Factors Influencing The Adoption Of Enterprise Risk Management (ERM) Practices By Banks In Zimbabwe.

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Abstract

The purpose of this paper is to examine factors (adequacy of risk governance structure, quality of organizational culture, intensity of regulatory environment and size of the bank) influencing the adoption and implementation of ERM by banks in Zimbabwe. The study focused on a sample of 18 commercial banks operating in Zimbabwe and primary data was collected using a 5-scale Likert based survey questionnaire. Multiple Regression analysis and One-Sample t-tests using SPSS v16 were undertaken while Chi-square statistic was used to test the research hypotheses. The findings reveal that three factors namely adequacy of risk governance structure, quality of organizational structure and size of the bank have positive relationship with the adoption of ERM while intensity of bank regulation have a negative relationship with ERM adoption. Further it was noted that two predictor variables namely adequacy of risk governance structure and quality of organizational culture have a large impact on the adoption of ERM. The findings are largely consistent with findings by other researchers in this field.

Keywords: *risk governance, traditional risk management, bank failure, risk embedding, regulation, controls.*

1. Introduction

Corporate failures that occurred in the mid-1990s as well as the global financial crisis that unfolded in the US in 2007 and subsequent banking crises in many countries underscored the need for banking institutions to put in place adequate systems and controls to prevent the occurrences of such crises. Enterprise risk management emerged as the best practice approach that provided banks with means for mitigating and controlling risks giving rise to such crises.

Enterprise risk management is the holistic or integrated management of risks facing an institution. ERM was born out of the realization that banks are operating in a dynamic environment which is characterized by constant, complex and rapid changes and require a more integrated approach to risk management. Risks inherent in banks are by their nature, dynamic, fluid and highly interdependent and as such need to be managed in an integrated way.

The banking crisis that occurred in Zimbabwe between 2003 and 2005 as well as in 2012 underscored the importance of senior management taking an integrated firm-wide perspective of a bank's risk exposure (i.e. enterprise risk management), in order to support its ability to identify and react to emerging and growing risks in a timely and effective manner.

Implementing and adopting a properly functioning enterprise risk management (ERM) programme has therefore become increasingly important for banking institutions. It is therefore crucial for banks to first understand the determinants of ERM adoption so that appropriate systems and procedures can be put in place to ensure successful implementation. This study will evaluate factors influencing the adoption of enterprise risk management practices in banks in Zimbabwe.

2. Literature Review

2.1 Definition of Enterprise Risk Management (ERM)...

Risk management has evolved from a narrow, insurance based view to a holistic; all risk encompassing view, commonly termed Enterprise Risk Management (Nocco and Stultz 2006). According to Aluntas et al (2011) ERM is a process that takes a holistic view of risk management and attempts to reduce the probability of large negative earnings and cashflow by coordinating offsetting risks across the enterprise.

Enterprise Risk Management is defined by COSO (2004) as "…a process, affected by an entity"s board of directors, management and other personnel, applied in a strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity goals."

2.2 Factors Influencing Level of Adoption of ERM

There are a number of factors that influence the adoption of ERM. This study will focus on the four major determinants of ERM namely adequacy of risk governance structure, quality of organizational culture, intensity of regulatory environment and size of the bank.

2.2.1 Organizational Culture

According to Cendrowski and Mair, (2009) an organizational culture focused on risk management is *the* essential component of enterprise risk management adoption. There is a very strong correlation between taking culture into account and successful ERM implementation. According to Keeler (2008) creating a culture for risk management is the key to implementing a successful ERM system. Levy, Lamarre and Twinning (2010) define risk culture as the norms and traditions of behavior of individuals and of groups within an organization that determine the way in which they identify, understand, discuss and act on the risks the organization confronts and takes.

The permeation of risk awareness throughout the organization seems to be a critical factor for successful implementation of an ERM framework. One study (Kleffner, Lee and McGannon 2003) suggested that the adoption of ERM is unlikely to be successful if the risk management concept fails to become an ingrained part of the corporate culture.

2.2.2 Regulatory Environment**…**

The Deloitte Enterprise Risk Management Survey of 2008 noted that the primary driving interest behind implementing ERM is regulation and regulatory complexity. The increased stringency of regulatory oversight by regulatory agencies is also cited by McDonald (2008) as a major external factor that has driven the trend toward ERM. Examples include SOX disclosure regulations, Basel Accords and stepped up requirements by rating agencies for organizations to implement ERM.

2.2.3 Risk Governance Structure…

Risk governance provides the hierarchical structure, which includes the way in which the ERM roles and responsibilities are divided among individuals and groups; the organizational structure, including reporting relationships and authorities involved in ERM; and the policy and procedures documents that cover ERM.

According to Aksel (2009) and Mehta (2010) the risk governance structure of an organization is influential in the adoption of ERM as it determines how risk management will be organized in the institution. Petit and others (2005) pointed out that banks have largely settled on a model that centralizes control and policy-making and decentralizes execution and management.

2.2.4 Size of bank

According to the Deloitte Global Risk Management Survey (2006) the size and complexity of the larger institutions make ERM more important; on the other hand, their very size and complexity also make it harder to achieve an enterprise-wide view of risk. Hoyt and Liebenberg (2009) suggests that larger firms are likely to engage in ERM due to their relatively high complexity, the fact that they face a wider array of risks and their institutional size which enables them to bear the administrative cost of ERM adoption. The two researchers concluded that there was positive relationship between size and ERM adoption.

3. Research Objectives And Methodology

The main objective of this research is to determine factors influencing the adoption of ERM by banks in Zimbabwe.

The study used a mixed methods research design and focused on 18 commercial banks operating in Zimbabwe. The subjects of the study are the chief risk officers, heads /directors of risk, chief internal auditors and compliance officers from the 18 commercial banks.

Primary data was collected using a 5-scale Likert based survey questionnaire while secondary data on enterprise risk management practices of banks was obtained from desktop review of banks' annual reports, regulatory monetary policy statements, IMF Article IV consultations reports, Reserve Bank supervision annual reports and guidelines/regulations.

Factor analysis and regression were used for selecting prominent factors influencing adoption of ERM. T-tests and hypothesis testing were conducted to find the significance of the factors in the adoption of ERM. A statistical package SPSS v16 was used to carry out factor analysis, multiple regression analysis and One-Sample t-tests. Chi-square statistic was used to test the research hypotheses.

4. Findings And Analysis

This section gives an analysis that addresses the research objective of the study relating to the determination of factors influencing the adoption of ERM. The results of factor analysis which sought to identify prominent factors influencing the ERM are presented. This is followed by multiple regression and One Sample T-Test analyses to ascertain the strength, direction and significance of the relationship between the variables influencing ERM adoption.

4.1 Factor Analysis and Reliability Test

Cronbach's Alpha reliability test was conducted on the data to examine the internal consistency of the research instrument. The overall coefficient obtained was .755 which indicates a high level of internal consistency. The reliability value is, according to Nunnaly (1978), considered acceptable.

A factor analysis was conducted using SPSS v16 wherein the factors were extracted using the Principal Component Analysis and Varimax rotation method with Kaiser normalization. Six components (variables/factors) were identified with given values above 1 and these components explained 83.15% of the variance on factors influencing adoption of ERM.

In the rotated factors, the analysis indicates that a total of 15 original statements/questions had high positive loadings/values greater than 0.5 and eleven of these fitted into three components. The first component which incorporates issues pertaining to the adequacy of risk governance structure was labelled 'Risk Governance' and comprises of four (4) statements/questions with significant loadings on it. The loadings on this factor were significant ranging from .800 to .874. The second component which is factor labelled 'Size' as it addresses issues concerning the size of a bank comprises of three (3) statements/questions with significant loadings which range from .585 to .874. The third factor had only two statements/questions that loaded to it and did not satisfy the minimum of 3 required for analysis. This was the same case with components 4 and 6 which had one statement/question with significant loading apiece. These statements mainly relate to the regulatory environment. These components were excluded for analysis as they do not satisfy the minimum of three statements/questions for a factor (Kim and Mujeller 1978). The fifth component labelled 'Organisational Culture' is incorporates issues relating to culture had four (4) statements/questions with significant loadings on this variable and which range from .617 to .784.

Tables 1 show the variables identified as critical in influencing the adoption of ERM and respective loadings. The higher loadings signaled the correlation of the statements/questions with the factors on which they loaded.

4.2 The results of the factor analysis show that the first component which was labeled Risk Governance is predominant with an eigenvalue of 3.322 followed by the other components whose eigenvalues range from 1.572 to 2.509. Based on these results it can be posited that the factor Adequacy Risk Governance Structure is the most significant component influencing adoption of ERM. This factor accounted for 20.76% of the total variance explained by all the six factors. This was followed by the size of the bank and organizational culture which had eigenvalue of 2.509 and 1.852 and accounting for 15.68% and 11.58% of the total variance respectively. Table 2 illustrates the most predominant components arising from the factor analysis.

4.3 Multiple Regression Analysis – Factors Influencing Adoption of ERM

A multiple regression analysis was done with the objective of ascertaining whether or not the regression model is meaningful as well as establish which variables contribute meaningfully to the model.

Tables 3, 4 and 5 indicate the results of the multiple regression model for factors influencing adoption of ERM. The results indicate that the R-square of the model I is 0.808. This means that the model explains 80.8% of the variance in the extent of adoption of ERM (i.e. the dependent variable). In other words the four independent variables explain 81% of the variations in the adoption of ERM.

Overall the results illustrates that the model is statistically significant as evidenced by an F value of 9.446 and a p-value of 0.003 which is less than the significance level of 0.05. This indicates that the level of fitness of the model in explaining the adoption of ERM is high.

The results illustrated in Table 4.8 indicate that two predictor variables namely adequacy of risk governance structure *(t=3.064, p=0.013<0.05)* and quality of organizational culture *(t=3.806, p=0.04<0.05)* have a large impact on the criterion variable i.e. the adoption of ERM. On the other hand, the model reveals that the size of the bank *(t=1.516, p=0.164>0.05)* and the intensity of regulatory environment *(t=-0.727, p=0.486)* are not significant factors in the implementation of ERM.

Three factors namely adequacy of risk governance structure, quality of organizational structure and size of the bank have positive relationship with the adoption of ERM while intensity of bank regulation have a negative relationship with ERM adoption.

4.4 One-Sample T-Testing

A one-sample t-test was conducted using SPSS to test the whether the respective means of the four factors influencing adoption of ERM as measured by the respondents' views is the same as the mean of the population (test value 3). The results of the one-sample t-test shown in Tables 6 and 7 indicate that the sample mean of all the four variables are higher than the population mean of 3. In addition the two tailed p-value of three variables namely Risk Governance structure, Culture and size is .00 **respectively** which is below 0.05. Therefore it can be concluded, in the case of the above three factors (i.e. Risk Governance structure, Culture and size), that the sample mean and the population mean are significantly different meaning that the three factors respectively have a significant relationship with the adoption of ERM.

On the other hand, regulatory environment has a p-value of 0.084 which is bigger than 0.05 which means its relationship with ERM adoption is not significant. This implies that the regulatory environment is not a factor that is taken into account when implementing ERM. Implementation of ERM is seen as a business tool rather than a compliance tool. This is consistent with the findings of Meek (2011) who noted that ERM in the Nordic countries is driven more by company management than by regulators. Further the insignificant relationship between the intensity of the regulatory environment and ERM adoption can be attributed to the fact that there was no specific guideline relating to ERM that was issued by the Reserve Bank since 2008. Central banks are supposed to issue minimum guidelines on ERM so as to assist banks in the adoption of ERM.

4.5 Hypothesis Testing

The hypotheses were tested statistically using the Chi-square test as a test statistic based on a 0.05 level of significance (i.e. at a confidence level of 95%) and a degree of freedom of 13. The four (4) hypothesis tested in this study are analyzed hereunder.

Hypothesis 1: There is a relationship between the adequacy of risk governance structure and the adoption of ERM in banks.

The hypothesis was represented statistically as follows:

H0: There is no relationship between the adequacy/robustness of risk governance structure and adoption of ERM.

H1: There is a relationship between the adequacy/robustness of risk governance structure and adoption of ERM.

Table 8 shows that Chi-square calculated value (x^2) of 26.40 is more than the Chi-square table value (x^2) of 9.488. This means the null hypothesis is rejected and the alternative hypothesis which states that there is a relationship between adequacy of risk governance structure and the adoption of ERM in banks is accepted. This was further supported by the other results of this study namely the one sample t-test p-value of .000<.05 and the respondents' responses whose computed mean value of above 4 fall within five point Likert Scale level of agreement with statements in questions 1-5 which relate to adequacy of risk governance structure.

The ERM risk governance structure in a bank includes the policies and procedures, the ERM framework including roles and responsibilities and a number of researchers [von Kanel et al (2010), Daud, Yazid & Hussin (2011), Desender (2007), AON Survey (2010) and Keffner, Lee & McGannon (2003)] found the robustness of the risk governance structure is a critical factor in the successful adoption of ERM. The results of this study are consistent with findings of the above researchers.

Banks in Zimbabwe who have put in place the following structures have either fully or substantially implemented ERM;

a) dedicated risk executive who is considered a driver in offering risk awareness training and also ensuring that all issues pertaining to ERM are communicated to all stakeholders;
b) documented ERM policy and procedures manual which provides a roadmap as well as guidance on procedures ERM;
c) clearly delineated roles and responsibilities in respect of ERM; and
d) board involvement in setting the tone for risk, setting risk appetite and providing risk oversight across the bank.

The hypothesis that 'there is a relationship between the adequacy of risk governance structure and the adoption of ERM in banks' is therefore confirmed.

Hypothesis 2: There is a relationship between the intensity of regulatory environment and the adoption of ERM in banks.

The hypothesis was represented statistically as follows:

H0: There is no relationship between the intensity of the regulatory environment and adoption of ERM.

H1: There is a relationship between the intensity of the regulatory environment and adoption of ERM.

The results shown in table 9 illustrates that the Chi-square calculated value (x^2) of 6.94 is smaller than the Chi-square calculated value (x^2) of 9.488. This means the null hypothesis is accepted and the alternative hypothesis rejected. This analysis implies that there is no relationship between the intensity of the regulatory environment and the adoption of ERM in banks. The three elements in banking regulation namely banking laws/regulations, supervision (both onsite and offsite) and licensing are meant to ensure the safety and soundness of the banking sector. As part of achieving the above objectives, central banks are supposed to foster and promote adoption of best practices in risk management, corporate governance etc. ERM is considered the best practice and that is the reason why the world over regulators having been advocating banks to adopt it. Studies by Gates (2006), Pilkova (2010), McDonald (2008) and Deloitte (2008) found that banking regulation was a critical factor influencing implementation of ERM. The results of this study, however, were in variance to the finding of the above researchers.

In addition to the Chi-square test results, it was also observed from the one sample t-test which has a p-value of .084>.05 that there was no relationship between the intensity of the regulatory environment and implementation of ERM in banks. In addition the respondents' responses whose computed mean value of below 3 fall within the Five point Likert Scale level for those who disagreed with statements in questions 6-9 that relate to the regulatory environment further corroborate the chi-square test.

Failure by the Reserve Bank of Zimbabwe to issue specific minimum guidelines on ERM to assist banks in implementing ERM as well as failure to conduct scheduled on-site examinations could be the major reason for the level of disagreement with the hypothesis by most respondents. Further, reliance on regulatory requirements to implement ERM could lead the whole process to be tick-box compliance issue as opposed to be being a business driver.

Based on the above analysis the hypothesis that 'there is a relationship between the regulatory environment and adoption of ERM in Zimbabwean banks' is not supported.

Hypothesis 3: There is a relationship between the quality of organizational culture and the adoption of ERM in banks.

The hypothesis was represented statistically as follows:

H0: There is no relationship between the quality of organizational culture and adoption of ERM.

H1: There is a relationship between the quality of organizational culture and adoption of ERM.

Table 10 shows that Chi-square calculated value (x^2) of 26.40 is more than the Chi-square table value (x^2) of 9.488. This means the null hypothesis is rejected and the alternative hypothesis which states that there is a relationship between the quality of organizational culture and the adoption of ERM in banks is accepted.

In addition to the Chi-square test, the one sample t-test p-value of .000<.05 and the respondents' responses whose computed mean value of above 4 fall within the five point Likert Scale who are in agreement with statements in questions 6-9, confirm the quality of organizational culture as a factor influencing adoption of ERM.

One of the tenets of ERM is that everyone in the organization is a risk manager and that staff assume ownership of risk inherent in their specific roles i.e. understand the risks involved in their day to day duties. Banks who have implemented ERM in Zimbabwe have been able to develop, train and bring awareness of a culture on risk. This culture has been a driver to fully implement ERM as well as an important ingredient for achieving the full integration of risk into the operations of the bank.

The conclusions of Cendrowski & Mair (2009), Keeler (2008), Segal (2011) Kimborough & Componantion (20090, Ranong & Phuenngan (2009) and the AON Survey of 2007 were supported by the findings of this study which revealed that the quality of organizational culture influences the extent of adoption of ERM in banks. The hypothesis that 'there is a relationship between the quality of organizational culture and the adoption of ERM in banks' is confirmed.

Hypothesis 4: There is a relationship between the size of the bank and the adoption of ERM in banks.

The hypothesis was represented statistically as follows:

H0: There is no relationship between the size of the bank and adoption of ERM.

H1: There is a relationship between the size of the bank and adoption of ERM

Table 11 indicates that Chi-square calculated value (x^2) of 8.78 is less than the Chi-square table value (x^2) of 9.488. This means the null hypothesis is accepted and the alternative hypothesis which states that there is a relationship between the size of a bank and the adoption of ERM in banks is rejected.

The Chi-square test however, contradicts the one sample t-test results which indicate that size was a significant factor based on a p-value of .000<.05. This could be premised on the fact that an increase in the size of a bank or an increase in the complexity of operations results in the emergence of new and complex risks that are not inherent in small banks/operations. For example, introduction of new complex products/services and implementation of new processes lead to emergence of risks that were not originally there and hence increase the level of inherent risk. This could require banks to implement robust risk management systems such as ERM to mitigate risks arising from increased level of risk and complexity of operations. Based on the above analysis it can be concluded that the level of risk and complexity of operations of a bank influence its willingness to implement ERM.

A number of researchers had conflicting conclusions pertaining to the effect of size on the adoption of ERM. Hoyt & Liebenberg (2009), Beasley, Clune & Hermanson (2005b) and the Deloitte Survey of 2006 concluded that size was a determinant factor in the implementation of ERM while Waweru & Kisaka (2011) and Razali, Yazid & Tahir (2007) noted that the size of an organization was not a determinant of the implementation of ERM.

A comparison of the extent of the adoption of ERM and balance sheet size reveal that one large bank, two medium banks and one small bank fully implemented ERM. This confirms that there is no relationship between the size of the bank and adoption of ERM.

The hypothesis that 'there is a relationship between the size of the bank and the adoption of ERM in banks' is therefore not supported.

5. Conclusion

The study concludes that the implementation of enterprise risk management (ERM) is determined by adequacy of risk governance structure, quality of organizational culture, intensity of regulatory environment and size of the bank.

The multiple regression standard model was found fit showing significant relationship between the above four independent variables and dependent variable of ERM adoption. Consistent with prior research the study noted that the most significant independent variable was quality of organizational culture followed by adequacy of risk governance structure. In other words these two variables are strongly related with the adoption of ERM in presence of other independent variables.

These findings suggest that banks need to build a risk focused culture to ensure successful ERM implementation. The risk focused culture should be underpinned by a robust risk governance structure.

References

[1]. Aksel R, Robert Dahlstrom, Sven A. Haugland and Arne Nygaard. 2009. Governance structures in the hotel industry. Journal of Business Research, 2009, vol. 62, issue 8, pages 841-847

[2]. AON Global ERM Survey 2010 & 2008 & 2007

[3]. Beasley, M. S., Clune, R. & Hermanson, D.R. (2005). Enterprise Risk Management: An Empirical Analysis of Factors Associated with the Extent of Implementation. Journal of Accounting and Public Policy.24 (6), 521-

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

[5]. COSO, Committee of Sponsoring Organizations of the Treadway Commission. 2004. *Enterprise Risk Management—Integrated Framework*

[6]. Daud W. N, Zald and Hussein, 2010. The effect of Chief Risk Officer on Enterprise Risk Management Practices: Evidence from Malaysia. International Business and Economics Research Journal Volume 9 Number 11

[7]. Daud W,N and Yazid A, S. 2009. A conceptual Framework for the adoption of ERM in Government –linked Companies. International Review and Business Research Journal Volume 5 Number 5 p222-238

[8]. Deloitte, 2008: *Perspectives on ERM and the Risk Intelligent Enterprise,* Enterprise Risk Management Benchmark Survey

[9]. Desender K. A. 2007 On the determinants of Enterprise Risk Management Implementation. Enterprise IT Governance, Business Value and Performance Measurement, IGI Global

[10]. Gates, S. (2006): Incorporating *Strategic Risk into Enterprise Risk Management,* Audencia Nantes Ecole de Management.

[11]. Kimbrough P, L and Compronation P,J 2009. The Relationship between Organisational Culture and ERM. Engineering Management Journal Volume 21 Number 2 p18-27

[12]. Kim, J. O., & Mueller, C. W. (1978). *Introduction to factor analysis: What it is and how to do it.* Beverly Hills, CA: Sage.

[13]. Kleffner A,E Lee R and McGannon B 2003. The effect of corporate governance on the use of Enterprise Risk Management: Evidence from Canada. Risk Management and Insurance Review, Volume 6 Number 6 p53 -73

[14]. Liebenberg, A.P and Hoyt, R.E. 2003. *"The Determinants of Enterprise Risk Management: Evidence from the Appointment of Chief Risk Officers"*, Risk Management and Insurance Review.

[15]. MacDonagh, M: (2009), ERM in Asset Management, CCH Sword

[16]. Mark S. Beasley, Richard Clune, and Dana R. Hermanson. (2005). Enterprise Risk Management: An empirical analysis of factors associated with the extent of implementation, *Journal of Accounting and Public Policy*,

[17]. Mehr, Robert I. and Bob A. Hedges. 1963. *Risk Management in the Business Enterprise*. Richard D. Irwin, Inc. Homewood, IL

[18]. Mehta Sanjay (2010) *Enterprise Risk Management: Insights and Operationalisation,* Financial Executives Research Foundation Executive Report.

[19]. Mikes, A. (2005) Enterprise Risk Management in Action. Discussion Paper Published by the Center for analysis of Risk and Regulation at London School of Economics and Political Science.

[20]. Nocco, B. and Stulz, R. (2006), Enterprise Risk Management: Theory and Practice. Journal of Applied Corporate Finance, Vol. 18/4

[21]. Nunnally J. 1978.Psychometric theory. New York: McGraw-Hill;

[22]. Petit C & Daniel W & Pourquery,P. 2005. Risk, *Regulation and Return: Delivering value through ERM*. IBM Institute for Business Value

[23]. Ranong P.N and Phuenngam W (2009) Critical Success Facrors for effective risk management procedures in the financial industries: A study from the perspectives of financial institutions in Thailand. Umea School of Business.

[24]. Razali A.R, Yazid A.S and Tahir I.M. 2011. The determinants of ERM practices in Malaysia Public Listed Companies. Journal of Social and Developmental Science. Volume 1 Number 5 p202-227

[25]. Segal S. 2011. Corporate Value in ERM: The next step in business management. John Wiley & Sons Incl.

[26]. von Känel J, Abrams C, , Müller S, Pfitzmann B, S. Ruschka-Taylor S (2006), Optimized Enterprise Risk Management.

[27]. Waweru and Kisaka (2011) "The effect of Enterprise Risk Management on the Value of Companies listed in the Nairobi Stock Exchange"

Tables.

Table 1 Factor Loadings – Factors influencing Adoption of ERM Rotated Component Matrix[a]

	Component					
	1 Risk Governance	2 Size	3	4	5 Culture	6
Involvement of Board in setting tone for risk, setting risk appetite and providing risk oversight	.959					
Effectiveness of RBZ in promoting adequate ERM	.866					
Effectiveness and role played by transparency of risk communication and risk awareness training within banks	.824					
Chief Risk Officer as a critical ingredient in the implementation of ERM	.800					
A bank's size and growth rate influence the tendency to develop and implement an ERM process		.874				
Level of risk and complexities of your bank's operations impact on the willingness of your bank to implement ERM		.610				
Importance of size of the bank in terms of asset, deposit base and branch network as a driver to implementing of ERM		.585				
Bank's culture contributed to the adoption of ERM					.784	
Importance of culture as a driver to achieve the intergration of risk into operations of the bank					.733	
Infusing of risk culture into the organisation is vital for the successfull implementation of ERM					.671	
Existence of clear policy and procedure in managing ERM					.617	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 11 iterations.

(Source: Author, SPSS V16.0 - Primary Research Data)

Table 2. Most Predominant Components (Variables influencing ERM Adoption) Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1Risk Gov	4.074	25.465	25.465	4.074	25.465	25.465	3.322	20.763	20.763
2Size	2.778	17.364	42.829	2.778	17.364	42.829	2.509	15.681	36.444
3	2.254	14.091	56.920	2.254	14.091	56.920	2.176	13.599	50.043
4	1.676	10.477	67.397	1.676	10.477	67.397	1.872	11.701	61.745
5Culture	1.323	8.267	75.664	1.323	8.267	75.664	1.852	11.577	73.322
6	1.197	7.481	83.145	1.197	7.481	83.145	1.572	9.823	83.145
7	.946	5.912	89.057						
8	.765	4.782	93.839						
9	.471	2.946	96.785						
10	.206	1.289	98.075						
11	.163	1.018	99.093						
12	.105	.659	99.752						
13	.040	.248	100.000						
14	8.954E-16	5.596E-15	100.000						
15	9.807E-17	6.129E-16	100.000						
16	-2.970E-16	-1.856E-15	100.000						

Extraction Method: Principal Component Analysis.

(Source: Author, SPSS V16.0 – Primary Research Data)

Table 3 Multiple Regression Model Summary Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.899[a]	.808	.722	.27352

a. Predictors: (Constant), Size, Regulatory Environment, Culture, Risk Governance Structure

(Source: Author, SPSS V16.0 - Primary Research Data)

Table 4 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.827	4	.707	9.446	.003[a]
	Residual	.673	9	.075		
	Total	3.500	13			

a. Predictors: (Constant), Size, Regulatory Environment, Culture, Risk Governance Structure

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.827	4	.707	9.446	.003[a]
	Residual	.673	9	.075		
	Total	3.500	13			

a. Predictors: (Constant), Size, Regulatory Environment, Culture, Risk Governance Structure

b. Dependent Variable: Extent of ERM Adoption

(Source: Author, SPSS V16.0 - Primary Research Data)

Table 5 Factors Influencing Adoption of ERM –Coefficients of Correlations

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-7.725	1.625		-4.755	.001
	Risk Governance Structure	.977	.319	.505	3.064	.013
	Regulatory Environment	-.112	.154	-.108	-.727	.486
	Culture	.765	.201	.609	3.806	.004
	Size	.165	.109	.233	1.516	.164

a. Dependent Variable: Extent of ERM Adoption

(Source: Author, SPSS V16.0-Primary Research Data)

Table 6 Results - One-Sample Statistics (Factors Influencing adoption of ERM)

	N	Mean	Std. Deviation	Std. Error Mean
Risk Governance Structure	14	4.6857	.26849	.07176
Regulatory Environment	14	2.7500	.50000	.13363
Culture	14	4.4464	.38203	.10210
Size	14	3.6900	.73317	.19595

Source: Author, SPSS V16.0 (Primary Research Data)

Table 7 Results - One-Sample Test (Factors influencing adoption of ERM)

	Test Value = 3					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Risk Governance Structure	23.492	13	.000	1.68571	1.5307	1.8407
Regulatory Environment	-1.871	13	.084	-.25000	-.5387	.0387
Culture	14.166	13	.000	1.44643	1.2259	1.6670
Size	3.521	13	.004	.69000	.2667	1.1133

Source: Author, SPSS V16.0 (Primary Research Data)

On the other hand, regulatory environment has a p-value of 0.084 which is bigger than 0.05 which means its relationship with

Table 8 Chi-Square results for Risk Governance Structure

Observed	Expected	O1-E1	(O1-E1)2	(O1-E1)2/E1
10.0	2.8	7.2	51.84	18.51
3.6	2.8	0.8	0.64	0.23
0.4	2.8	-2.4	5.76	2.06
0.0	2.8	-2.8	7.84	2.80
0.0	2.8	-2.8	7.84	2.80
14.0				26.40
Degree of freedom n – 1				4
Level of significance				5%
Critical value X2 0.05 at 4 degree of freedom				**9.488**
Chi-square calculated				**26.40**

Source: Primary Research Data 2013

Table 9 Chi-Square results for Regulatory Environment

Observed	Expected	O1-E1	(O1-E1)2	(O1-E1)2/E1
0	2.8	-2.80	7.84	2.80
4.75	2.8	1.95	3.80	1.36
2.5	2.8	-0.30	0.09	0.03
5.25	2.8	2.45	6.00	2.14
1.5	2.8	-1.30	1.69	0.60
14				6.94
Degree of freedom n – 1				4
Level of significance				5%
Critical value X2 0.05 at 4 degree of freedom				**9.488**
Chi-square calculated				**6.94**

Source: Primary Research Data 2013

Table 10 Chi-Square results for Organisational Culture

Observed	Expected	O1-E1	(O1-E1)2	(O1-E1)2/E1
8.25	2.8	5.5	29.70	10.61
4.25	2.8	1.5	2.10	0.75
1.25	2.8	-1.6	2.40	0.86
0	2.8	-2.8	7.84	2.80
0.25	2.8	-2.6	6.50	2.32
14				17.34
Degree of freedom n – 1				4
Level of significance				5%
Critical value X2 0.05 at 4 degree of freedom				**9.488**
Chi-square calculated				**17.34**

Source: Primary Research Data 2013

Table 11 Chi-Square results for Size of the bank

Observed	**Expected**	**O1-E1**	**(O1-E1)2**	**(O1-E1)2/E1**
2.33	2.8	-0.47	0.22	0.08
6.67	2.8	3.87	14.95	5.34
3.33	2.8	0.53	0.28	0.10
1.67	2.8	-1.13	1.28	0.46
0.00	2.8	-2.80	7.84	2.80
				8.78
Degree of freedom n – 1				4
Level of significance				5%
Critical value X2 0.05 at 4 degree of freedom				**9.488**
Chi-square calculated				**8.78**

Source: Primary Research Data 2013