /or interdependences between risks from all business units and across all organizational level is ascertained and built in to the overall risk management process. Similarly, ISO 31 000 (2018), encourages the development of a policy documents which clarify the role and responsibility of all parties involves in risk management process. Also expresses the important of embedding the risk management process in to the organizational structure, processes, objectives, strategy and daily operation of an enterprise.

3. Methodology.

The study adopted a quantitative approach to assess relevant ERM framework constructs and SMEs variables to develop conceptual ERM framework for SMEs. The research was conducted by examining literature followed by field survey. The structured questionnaire instrument of data collection was adopted in the research and has been recognized as the best instrument for data collection due to cost-effective (Gravetter and Forzano, 2012) and widely used by researchers in the field of risk management (Hwang et al., 2013; Liu et al., 2011; Wang et al., 2004; Zhao et al., 2013). Thus, questionnaires were designed to collect data in this research.

ERM framework constructs and SMEs organizational structure variables were collected from literature for the purpose of measuring their relationship in ERM practice through rating the extent of relevance to adopt ERM Framework Constructs to Construction SMEs Organization in ERM practice using Likert-type scale of 7 points (1-Absolutely in relevance, 2-In, 3-Slightly inappropriate relevance, 4-Neural, 5-Slightly relevance, 6-Relevance, 7-Absolutely relevance). The seven-point scale was recommended in the Likert-type Scale under relevance because it produce better dispersion than the three: point or five: point scale (Curtis and Carey, 2012).

In the main survey, the questionnaires were administered to 421 construction SMEs professionals. The returned questionnaires were sorted out for completeness and 121 were returned but only 115 were found adequate for data analysis, representing 31% (Akintoye, 2000; Hwang et al, 2016),

Thirty-four (34) ERM framework variables were identified through literature review and were synthesis and validated through mean and standard deviation to achieved sixteen (16) constructs. The ERM framework variables were regarded as actions to be performed by the construction SMEs organizational structure constructs. The variables or actions are Establish Context (EC), Objective Setting (OS), Commitment of Senior Management (CSM), Risk Appetite and Tolerance (RAT), Risk Management Resources (RMR), ERM Integration (ERMI), ERM Function (ERMF), ERM Aware Culture (ERMA), Risk Management Policies and Principles (RMPP), Risk Identification, Analysis and Response (RIAR), ERM Ownership (ERMO), Chief Risk Officer (CRO), Training and Program (TP), Leveraging Risk as Opportunities (LRO), Formalized Key Risk Indicators (FKRI), and ERM Monitor, Review and Improvement of ERM Process (ERMM).

Similarly, thirteen (13) SMEs organizational structure constructs were identified through intensive literature search and validated through mean and standard deviation, these variables were Audit (A), Chief Executive Officer (CEO), Design Team (DT), ERM Director (ERMD), Financial Team (FT), Human Resources (HM), Information Technology (IT), Legal Team (LT), Marketing (M), Managing Director (MD), Project Director (PD), Quality Manager (QM), and Supply Chain Manager (SCM). Both thirteen (16) ERM framework variables and sixteen (13) SMEs organizational structure construct were analysed using descriptive and inferential statistics as below.

3.1. Descriptive Statistics

The study utilised tables for data presentation. To achieve the study's objectives, the ERM framework

constructs and SMEs organizational structure variables were identified, based on an extensive literature review. Mean Item Score (MIS) and Standard Deviation were used to rank both ERM framework constructs and SMEs organizational structure variables on a 7-point scale, with 1 indicating "Absolutely irrelevant" and 7 indicating "Absolutely relevant". The formula for computing the Mean Score used to identify the relevant on a seven-point Likert Scale is given by Equation 2.

Mean Score = $\sum f(x) / \sum f$ _____ (2)

Where; f = Number of respondents for the attribute rated scale (1, 2, 3, 4,5,6,7)

x = Observed Value or rated scale (1, 2, 3, 4, 5, 6, 7)

f(x) = Product of number of respondents for attribute rated scale and observed value

$\sum f(x)$ = Number of respondents for the attribute rated on scale used

$\sum f$ = Total number of Respondents

Table 3.1: gives the decision rule adopted to determine the level of agreement of ERM framework constructs and SMEs organizational structure variables

Table 3.1: Rule of Thumb

SCALE	MEAN SCORE	REMARKS
1	0.0 to 1.49	Absolutely irrelevant
2	1.5 to 2.49	Irrelevant
3	2.5 to 3.49	Somewhat irrelevant
4	3.5 to 4.49	Neither relevant or irrelevant
5	4.5 to 5.49	Somewhat relevant
6	5.5 to 6.49	Relevant
7	6.5 to 7.49	Strongly relevant

Source: Field Survey (2022)

3.2. Inferential Statistics

Inferential statistics are mathematical methods that employ probability theory for deducing (inferring) the properties of a population from the analysis of the properties of a data sample drawn from it. It is concerned also with the precision and reliability of the inferences it helps to draw (Business Directory Online, 2014). The types of inferential statistics used in the study were Factor Analysis.

3.2.1. Factor Analysis

According to Garrett-Mayer (2006), factor analysis is a data reduction tool that eliminates redundancy or duplication from a set of correlated variables. It is commonly used to obtain a small set of uncorrelated variables from a large set of correlated variables and to create indexes with variables that measure similar concepts. Factor analysis is often used by researchers involved in the development and evaluation of tests and scales. It can also be used to reduce a large number of related variables to a more manageable number before using them in other analyses such as multiple regression or multivariate analysis of variance. The received data were coded with IBM SPSS Statistics version 27 for Factor Analysis (FA) for the purpose of reducing ERM framework constructs from sixteen (16) constructs to three (3) as ERM Context, ERM Process and ERM Control, while Construction SMEs organizational structure variables where also reduced from thirteen (13) variables to three (3) variables as Top management, Middle management and Lower management. Factor Analysis were used to determine how many constructs, or latent variables, or factors underlie a set of items (DeVellis, 2017). Finally, the results were interpreted based on the number of factor rotation components done by the SPSS software by checking the variables that loaded strongly on each component.

3.3. Respondents' Demographic Information

The respondents for the survey of the study are small and medium-sized construction companies (construction SMEs) in Abuja, Nigeria. The profiles of these construction companies are discussed in this section. The response rate of the respondents to the questionnaires administered is first presented before presenting a profile of the respondents in this section.

3.3.1. Response Rate

Table 3.2: Response Rate for the Study

	No. Distributed	NO. Received	No. Valid	Response Rate %
Main Survey	421	121	115	31

Source: Field Survey (2021)

Table 3.2: displays the response rate of the questionnaire survey, indicating that out of the 421 questionnaires distributed, 155 valid responses were received, resulting in a response rate of 31%, which was acceptable compared with norm of 20-30% with most questionnaire surveys in the construction research (Akintoye, 2000; Hwang et al., 2015).

3.3.2. Type of Projects

Table 3.3: Types of Projects

	Frequency	Percent	Valid Percent	Cumulative Percent
Building	62	53.91	~~53.91~~	53.91
Road	49	42.6	42.6	96.51
Railway	1	0.86	0.86	97.37
Heavy Engineering	3	2.61	2.61	100
Others				
Total	115			

Source: Field Survey (2022)

Table:3.3 displays the type projects handles by the respondents, which indicate that 72% handles building and road projects

3.3.3. Rank/Position in the Enterprise

Table 3.4: Rank in the Enterprise

	Frequency	Percent	Valid Percent	Cumulative Percent
ERM Director	25	16.12	~~16,12~~	16.12
ERM Manager	69	44.51	44.51	60.63
Chief Risk Officer	61	39.35	39.35	100
others				
Total	115			

Source: Field Survey (2022)

3.3.4. Working Experience

Table 3.5: Working Experience

	Frequency	Percent	Valid Percent	Cumulative Percent
5 to 10	21	18.26	18.26	18.26
11 to 15	27	23.47	23.47	41.73
16 to 20	32	27.82	27.82	73.55
21 to 25	18	15.65	15.65	89.2
> 25	17	10.96	10.96	100
Other				
Total	115			

Source: Field Survey (2022)

3.3.5 Number of Personal in the Enterprise

Table 3.6: Number of personal in the Enterprise

Personal	Frequency	Percent	Valid Percent	Cumulative Percent
<10	7	6	6	6
<50	20	17.39	17.39	23.39
<250	75	65.21	65.21	88.6
250 and above	13	11.3	11.3	
Total	115	100		100

Source: Field Survey (2022)

Table 3.6: indicate that 66% of the respondent enterprises are SMEs.

4. RESULTS

4.1. Content Validity

Content Validity refers to the success of researchers in creating measurement items that cover the content domain of the variable being measured. The content validity of this questionnaire was based on literature review and the opinions of experts in this field (those who have ERM knowledge in SMEs). Thus, it was concluded both

ERM framework variables and SMEs organizational structure variables had content validity. According to Kuo-Feng et al., (2014), an instrument has content validity when it contains a representative collection of items and when appropriate methods were used to construct the test. It was concluded that the data collection instrument of this survey had content validity. Thus, table 4.6 and 4.7 contains factors with content validity.

4.2. Reliability Analysis

The Cronbach α value was used to test the reliability of measurement scales. As shown Table 4.1 and 4.2, the value of Cronbach α of the measurement scale is greater than the cut-off value of 0.7 (Netemeyer et al., 2003). Therefore, the measurement scales of the 16 and 13 variables are reliable.

Table 4.1: Reliability Statistics
4.1.1 Reliability Statistics for ERM framework Variables

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0 .844	0.843	16

Source: Field Survey (2021)

Table 4.2: Reliability Statistics
4.2.1 Reliability Statistics for SMEs organizational structure variables.
Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.832	.826	13

Source: Field Survey (2021)

4.3. ERM Constructs

A total of 34 variables were identified from the literature and syntheses into 16 variables as ERM framework variables. From the result, it can be seen that the ERM framework variables were reduced in to 13 variables and classified into three, where 5 (38%) are ERM Process (objective setting, ERM integration, ERM function, risk management policy and principles, risk identification analysis and response); 4(31%) ERM Context (established context; commitment of senior management; ERM awareness; risk management resources); 4 (31%) ERM Control (training and programme; formalised key risk indicators; leveraging risk operation).

Table 4.3: outlines the mean scores for the sixteen (16) ERM framework variables, ranging from 3.61 to 5.38. It can be inferred that respondents unanimously regarded these variables as significant. This aligns with Badu et al.'s (2012) assertion that a factor is deemed significant when its mean score is 3.5 or above on a seven-point Likert scale

Table 4.3.: ERM framework variables

ERM framework variables	Mean	Std. Deviation
Establish Context(EC)	5.12	1.996
Objective Setting (OS)	5.38	2.071
Commitment of Senior Management(CSM)	5.32	1.86
Risk Appetite and Tolerance(RAT)	3.61	2.319
Risk Management Resources (RMR)	4.37	2.171
Enterprise Risk Management Integration (ERMI)	4.68	2.255
Enterprise Risk Management Function(ERMF)	4.66	2.319
Enterprise Risk Management Awareness(ERMA)	5.08	1.974
Risk Management Policies and Principals (RMPP)	4.62	2.151
Enterprise Risk Management Owner (ERMO)	4.38	1.845
Chief Risk Officer (CRO)	3.74	1.839
Training and Programme (TP)	3.65	1.895
Leveraging Risk as Opportunity (LRO)	3.67	2.141
Formalized Key Risk Indicator (FKRI)	3.91	2.128
Enterprise Risk Management Monitor (ERMM)	3.84	2.191
Risk Identification Analysis and Response (RIAR)	3.75	1.866

Source: Field Survey (2023)

A total 13 variables were synthesis from the literature as SMEs organizational structure variables. From the result, it can be seen that the SMEs organizational structure variables were classified into three, where 5(38%)

are Lower Management (supply chain manager; information technology; human resources; finance team; quality management); 4(31%) Middle Management (project department; managing director; marketing; audit); 4(31%) as Top Management (ERM director; legal team; design team; chief executive officer)

Table 4.4 outlines the mean scores for the thirteen (13) SMEs organizational structure variables, ranging from 4.6 to 6.47. It can be inferred that respondents unanimously regarded these variables as significant. This aligns with Badu et al.'s (2012) assertion that a factor is deemed significant when its mean score is 3.5 or above on a seven-point Likert scale.

Table 4.4: SMEs organizational structure variables

SMEs organizational structure variables	Mean	Std. Deviation
Project Director (PD)	5.08	2.031
Enterprise Risk Management Director (ERMD)	5.88	1.383
Managing Director (MD)	6.47	0.914
Supply Chain Manager (SCM)	4.88	1.91
Marketing (M)	4.92	2.014
Information Technology (IT)	4.64	1.947
Audit (A)	4.6	2.217
Human Resources(HR)	4.93	1.847
Legal Team (LT)	5.3	2.132
Finance Team(FT)	5.2	2.138
Design Team(DT)	5.38	2.216
Quality Manager(QM)	4.89	2.216
Chief Executive Officer (CEO)	6.33	1.217

Source: Field Survey (2023)

Table 4.5: CFA Results for ERM framework variables
Rotated Component Matrixa

ITEMS	Component		
	1-ERM PROCESS	2-ERM CONTEXT	3-ERM CONTROL
OS	0.923		
ERMI	0.857		
ERMF	0.801		
RMPP	0.77		
RIAR	0.72		
EC		0.864	
CSM		0.827	
ERMA		0.749	
RMR		0.739	
TP			0.905
FKRI			0.867
RAT			0.82
LRO			0.799

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Table 4.6: CFA for Construction SMEs Organizational Structure
**Rotated Component Matrix**

ITEMS	Component		
	1-LOWER MANAGEMENT	2-MIDDLE MANAGEMENT	3-TOP MANAGEMENT
PD		0.601	
ERMD			0.62
MD		0.806	
SCM	0.734		
M		0.809	

IT	0.872		
A		0.837	
HM	0.854		
LT			0.682
FT	0.71		
DT			0.704
QM	0.689		
CEO			0.724

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 4 iterations.

4.4. Conceptual Framework.

The conceptual framework contributes to the fulfilment of the research objective, which involves analysing the relationship between ERM framework constructs and SMEs organizational structure variables using Partial Least Squares- Structural Equation Modelling (PLS-SEM). As shown in figure 1.

ERM CONCEPTUAL FRAMEWORK FOR CONSTRUCTION SMEs
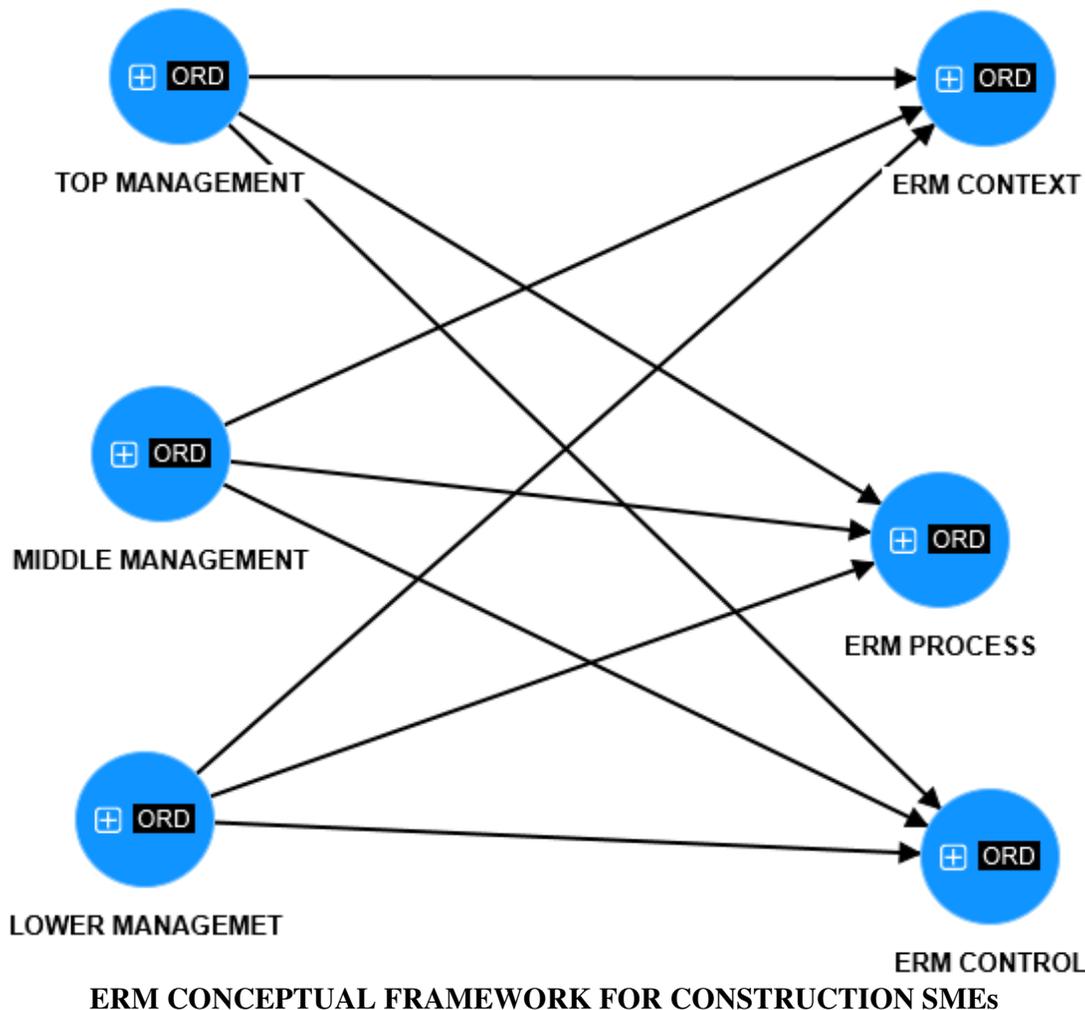
5. Conclusion

The research provides an understanding of ERM framework constructs as ERM Process, ERM Control, ERM Context and construction SMEs organizational structure variables as Lower Management, Middle Management, Top Management and also how the identified variables significantly relate to each other as hypotheses in existing literature. The study developed ERM framework for Construction SMEs.

The presented framework is currently in a conceptual stage, it needs to be applied and tested in practice.

References

[1] Ade, I., Joseph, M., & Francis, D. (2020). Enterprise Risk Management Practices and Survival of Small and Medium Scale Enterprises in Nigeria. Studies in Business and Economics, 15(1), 68–82. https://doi.org/10.2478/sbe-2020-0007.

[2] Anderson, L., (2022). Small Construction Company Organizational Structure.

[3] Adeleke, A. O., Bahaudin, A. Y.; & Kamaruddeen,. A.M. (2016). Moderating Effect of Regulating on Organizational Factors and Construction Risk Management: A Proposed Framework. International Journal of Economic and Financial Issues, Arena, M., Arnaboldi, M., & Azzone, G.(2011). Is Enterprise risk Management Real? Journal of Risk Research, 779-797

[4] AON. (2010). Global risk management survey 2010. Chicago, II : AON Corporation.

[5] Akintoye, A. (2000). 'Analysis of Factors Influencing Project Cost Estimating Practice.' Construction Management and Economics. 18: 77-89.

[6] Aabo, T., Fraser, J.R.S. and Simkins, B.J. (2005). The rise and evolution of the chief risk officer: enterprise risk management at Hydro One. Journal of Applied Corporate Finance, 17(3), 62-75.

[7] Badu, E., Edward, D.J., & De-Graft, O. (2012). Barriers to the Implementation of Innovative Financing of Infrastructure. Journal of Financial Management of Property and Construction. 17(3).

[8] Beasley, M., Branson, B ., & Pagach, D.(2015). An analysis of the Maturity and strategic Impact of investment in ERM. Journal of Accounting and Public Policy, 219-243.

[9] Brustbauer, J. (2016). Enterprise risk management in SMEs: Towards a structural model. International Small Business Journal-Researching Entrepreneurship 34: 70–85.

[10] Bowling, D.M. and Rieger, L.A. (2005). Success factors for implementing enterprise risk management. Bank Accounting & Finance, 18(3), 21-6.

[11] Brooks, D.W. (2010). Creating a risk-aware culture, in Fraser, J. and Simkins, B.J. (eds). Enterprise Risk Management, John Wiley & Sons, Hoboken, NJ, pp. 87-96.

[12] Callahan, C., & Soileau , J. (2017). Dose Enterprise Risk Management Enhance operating Performance? Advances in Accounting , 122-130.

[13] Committee of Sponsoring Organizations of Treadway Commission COSO. (2004). Enterprise risk management integrated framework, USA.

[14] Cendrowski, H. and Mair, W.C. (2009). Enterprise Risk Management and COSO. A Guide for Directors, Executives, and Practitioners, John Wiley & Sons, Hoboken, NJ.

[15] Chimwai, L., & W. Munyanyi. (2019). Risk attitude, risk perception and risk management strategies adoption in Zimbabwean small and medium enterprises. Journal of Management and Economic Studies, 1(2), 53–68.https://doi.org/10.26677/TR1010.2019.73

[16] Curtis, P., & M. Carey, (2012), Risk Assessment in practice. Jersey City, NJ: *The Committee of Sponsoring Organizations of the Treadway Commission.*

[17] Dafikphaku E. (2011). The strategic implications of enterprise risk management: a framework. Paper presented at: The 2011 Enterprise Risk Management Symposium; 2011 March 14-16; Chicago , II,.

[18] De Araújo Lima, P. F., M. Crema, & C. Verbano. (2020). Risk management in SMEs: A systematic literature review and future directions. European Management Journal, 38(1), 78–94. https://doi.org/10.1016/j.emj.2019.06.005

[19] Davis, J. P., K. M. Eisenhardt, & C. B. Bingham. (2009). Optimal structure, market dynamism, and the strategy of simple rules. Administrative Science Quarterly, 54(3), 413–452.
https://doi.org/10.2189/asqu.2009.54.3.413

[20] De Araújo Lima, P. F., M. Crema, & C. Verbano. (2020). Risk management in SMEs: A systematic literature review and future directions. European Management Journal, 38(1), 78–94. https://doi.org/10.1016/j.emj.2019.06.005.

[21] Duckert, G.H. (2011). Practical Enterprise Risk Management: A Business Process Approach, John Wiley & Sons, Hoboken, NJ.

[22] European Commission, (2012). SBA Fact Sheer 2012, Turkey, European Commission Eze, E. C., Idiake, J. E ., & Ganiyu, B. O. (2018). Analysis of Rework Risk Triggers in The Nigerian Construction industry. Organization, Technology and Management in Construction. 1778-1793.

[23] Falkner, E. Martin, R. Hiebl, W. (2015) Risk Management in SMEs: A Systematic Review of Available Evidence, The Journal of Risk Finance, Vol. 16, Issue 2, pp.122-14.

[24] Florio, C., & Leoni, G. (2017). Enterprise Risk Management and firm performance Faghfouri, P., Kraiczy, N.D., Hack, A. and Kellermanns, F.W. (2015), "Ready for a crisis? How supervisory boards affect the formalized crisis procedures of small and medium-sized family firms in Germany", Review of Managerial Science, Vol. 9 No. 2, pp. 317-338.

[25] Gao, S.S., Sung, M.C. and Zhang, J. (2013), "Risk management capability building in SMEs. A social capital perspective", International Small Business Journal, Vol. 31 No. 6, pp. 677-700.

[26] Golshan, N. M., & S. Z. A. Rasid. (2012). Determinants of enterprise risk management adoption: An empirical analysis of Malaysian public listed firms. International Journal of Social and Human Sciences, 6(2012), 119–126. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.308.6781&rep=rep1&type=pdf

[27] Gordon, L. A., M. P. Loeb, & C.-Y. Tseng. (2009). Enterprise risk management and firm performance: A contingency perspective. Journal of Accounting and Public Policy, 28(4),301–327.https://doi.org/10.1016/j.jaccpubpol.2009.06.006

[28] Gerry, D., (2001). Enterprise Risk Management: Its origins and conceptual foundation.

[29] Garrett-Mayer, E. (2006). Factor analysis. Journal of the American College of Radiology, 3 (11), 859-861. doi: 10.1016/j.jacr.2006.08.002.

[30] Gatzert, N., & Martin, M. (2015). Determinants and valve of enterprise risk management Empirical Evidence from literature. Risk management and insurance Review, 29-53.

[31] ISO 31000. (2018) Risk Management: principles and guidelines. *International Organization for Standardization*

[32] Hoyt, R. E., & Liebenberg, A. P. (2011). Evidence of the Value of Enterprise Risk Management. Journal of Risk and Insurance, 795-822.

[33] Hiebl, M. R. W., C. Duller, & H. Neubauer. (2019). Enterprise risk management in family firms: Evidence from Austria and Germany. The Journal of Risk Finance, 20(1), 39–58. https://doi.org/10.1108/JRF-01-2018-0003.

[34] Hiebl, M. R. W. (2014). A finance professional who understands the family: Family firms' specific requirements for non-family chief financial officers. Review of Managerial Science, 8(4), 465–494. https://doi.org/10.1007/s11846-013-0112-6.

[35] Hwang, S. (2010). "Identifying and Communicating Key Risk Indicators." In Enterprise Risk Management, edited by J. R. S. Fraser and B. J. Simkins, 125–140. Hoboken, NJ: Wiley.

[36] Hoyt, R. E., & A. P. Liebenberg, (2011). "The Value of Enterprise Risk Management." *Journal of Risk and Insurance 78(4): 795–822*

[37] Hwang, B. G., Zhao, X., and Yu, G. S., (2016). Risk Identification and Allocation in Underground Rail Construction Joint Ventures: 'Contractors Perspective' *Journal of Civil Engineering and Management 22: 758-767.*

[38] ISO 31000. (2009) Risk Management: principles and guidelines. *International Organization for Standardization*

[39] Jocic, M. R., M. H. Morris, & D. F. Kuratko. (2021). Familiness and innovation outcomes in family firms: The mediating role of entrepreneurial orientation. Journal of Small Business Management [Ahead–of–print], 1–33. https://doi.org/10.1080/00472778.2020.1861284.

[40] Lam, J. (2003). Enterprise Risk Management: From Incentives to Controls. Hoboken, NJ: John Wiley & Sons.

[41] Lundqvist, S. A., & A. Vilhelmsson. (2018). Enterprise risk management and default risk: Evidence from the banking industry. Journal of Risk and Insurance, 85(1), 127–157. https://doi.org/10.1111/jori.12151.

[42] Liu, J. Y., Zou, P. S., & Gong, W. (2013). Managing Project Risk at Enterprise Level: Exploratory Case Studies in china. journal of construction Engineering and Management, 1268-1274.

[43] Lechner, P. & Gartzert, N. (2017). Determinants and Value of Enterprise risk Management Emperical Evidance from Germany, the European journal of finance ,867-887.

[44] Louvey, J., (2019). Organizational Structure of a Construction Company.

[45] Marcelino-Sádaba, S., Pérez-Ezcurdia, A, Echeverría-Lazcano, A.M., & Benito Amurrio M. (2016) Definition of innovation projects in small firms": A Spanish study, R and D Management, Issue 46, pp. 36–48.

[46] Mitter, C., M. Postlmayr, & M. Kuttner. (2020). Risk management in small family firms: Insights into a paradox. Journal of Family Business Management [Ahead–of–print], 1–14.https://doi.org/10.1108/JFBM-06-2020-0051

[47] McMullen, J. S., & D. A. Shepherd. (2006). Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. Academy of Management Review, 31(1), 132–152. https://doi.org/10.5465/amr.2006.19379628.

[48] McConaughy, D. L., C. H. Matthews, & A. S. Fialko. (2001). Founding family controlled firms: Performance, risk, and value. Journal of Small Business Management, 39(1), 31–49. https://doi.org/10.1111/0447-2778.00004

[49] Naldi, L., M. Nordqvist, K. Sjöberg, & J. Wiklund. (2007). Entrepreneurial orientation, risk taking, and performance in family firms. Family Business Review, 20(1), 33–47. https://doi. org/10.1111/j.1741-6248.2007.00082.

[50] Pagach, D., and R. Warr. (2010). The Effects of Enterprise Risk Management on Firm Performance. Working Paper April 2010. North Carolina State University. https://web.actuaries.ie/sites/default/files/ermre sources/the_effects_of_enterprise_risk_manage ment_on_firm_performance.pdf

[51] Pereira, L. Tenera, A. Bispo, J., Wemans, J. (2015). A risk diagnosing methodology web based platform for micro, small and medium businesses: Remarks and enhancements. Communications in Computer and Information Science, 340 – 356.

[52] Price water house cooper (2020). Organizing a Financial Institution to Deliver Enterprise-Wide Risk Management.

[53] Renault, B. Y., Agumba, J.N., & Balogun, O. A. (2016). Drivers for and obstacles to Enterprise Risk Management in construction firms: Literature Review. Procedia Engineering, 402-408.

[54] RIMS. (2008). RIMS State of ERM Report 2008. New York: Risk and Insurance Management Society.

[55] Slagmulder, R., & B. Devoldere. (2018). Transforming under deep uncertainty: A strategic perspective on risk management. Business Horizons, 61(5), 733–743. https://doi.org/10.1016/j.bushor.2018.05.001.

[56] Simkins, B. (2008). Enterprise risk management: Current initiatives and issues Journal of Applied Finance Roundtable. Journal of Applied Finance, 18(1), 115-132

[57] Smith, N.J. (1999), *Managing Risk in Construction Project*, Blackwell Science Ltd.

[58] Tahir, I. M., & A. R. Razali. (2011). The relationship between enterprise risk management (ERM) and firm value: Evidence from Malaysian public listed companies. International Journal of Economics and Management Sciences, 1(2), 32–41. https://web.actuaries.ie/sites/default/files/ermre sources/09_ERM_and_firm_value_Malaysia.pd f.pdf.

[59] World Bank, (2008), Finance for All? A World Bank Policy Research Report, 2008, Washington.

[60] Zhao, X., Hwang, B.-G., & Low. S. P. (2013) Critical Success Factors for Enterprise Risk Management in Chinese Construction Companies. Construction Management and Economics, 1199-1214.