Research Article

The Effect of Enterprise Risk Governance on the Financial Performance of Ghanaian Commercial Banks

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Abstract

In an attempt to ensure that banks in Ghana are strong and safe from any risk inherent in their operational activities, the Bank of Ghana (BoG) recently embarked on a massive revamping of the financial services sector. According to financial experts, this could be a result of weak enterprise risk governance practices. However, studies in Ghana ascertaining the implications of enterprise risk governance indicators on bank performance have received little attention in the literature. This study is therefore aimed at examining the implications of Risk Management Committees (RMCs), independent RMCs, Risk Management Officers (RMO), and overall Risk Index (RI) on bank performance. The dynamic System GMM was employed for the analysis of the enterprise risk governance-bank performance relationship. Panel data from the annual reports of 14 banks spanning the period of 10 years from 2013-2022 was employed. The results suggest that the existence of RMCs sees to a better asset performance of banks. However, independent RMCs provide rigorous governance frameworks which tend to reduce excessive risk-taking behavior by banks which adversely affects bank performance. Further, RMOs present on the executive board are found to be stronger and have a powerful influence to be rigid against riskier investment projects adopted by banks during economic growth, which acts against performance of banks. Finally, banks tend to perform better when they take on riskier investment projects. This study is an attempt to certify independent RMCs, the presence of an RMO on banks' boards, and vigilance when undertaking riskier investments with respect to emerging economies like Ghana.

Keywords

Enterprise Risk Governance, Risk Management Committees, Risk Management Officers, Risk Index, Bank Performance

1. Introduction

Recent empirical literature [8-22, 36-38] have provided that banks which seek to enhance tremendously on their performance indicators are inarguably better administered banks which relies on solid risk governance practices to result in sophisticated predictable imminent cash-flow earnings. Noteworthy is the fact that [32] adapted returns on asset and

returns on equity as a significant measure of profitability and concluded that firms which had better management of assets and equity had better overall outputs. In as much as increased performance performs a very crucial function within any given financial institution, it is perceived to possess vital implications for the development forecasts of a low-cost economy and also inform decisions of current and potential investors [8]. This is an indication that banks with bad performance indicators are noticeably vulnerable to encounter uncomplimentary consequences to their performance levels which may further impact adversely on the development of the overall economy at large.

According to [4, 7], risk management within banks cannot be overemphasized as a result of its relevance towards banking operations. It is described as being the systematic way of considering the risky areas of operation and making a conscious effort to determine the best avenues to provide solution to it. It is a corporate governance mechanism which is concerned as to how best to identify the various sources of risks associated with a particular operation and uncertainty, determine its impact, and develop managerial responses which will be appropriate to tackle it. Classification of risk, identification of risk, analysis as well as responses of risk have become the systematic processes of risk management with a further division of risk response into four actions including retention, reduction, transfer and avoidance, all of which serves to improve the corporate governance processes of financial institutions [7, 16]. This premise was furthered by [34] who stipulated that the role of bank's risk management is to invent strategies necessary to ensure the maximization of the adjusted rate of return of banks and to also maintain the exposure of risks within an acceptable level. The entire portfolio of banks need an effective management of its risks inherent as well as those risks relating to the operations of banks and those relating to individual credits or transactions. The effective implementation of such systems remains vital in ensuring an effective risk management approach which is comprehensive enough and could result into a long-term success of any bank [31].

The Ghanaian banking industry performance has shown significant losses for the 2022 financial year. The recent conducted Domestic Debt Exchange Programme (DDEP) has hard-hit the Ghanaian banking industry, with 16 out of the 23 universal banks operating in Ghana recording significant losses for the year 2022. Although some banks are known to have recorded profits in the year under review, the profits that were recorded was a huge decline from what was realized in the preceding year [9]. This warrants the need for efficient management of risks among banks to ensure that the banking sector of Ghana does not grind to a total halt.

Consequently, discussions on Enterprise Risk Governance (ERG) strategies therefore becomes a timely and relevant issue. According to [7], the implementation of ERG strategies is consistent with the demands made by investors and other stakeholders regarding effective risk governance, which come as a result of the failure of numerous banks around the world. Establishing a risk management committee (RMC), appoint-ing a risk management officer (RMO) to oversee its operations, greater independence of RMCs, managing overall risk index levels to prudent levels and putting in place processes to report the RMC's operations to the Board are all examples of strategic ERG mechanisms [34]. In order to improve bank performance, banks' board strive to ensure that these instituted strategic ERG mechanisms perform better than average in their role of risk monitoring [21-23, 42]. Meanwhile, despite the continuous awareness creation of most financial institutions concerning risk management processes in developed world, the efficacies of such robust risk governance processes on bank performance has not been well-expounded within the emerging economy context [17-22, 36-38]. Whilst we firmly acknowledge their empirical evidence provided on the risk management and bank performance relations, we contribute succinctly to literature by specially focusing on the efficacies of independent RMCs and the presence of RMO on banks' board within the Ghanaian context.

The next sections of the study is organized as follows: Section 2 consists of a comprehensive literature review; Section 3 elaborates data and methodology. Sections 4 presents and discusses the findings. Finally, Section 5 concludes the study.

2. Literature Review

Banks will improve the performance of boards when they recognise the need to create committees like the audit, nomination, and pay committees [20]. The dangers to which organisations are exposed require significant attention, and when committees, such as RMCs successfully carry out their duties, performance will be improved [27]. Because, one of the key responsibilities of the RMC is to oversee the accuracy of financial reports, analyse interior management, and assess the internal review and risk governing structures of the bank. [12] studied of the effect of risk committees on UK banks' financial performance. The findings from the pooled OLS estimation technique reveal that banks without RMCs outperformed those with risk committees in terms of asset returns. It was suggested that RMCs are necessary for expert risk management and mitigation [39]. The study insisted that having a robust RMC in place prevents the executive machinery from taking excessive risks that may have detrimental impact on financial performance. Other Authors also showed that RMC and Financial Performance (FP) have a positive correlation among each other [1, 29]. Another study took into account a study that looked at the reasons, determinants, and potential effects of risk committees that US financial institutions and established that there was no correlation between performance and RC formation [19]. Using data from 690 Malaysian companies listed on Bursa in 2003 and the two-stage least squares estimate methodologies, [41] came to the conclusion that firms with RMCs perform poorly in terms of asset returns. Based on the empirical evidence of RMCs and bank performance, this study hypothesizes that:

H1. RMCs has a negative and significant impact on bank performance.

The study assessed the effect of RMOs on financial performance of the Nigerian services sector from 2010 to 2019 and documented a positive and a significant influence of RMCs on the financial performance of firms found within the Nigerian services sector [13]. It provides much insight on risk governance and financial performance on 50 quoted firms in Nigerian financial services sector over a 5-year period from 2013 – 2017 [13]. The results depict that the banks with larger RMC size instituted by the board has a negative and a statistically significant impact on bank asset returns. Another study discovered positive impact of RMOs on financial performance [6]. Based on the empirical literature above, the second hypothesis of the study can be stated as:

H2: RMOs has a significant impact on bank performance.

A study on the impact of risk management and corporate governance on bank performance was taken into account by [12]. The study's sample included each and every listed bank that appeared on the Financial Times Stock Exchange (FTSE) 100 index between 2010 and 2014. The study confirmed a negative association between the independence of RMCs and bank performance.

The study considered a study on the relationship between risk management committees and financial performance in Tunisian lending firm during the period 2002 to 2011 [43]. The study finds a positive association between the percentages of independent risk committee members and financial performance. A study on independent directors on RMCs and financial performance was also conducted by [21] and recorded a positive relationship between the percentage of independent directors on RMCs and financial performance. [42] examined the financial performance of banks and the voluntary formation of risk committees by gathering data from the 20 largest financial institutions from a group of industrialized countries between 1994 and 2008 during the Credit Crunch (CC). The study came to the conclusion that there was a negative interrelation between bank performance and the proportion of independent risk directors. After a cursory examination of the literature, a hypothesis is developed between independent RMCs and bank performance.

H3: Independent RMCs has a significant impact on bank performance.

An RMO who is situated on the Board of Directors (BoD) has a greater power and influence in relation to an RMO who is found on a lower management level [10, 30, 6] looked examined how the financial crisis affected risk management, corporate governance, and bank performance. The study discovered that banks with the Chief Risk Officer (CRO) reporting directly to the board and not to the Chief Executive Officer (CEO) display considerably greater stock returns and Returns on Equity (ROE) throughout the crisis. According to [13] an RMO who is present on the board does not necessarily improve bank performance. This is because, although the strong RMO may positively impact on bank performance at the early stages of their appointment, they tend to be more rigid in terms of decision concerning risk during economic recessions, which may negatively affect bank performance. This was considered in a study [28] relating to the management of risk and its performance on listed banks in Ghana and found that banks with risk management officers and committees who reports directly to the board exhibits significantly higher stock returns. Based on the prevailing discussions, our study develops a fourth hypothesis as:

H4. RMOs present on the BoD has a significant impact on bank performance.

According to [26], the risk and return theory stipulates that investors who take on riskier investment projects are likely to achieve higher returns. In other words, the higher the risk index, the higher the return [14, 24-26, 37] researched on the relationships between corporate governance, risk-taking, and financial performance at Bank Holding Companies (BHCs) and concluded that BHCs with lower risk performed better than BHCs with higher risk throughout the crisis despite the lack of a meaningful association between them. [33] used secondary data on Ghana Stock Exchange (GSE) from all listed banks to examine the impact of risk management on the performance of listed banks in Ghana between 2007 and 2014. According to the study, risk management is favourably correlated with the equity returns of banks that are listed on the GSE. The study therefore presents the hypothesis as:

H5. ERM implementation has a positive and significant impact on bank performance.

3. Data and Methodology

There are currently 22 commercial banks in Ghana [9]. The banks were selected based on their availability of the needed data on enterprise risk governance, bank-specific indictors and macroeconomic variables for the study. The convenience sampling technique was therefore used to sample 14 commercial banks over a 10-year period from 2013 to 2022. This period was carefully chosen on the basis of concrete data on sampled banks for the study to deal with missing data values. RMC is a sub-committee set up to recommend to the board to review bank's risk policies to ensure risk is minimized to an appreciable level [43]. The RMC variable as used in the study is measured as a dummy variable of 1: if there is risk management committee, 0: if otherwise. An RMO reports to either the managing director or the audit committee about the risk inherent in the bank. In this study, the risk management officer is measured as a dummy variable of 1: if there exist a risk management officer, 0: if otherwise. This study measures the independence of the RMCs following [6, 12] who defined the RMC independence variable as the percentage of independent directors in the RMC. Thus, with the present study, the I_RMC is measured as the % of independent directors in RMC. To determine the overall risk levels of banks, we adopt an index proposed by [37] and construct a risk index following Altman z-score approach. According to the risk and return

theory, the higher the risk index, the higher the return [26]. Board size is measured as the natural logarithm of the total members on the board of the bank based on prior studies [41-43]. A bank with larger board size is mostly faced by conflicts of interest, poor communication and decision-making processes, which tend to affect profitability negatively. On the other hand, a smaller board size is easy to coordinate, which fosters its ability to process and tackle strategic problems of the organization and hence, improve performance. The size of a bank refers to assets owned by the bank. The size of banks in this study is measured as the natural log of total assets [22, 36-38]. Another control variable used by the study is the age of banks. This is the number of years the banks have been in operation since its inception. The age of banks used in this study is measured as the natural log of banks' age [8, 22]. Financial leverage is used as a control variable in this study which was measured as the ratio of total debt to total assets. When leverage is high, there is an as-

sumption of higher risk which may lead to a rise in profitability [2]. Inflation is considered as the continuous and persistent rise in general price level. It acts as proxy for economic instability. Investors prefer to invest in more stable economies with less degree of uncertainty [5]. Thus, it is reasonable to expect that inflation rate to have a negative impact on profitability. The higher the inflation rate, the more it is likely to deter bank profitability. RGDP is referred to as the total value of all goods and services produced and provided in an economy over a period of time, accounted for inflation [35]. The measurement used in this study is Real Gross Domestic Product (RGDP) annual growth rate. An improvement in the market activities of an economy indicates that, more transactions are being executed, which therefore results in an improved investor confidence as financial sector becomes viable. A summary of the variables, its measurement and source have duly been displayed on Table 1.

Table 1. Summary of explanatory variables and dependent variables.

Variable	Description and Measurement	Empirical Paper	A-Priori
Dependent Variables			
ROA	Return on Asset measured as the ratio of profit after taxes to total assets of individual banks.	[36]	
ROE	Returns on Equity calculated as the ratio of total equity to total assets of individual banks.	[36]	
Independent Variables			
RMC	Risk Management Committee measured as a dummy of 1 if there is a management committee and 0 otherwise.	[12]	+/-
RMO	Risk Management Officer measured as a dummy of 1 if there is a risk management officer and 0 otherwise.	[13]	+/-
RMO_BoD	RMO_BoD measured as 1: if Risk Management Officer is present on the banks' board of directors and 0 otherwise.	[13]	+/-
I_RMC	I_RMC calculated as the % of independent directors in RMC.	[12]	+
RI	Risk Index calculated as ROA plus capital adequacy ratio scaled by the standard deviation of ROA.	[33]	+
Control Variables			
BSize	Board Size measured as the natural log of total members representing on the board of the firm.	[29]	+/-
Size	Size of banks measured as the natural log of total assets of each bank.	[36]	+
Age	Age of banks measured as the natural log of years banks have been in operation.	[22]	+
Lev	Financial leverage measured as the ratio of debt to total assets.	[2]	-
INF	Inflation is measured as the consumer price index declared by the Bank of Ghana.	[5]	-
RGDPG	GDP Growth measured as the annual growth rate of the Gross Domestic Product of Ghana	[35]	+

3.1. Model Specification

In order to achieve the objectives of the study, a risk-performance model is specified. The functional forms of the profitability models used in this study are standard in finance theory. Following [6], we specify the relationship between enterprise risk governance and bank performance as:

$$ROA_{it} = \alpha + \beta_1 ROA_{it-1} + \delta_1 RMC_{it} + \delta_2 RMO_{it} + \beta_2 I_{RMC_{it}} + \delta_3 RMO_{BoD_{it}} + \beta_3 RI_{it} + \beta_4 BSize_{it} + \beta_5 Size_{it} + \beta_6 Age_{it} + \beta_7 Lev_{it} + \beta_8 INF_{it} + \beta_9 GDPG_{it} + \varepsilon_{it} \qquad (1)$$

To explore the variations in accounting measures and to ensure consistency within the bank performance estimates, the study adopts the Returns on Equity measure as another dependent variable [36]. This can therefore be expressed in equation (2) as:

$$ROE_{it} = \alpha + \beta_1 ROE_{it-1} + \delta_1 RMC_{it} + \delta_2 RMO_{it} + \beta_2 I_{RMC_{it}} + \delta_3 RMO_{BoD_{it}} + \beta_3 RI_{it} + \beta_4 BSize_{it} + \beta_5 Size_{it} + \beta_6 Age_{it} + \beta_7 Lev_{it} + \beta_8 INF_{it} + \beta_9 GDPG_{it} + \varepsilon_{it} \qquad (2)$$

Where,

"ROA" is the Return on Asset, "ROE" is the Return on Equity, ''i'' represents the bank, "t" represents time, "ε_{it}" is the error term, "δ" represents the dummies, the "β_s" are the coefficients to be estimated, "RMC" represents Risk Management Committee, "RMO" indicates Risk Management Officer, "I_RMC" represents Independence of Risk Management Committee, "RMO_BoD" indicates the presence of Risk Management Officer on the board of directors, "RI" is Risk Index, "BSize" is the Board Size, "Size" indicates Bank Size, "Age" represents Bank Age, "Lev" is financial leverage, "INF" represents Inflation, "RGDPG" indicates Real Gross Domestic Product Growth, "Trend" indicates a trend term.

3.2. Testing for Endogeneity

According to the risk and return theory posited by [26], a bank that has more resources available is likely to take more risk and these actions are directly related to each other. This may lead to the risk variables being influenced by the return variables in this study and thus, a potential endogeneity issue in the estimates. According to [32], three forms of this problem exist which includes, dynamic endogeneity, simultaneity bias and unobserved heterogeneity. The dynamic endogeneity occurs when variable's current value is influenced by its value in the preceding time period. With regards to the risk-performance relation, this occurs when the current risk structure, control characteristics and performance of the bank are determined by the banks' past performance [7]. There is simultaneity bias when two variables are co-determined, such that each variable may affect the other simultaneously. In the risk and performance relationship, the risk governance mechanisms and control characteristics may be determined concurrently with the bank's level of performance. In order to address such problems, which the pooled OLS and the fixed/random effect does not consider, this study adopts a more robust estimation tool to include the system Generalised Method of Moments (GMM) Regression technique to check for consistencies in the estimates from the model. The Sargan/Hansen tests were conducted to check for correct specification of moment conditions, as well as the Arellano-Bond tests to check for autocorrelations in the model.

3.3. Testing for Multicollinearity

The study makes use of multicollinearity test using the correlation matrix and affirming with the Variance Inflating Factor (VIF) test to ascertain whether multicollinearity is present in the model.

4. Findings and Discussion

The current study offers empirical insights on the relationship between enterprise risk governance mechanisms, bank-specific factors and macroeconomic indicators on bank financial performance. To analyse the gathered data, we first subject the data to descriptive statistics to ascertain how the dataset looks like in general, then a correlation section, before finally discussing the regression results. Table 2 presents the descriptive statistics of the variables under study: enterprise risk governance indicators which are RMCs, the presence of RMOs, independence of RMCs, presence of RMOs on the executive board and risk index; bank-specific variables (BSize, Size, Age, Lev); macroeconomic indicators (INF and RGDP) and determinants of bank financial performance (ROA and ROE).

4.1. Descriptive Statistics

The mean score for the ROA as the dependent variable for the study is 9.570, suggestive that for every GHS1 asset owned, the respective banks achieve about GHS9.57 asset returns, which is an indication that the sampled banks are performing well in terms of their asset base. ROE averaged 0.317 over the study period. This is an indication that over the study years, banks were able to achieve about 31 pesewas for every 1 equity share held by investors. The existence of RMCs recorded an average of 85.50% which means that about 80 percent (10) of the banks had risk management committees present in their banks. This may be considered as a very important step to realizing and mitigating all forms of potential risks, bound to occur among banks. The presence of a risk

management officer also recorded an average of 90.5% and a standard deviation of 29%, indicating that about 80% (12) of the banks have risk management officers, present in their banks. The study recorded a mean value of 0.15, variance of 0.08, and minimum of 0% and a maximum of 33% for I_RMC. It suggests that 15% of the banks who have risk management committees allows them to operate independently. Again, RMO_BoD which is the presence of the risk management officer on the board of directors also indicated a mean value of 0.565, implying that about 56.5% of the banks have their CROs representing as members on the board. The Risk Index registered an average of 0.843 which is above the prudential and accepted average risk score of <5. This means that on the

average, the risk inherent among banks in Ghana is high. This implies that whiles some are working harder to bring their risk index down to negative values, others too are seen to be engaging in risky banking operations, thereby increasing their risk levels. With the theory of risk and return, these banks can be classified as risk lovers and are therefore anticipating for a high return thereby engaging in such risky investments. An average board size of 9 members was reported by the banks, which is considered appropriate as it may improve the performance of banks because of the benefits by larger boards of increased monitoring and supervision of risk procedures and processes adopted by the banks.

Table 2. Descriptive Statistics of Variables.

Variable	Mean	Std. Dev.	Minimum	Maximum	Observations
ROA	9.570	20.230	-29.824	69.609	140
ROE	0.317	0.511	-0.403	5.810	140
RMC_D	0.855	0.353	0	1	140
RMO_D	0.905	0.293	0	1	140
I_RMC	0.157	0.083	0	0.333	140
RMO_BoD	0.565	0.497	0	1	140
RI	0.843	8.291	-0.036	94.922	140
BSize	9.311	2.039	5	15	140
Size	18.088	3.065	11.458	22.527	140
Age	29.673	27.771	2	120	140
Lev	0.656	0.359	0.000	1.000	140
INF	13.685	3.708	8.726	19.250	140
RGDP	6.980	3.343	3.700	15.008	140
Trend	5.442	2.861	1	10	140

4.2. Correlation Matrix

Table 3 displays the correlation statistics for the study. It is clear that there exists a strong positive linear correlation between RMCs and RMOs at 0.57, significant at 5% level. RMCs and RMO_BoD has a weak but a statistically significant positive linear correlation at 0.46. Further, the presence of RMCs among banks has a weak and an inverse association with RI at 0.19, significant at 5% level. The study presents that RMC_D has a strong positive correlation with I_RMC at

0.77, statistically significant at the 5% level. Finally, financial leverage has a weak negative statistically significant association with RMCs at 5% level. The results indicate that none of the correlation coefficients are perfectly correlated with each other, suggestive of the non-presence of multicollinearity among the variables. This is justified by the mean VIF value of 2.15 as indicated in the Table 3 is below the required value of 10. However, since correlation does not imply causality, we proceeded further to employ a panel data regression analysis to estimate the actual effects that enterprise risk governance has on financial performance among banks in Ghana.

Table 3. Correlation Matrix.

	RMC_D	RMO_D	I_RMC	RMO_BoD	RI	BSize	Size	Age	Lev	INF	RGDP	Trend	VIF
RMC_D	1.00												2.36
RMO_D	0.57*	1.00											1.74
I_RMC	0.77*	0.47*	1.00										3.34
RMO_BoD	0.46*	0.36*	0.39*	1.00									3.90
RI	-0.19*	-0.25*	-0.14	-0.11	1.00								1.18
BSize	-0.17*	-0.06	-0.20*	0.08	0.01	1.00							1.55
Size	-0.16	-0.23*	-0.17*	-0.06	-0.02	0.47*	1.00						1.79
Age	0.09	0.21*	0.13	0.21*	-0.02	0.15	-0.00	1.00					1.22
Lev	-0.20*	-0.13	-0.09	0.04	0.06	-0.14	-0.40*	-0.11	1.00				1.42
INF	0.01	-0.03	0.01	-0.13	-0.03	0.07	-0.06	0.04	-0.04	1.00			2.49
RGDP	-0.01	0.01	0.02	0.06	-0.03	-0.10	0.01	-0.05	0.04	-0.76*	1.00		2.76
Trend	-0.24	-0.08	-0.09	0.62*	-0.14	0.11	0.007	0.24*	0.058	0.23*	-0.33*	1.00	3.23
Mean VIF													2.15

Note: *Indicates significance at 5% level.

4.3. Regression Results and Discussion

The study estimates econometric models that relates bank performance to risk governance, bank-specific and macroeconomic indicators. The regression parameters were estimated in three folds. Firstly, model 1 estimates the relationship using the Pooled Ordinary Least Squares, on the basis of the classical linear regression assumption. The results of this regression are presented in column 1 of Table 4 accordingly. Model 2 and 3 estimates the fixed and random effects model as based on [18] respectively which corrects for the unobservable heterogeneity that may be present in the enterprise risk governance and performance relation. The results are presented in column 2 and 3 of Table 4 respectively. Finally, Model 4 displays the results of the dynamic system GMM, which is the preferred model for discussion, since it corrects for all forms of endogeneity that may be present within the model. The estimates of this robust regression process are presented in column 4 of Table 4. Columns 5-8 represent the models for Returns on Equity respectively to account for consistency in accounting measures. The Arellano-Bond (AR) test of the second order AR (2) statistics indicate that there is no autocorrelation in the errors of the dynamic system GMM model. The Sargan p-value also indicates that the instruments used are valid and therefore fit for policy inferences.

The results on the dynamic system GMM indicates that past performance of banks has a direct and significant effect on current performance, which was not captured by both the pooled Ordinary Least Squares (OLS) and the random effects model, thus correcting for an endogeneity problem. This suggests that previous bank performance predicts current bank performance. This may stem from the fact that banks always strive to improve on their past figures. This is seen by the conduct of management performance reviews, where current performances are scrutinized and targets are set by the banks' board to be achieved, thus increasing their performances annually.

The findings indicate that, the existence of RMCs has a positive and a statistically significant impact on banks' asset returns. This implies that the returns earned on banks' assets are largely influenced by committees set to govern risk levels in the institution. This result could be attributed to the fact that when RMCs instituted by shareholders are mostly effective in their risk oversight role, objective, selfless, and well-informed within the banking sector, they tend to adequately improve upon bank profitability. This result is in line with the predictions of [3, 13] who found a positive connection between the RMCs and bank performance.

Some studies advocated for the independence of majority of the members serving in an RMC. [30] This was due to the immense contribution that an independent RMCs may have on the overall risk governance structure and consequently firm value. The results indicate a negative and statistically significant impact of RMC independence on ROA. We link this result to the fact that when RMCs are independent, they

become more effective in the discharge of their duties such as supervision and reduce excessive risk-taking behaviour by banks which results in a worsened bank performance, realizing the fact that banks become more profitable when they take on riskier investments. This result is supported by [6, 12], who found a significant negative relationship between independence of risk management committees on bank performance.

The coefficient of an RMO who is found on the bank's board of directors has a negative and statistically significant impact on bank asset returns. This suggests that banks who have their RMOs present on the bank's board tend to perform worse than banks whose RMO is not a member of the bank's Board of Directors. The implication is that banks who have their RMO as a member of the board may not be given an important and powerful control over decisions concerning riskier investments. Banks therefore tend not to perform better when the crucial risk reporting role by the RMO to the board is given less or no attention. The finding is similar to [30] who emphasized the need to have the CRO to be part of the bank's executive board in order to ensure better risk governance. [6]

also indicated that during financial crisis period, banks whose CRO is present on the board performs adequately better than banks whose CRO is not found on the board of directors.

The risk index; a measure of the overall risk levels and thus, the extent to which banks are governing risk was found to be positive and also have a statistically significant impact on banks' ROA. This implies that banks' risk and returns move in the same direction such that an increase in the overall risk levels of banks is found to improve the performance of banks and vice versa. This is because, banks that have implemented strong risk management structures are more likely to take policies which against a higher level of exposure towards riskier investments, which may lead to a rise in bank profitability. Furthermore, banks with lower levels of risk is probable to have more credit available, which offers them the opportunity to increase productive assets and profitability. Consistent with the predictions of the risk and return theory by [26], banks earn much returns when they enter into riskier ventures. The result matches with [13-15, 40] who reported similar evidence in their study.

***Table 4**. Estimated Results on the Effect of Enterprise Risk Governance on Bank Performance.*

Regressor	ROA				ROE			
	1	2	3	4	5	6	7	8
ROA/ROE$_{(-1)}$	0.545*** (10.50)	0.085 (1.47)	0.545*** (10.50)	0.519*** (10.12)	0.602*** (7.14)	0.347*** (4.21)	0.602*** (6.95)	0.611*** (7.41)
RMC_D	2.060*** (3.33)		2.060*** (3.33)	2.282*** (3.79)	-0.017 (-0.40)		-0.017 (-0.04)	0.031 (0.07)
RMO_D	-0.356 (-0.46)	-0.998 (-1.46)	-0.356 (-0.70)	-0.530 (-0.07)	-0.595 (-1.24)	-1.381** (-2.06)	-0.595 (-1.46)	-0.595 (-1.51)
I_RMC	-3.892 (-0.70)	-4.598 (-1.46)	-3.892** (-1.78)	-4.574** (-1.93)	-1.923* (-1.74)	-5.587 (-1.81)	-1.923* (-1.08)	-1.433 (-0.82)
RMO_BoD	-0.780** (-1.75)	0.351 (1.02)	-0.780** (-1.75)	-0.775* (-1.88)	0.668* (1.73)	0.468* (1.38)	0.668* (1.79)	0.641 (1.77)
RI	29.269*** (6.57)	4.677 (1.19)	29.269*** (6.57)	29.943*** (7.05)	14.572*** (3.74)	18.871*** (4.88)	14.572*** (3.77)	16.742*** (4.15)
BSize	0.799 (1.31)	1.532** (2.02)	0.799 (1.31)	1.278** (2.00)	0.632 (1.10)	-1.139 (-1.61)	0.632 (1.21)	0.488 (0.89)
Size	-0.279** (-5.12)	-0.804*** (-10.61)	-0.279*** (-5.12)	-0.328*** (-5.66)	-0.055** (-2.00)	-0.050 (-0.78)	-0.055** (-1.28)	-0.025 (-0.59)
Age	1.082*** (6.86)	0.655 (0.74)	1.082*** (5.86)	1.140*** (6.35)	0.327** (2.48)	4.295*** (4.68)	0.327** (2.27)	0.376** (2.60)
Lev	0.628 (1.69)	-0.264 (-0.80)	0.628 (1.69)	0.473 (1.25)	-0.376 (-0.52)	-0.357 (-1.08)	-0.376 (-1.24)	-0.201 (-0.67)
INF	-0.079 (-1.53)	-0.075** (-2.12)	-0.079 (-1.53)	-0.083 (-1.74)	-0.093* (-1.95)	-0.062* (-1.77)	-0.093* (-2.19)	-0.096** (-2.35)
RGDP	-0.066 (-1.05)	-0.059 (-1.38)	-0.066 (-1.05)	-0.071 (-1.22)	-0.084 (-1.51)	-0.067 (-1.59)	-0.084 (-1.63)	-0.084 (-1.72)

Regressor	ROA				ROE			
	1	2	3	4	5	6	7	8
Trend	0.058 (0.70)	0.102 (1.37)	0.058 (0.70)	0.063 (0.82)	-0.116** (-2.09)	-0.269*** (-3.69)	-0.116 (-1.76)	-0.117* (-1.83)
Obs	140	140	140	140	140	140	140	140
Firms	14	14	14	14	14	14	14	14
R^2	0.875	0.629	0.889		0.560	0.281	0.612	
F/Wald Chi^2	63.34***	32.48***	823.37***	72.85***	11.90***	14.56***	154.67***	12.93***
Hausman		157.86***	157.86***			-23.13	-23.13	
Sargan (p-value)				0.81				0.28
AR(1)				-2.91***				-3.54***
AR(2)				0.89				2.19

Note(s): ***Indicates significance at 1%, **Indicates significance at 5%, *Indicates significance at 10%, T-Statistics are between parenthesis.

5. Conclusion

The present study examines empirically, the causal relationship between enterprise risk governance indicators like the existence of RMCs, the presence of RMOs, independence of RMCs, presence of RMOs on the executive board and risk index on bank performance of 14 commercial banks in Ghana. The paper offers significant empirical contribution that the existence of RMCs sees to a better asset performance of banks. Independent RMCs provide rigorous governance frameworks which seek to reduce excessive risk-taking behaviour by banks and results in a reduced bank performance. RMOs present on the executive board are found to be stronger and have powerful influence to be rigid against riskier investment projects adopted by banks during economic growths, which acts against financial performance of banks. Finally, banks tend to perform better when they take on riskier investment projects, supportive of the risk and return theory.

This connotes several policy implications that bank board and executives must prudently consider. RMCs of the banks must be strengthened such that they are able to support the board in their risk monitoring roles and ensuring that the banks have in place effective internal control and solid risk governance structures targeted at eliminating any self-seeking behaviour of management. Further, senior executive of banks must remain extra vigilant when undertaking riskier investments. Stakeholders and shareholders must ensure strict compliance of risk governance framework implemented within banks and request monthly reports on how well banks have been performing with regards to the various risk governance dimensions. This will inform prudent decisions to be made with regards to risk-taking behaviours by the board/management of banks.

The scope of the study reveals succinctly that variables used in this study are not complete. Variables like the frequency of meetings conducted by the RMC and other relatively important governance mechanisms like CEO Duality, and Tenure of CEO are not considered in the study. Again, only 14 commercial banks were considered in the study. Further research can be extended to include all banks in Ghana to ascertain if there is any difference in how enterprise risk governance influence banks' performance in Ghana. We finally state categorically that empirical works ascertaining these dimensions in different contexts are welcomed.

Abbreviations

BOG	Bank of Ghana
RMC	Risk Management Committee
RMO	Risk Management Officers
RI	Risk Index
DDEP	Domestic Debt Exchange Programme
ERG	Enterprise Risk Governance
FP	Financial Performance
FTSE	Financial Times Stock Exchange
CC	Credit Crunch
BoD	Board of Directors
CRO	Chief Risk Officer
CEO	Chief Executive Officer
ROE	Returns on Equity
BHC	Bank Holding Companies
GSE	Ghana Stock Exchange
RGDP	Real Gross Domestic Product
GMM	Generalised Method of Moments
VIF	Variance Inflating Factor
AR	Arellano-Bond
OLS	Ordinary Least Squares

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Data Availability Statement

We can confirm that all the data used in the study are publicly accessed and can be made available upon request.

Conflicts of Interest

The authors declare that there are no personal or financial conflict of interest to influence the work reported in the paper.

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