Green Finance

Green Finance, 2(2): 197–211.
DOI: 10.3934/GF.2020011
Received: 29 April 2020
Accepted: 27 May 2020
Published: 01 June 2020

http://www.aimspress.com/journal/GF

Research article

Enterprise risk management practice and shareholders value: evidence from selected quoted firms in Nigeria

Marshal Iwedi*, Oriakpono E. Anderson, Patience S. Barisua and Sulaiman A. Zaagha

Department of Banking and Finance, Rivers State University, Nkpolu-Oroworukwo Port Harcourt, Nigeria

* **Correspondence:** Email: iwedimarshal@yahoo.com; Tel: +2348038735422.

Abstract: This study examines business risks and risk management as well as their effects on shareholders' value using data from selected non-financial firms in the Nigerian Stock Exchange by focusing onreward systems to firm owners through dividend and other earning structures. The study employs panel data for 48 non-financial firms in the Nigerian Stock Exchange for the period 2011 to 2018. The panel data analytical framework is used in the empirical analysis with focus on the Random Effects estimation technique. The results show that in general, the effect of risk on shareholder value depends on the pattern of risk, as well as on the value being considered. The study also finds that increased business risk lowers both dividend per share and earnings per share of the firms. On the other hand, financial risks were shown to have positive impact on shareholder value, especially the value not related to dividend payout. Also, it is found that risk management based on institutional shareholding has the most effective positive impact on shareholder value. It is recommended that enterprise risk management implementation should not just be for compliance purposes among companies in Nigeria, but it must also be for the purposes of pursuing best practices and long-term survival.

Keywords: enterprise risk management; dividend per share; earning per share; fixed effect; random effect

JEL Codes: G32, G35, C1

1. Introduction

In recent years, shareholders, investors and relevant stakeholders have suffered enormous loss as a result of catastrophic corporate failures. As the means of reducing the potential for such losses and long-term failure, improved corporate governance has become an essential aspect of managing corporate survival around the globe. In the same vein, effective governance is only possible through a functional system of internal control, which itself is wholly dependent on a culture of sustained and proactive "enterprise risk management (ERM). As one of the most effective means of managing compliance and avoiding the risk of non-compliance, enterprise risk management is also increasingly recognized by forward-thinking organizations as the best long-term, sustainable and cost-effective solution to meeting the compliance mandates and the ever-increasing compliance requirements companies face today" Roberts (2005). There have been diverse dimensions with respect to the role of enterprise risk management in improving overall business performances and shareholders' value. Hagerty and Scott (2005) postulate that enterprise risk management is both the foundation of any functional system of internal control and governance and the most cost-effective platform for continued and long-term compliance, while it is also most efficient, effective and proactive approach to increasing shareholder value. Therefore, and as most analysts and leading businesses thinkers agree, an effective long-term solution for compliance, corporate governance and sustained growth in shareholder value is to integrate a formal practice-based system of sustained, reputable and continuously improving enterprise risk management into the heart of all business processes, practices, control and governance activities (Cadbury, 2002).

Management of risk and increasing shareholders' stakes in a firm within the corporate governance compliance is an essence of making good decisions. In this direction, risk management has occupied an important place on the agenda of practitioners, academicians and the business community. This is in spite of its evident failure in the recent financial crisis that originated from the USA with its multiplier effect on the world economy (Huber & Scheytt, 2013). It has been raised to the top agenda of the business world because it enhances organizational performance and creates value for stockholders if strictly complied with (Gates et al., 2012). Quite recently, enterprise risk management has become the practice standard across the world because the traditional approach has failed to produce the desired results and that the financial disaster continues to occur on a regular basis. Therefore, scholars emphasized that traditional approach to risk management may not give the senior management and the board aggregated risk management results (Bromiley et al., 2015 and Lam, 2000).

Recently, there has been growing interest in risk management practice across the world due to a number of parallel events. The impact of the global financial crisis has highlighted the importance of risk management (Coskun, 2012). Risk management importance is also attributed to the changing business environment characterized by threats from political, economic, natural, and technical resources (Wu & Olson, 2010). Risk management is a systematic approach that aligns strategy, people, technology, processes and knowledge with the purpose of assessing, evaluating and managing the risk that an organization faces. The system by which separate unit or sections of the organization manage risks is referred to as traditional risk management. Traditional school of thought view risks as a series of single and unrelated elements where individual risks are classified and coordinated separately (Hoyt & Liebenberg, 2011). The changing phenomenon from the traditional approach to the new trend in risk management is often referred to as a paradigm shift.

Enterprise risk management (ERM) is a shift from traditional approach to enterprise approach. Furthermore enterprise risk management is aimed at increasing shareholder value (Sobel & Reding, 2004). Firstly, it achieves this by improving capital efficiency through the provision of an objective basis for allocating corporate resources. It is able to do this by reducing expenditures on immaterial risks and exploiting natural hedges. Secondly, enterprise risk management can support informed decision-making by exposing areas of high risk and suggesting risk-based advances. Thirdly, enterprise risk management will help build investor confidence by establishing a process which, by its activities, can stabilize financial results and demonstrate to all stakeholders that the organization practices sound risk stewardship.

There is growing demand from shareholders, top management and boards of directors of corporate entities to take more proactive stance in mitigating and managing enterprise risk. In Nigeria, the enterprise risk management concept is at it infant stage and very unpopular to most corporate entities in Nigeria hence the issue of risk identification and avoidance. This practice if not properly managed ultimately affects shareholders value. Furthermore, most corporate entities in Nigeria do not adopt integrated enterprise risk management practices because of its unpopularity in firms operating in Nigeria, as such these company is confronted with the problem of non creation of integrated risk management unit within the organization and the engagement of qualified professional to Mann this unit as against the traditional approach of periodic outsourcing of risk management functions to specialized risk management organization, who specialty is to structure system within any organization to manage the risk factor within such an organization. It is in light of the above this study investigates the impact of enterprise risk management practices on dividend payout of selected quoted non financial firms in Nigeria. Given that risk and reward are the very essence of business and effective risk management practices is the primary vehicle to deliver maximum shareholder value while simultaneously reducing the potential for share value loss. To our knowledge, this paper represents the first attempt at incorporating enterprise risk management practices into a panel model for Nigeria and estimating the impact on shareholders value. Thus, we make empirical contributions to the existing literature.

2. Literature review

It is interesting to note that enterprise risk management practice has evolved over the years and, since 2010, the focus has shifted from mere announcement of implementation of enterprise risk management to the appointment of a Chief Risk Officer (CRO) with responsibility for oversight and regulatory compliance. Pagach and Warr (2011) found that the existence of the CRO related to reduction in the volatility of stock prices. The involvement of CRO was also reported to positively influence firm value (Hoyt & Liebenberg 2011).

Beasley et al. (2008) sought to understand the benefits of enterprise risk management by examining enterprise risk management adoption and subsequent reaction in the stock market. Enterprise risk management was proxied by the appointment of a Chief Risk Officer or equivalent. They examined a sample of 120 companies appointing CROs and found no significant stock price reaction (positive or negative) to the announcements of enterprise risk management adoption. However, after a cross-sectional analysis, they found that firms in non-financial industries are more likely to have a positive stock price reaction around the adoption of enterprise risk management. These results are aligned with Stulz (2003) who points out that it is only firms that face these lower

tail outcomes that will benefit from enterprise risk management, while other firms will see no benefit and could destroy value by spending corporate resources on risk management. Similarly, a study carried out in Indonesia by Eduardus et al. (2007) utilizes both primary data and secondary data analyses to investigate the effect of risk management on bank performance. The study used Generalized Methods of Moments (GMM), for secondary data and bootstrap method, factor analysis, and 3-state least squares (3SLS) for primary data. The findings of the study show that relationships between corporate governance and risk management and between corporate governance and bank performance are sensitive to the type of bank ownership

A most related study to our current study is that of Manab and Ghazali (2013) who examined the practicability of enterprise risk management (ERM) practices in creating shareholder value for Malaysian public listed companies (PLCs). The study employed a sample of 417 PLCs in Malaysia. Their analysis focused on the companies' financial characteristics by using stepwise multiple regressions. This research also included the understanding the influence of financial ratios and risk management on shareholders wealth. The findings from the study showed that return on equity, opacity, debt over asset, operating margin, cost of financing and taxation, and financial slack are significant for financial companies. While, only return on asset is significant for non-financial companies. Thus the study indicated that risk management would be more effective in boosting shareholder value in financial firms for the Malaysian data.

Ohiorenoya et al. (2016) examines the risk-return dynamics of quoted stocks for the eleven sectors of the Nigerian stock exchange for the period of twenty one weeks March 2015 through July 2015. The study aimed at determining the sectoral risk and returns of the quoted stocks in the Nigerian Stock Market. Using the standard deviation and the mean analysis to estimate the risk and returns of the stocks, the result reveals that the size of the quoted stock risk and return are apparently different on sectoral basis as such they change differently but directly with the size of returns. The magnitude of the risk or return depends mostly on the peculiarity or otherwise of such sectors where the stocks are listed but not on the size of the firms. Therefore the study conclude that for an investor to take a rational investment decisions, it is sacrosanct for such investor or investors to know the risk return characteristics of stocks quoted on the various sectors of the Nigerian stock exchange.

Moreover, Teoh et al. (2017) examined the impact of enterprise risk management on the performance of Malaysian public listed firms. The study used survey research to carry out the study with a total of 137 respondents from the questionnaire distributed in the main market of Bursa Malaysia. The study used COSO (2004) framework to capture enterprise risk management implementation while financial and non-financial indicators were used as a proxy for firm performance. The study found that enterprise risk management implementation in Malaysia impacted firms' performance positively; however, there is still need for more oversight function from the regulatory authorities.

For the Nigerian case, Udoka and Orok (2017) aimed their study at evaluating enterprise risk management practice by Deposit Money Banks in Nigeria. The study utilized an Ex-Post Facto design. A sample of 374 respondents extracted across six geopolitical zones in Nigeria. The data extracted from the collection was evaluated using ordinary least square OLS regression analysis. The study revealed that various challenges of practicing banks significantly influences the level of acceptance and implementation of enterprise risk management in Nigeria, the government policies on enterprise risk management has a direct and significant relationship on the practice of enterprise risk management by players in the industry and that the practice of enterprise risk management has

positively influenced the performance of the Nigerian banks that have accepted and implemented enterprise risk management. They recommended that apex institution should devise a strategic plan and framework to help banks in the implementation of enterprise risk management since it has been adjudged to be the industry best practice in line with Basel III accord.

Also, Olayinka et al. (2017) carried out a study to examine the impact of Enterprise Risk Management (ERM) on financial performance in the emerging market with special focus on the Nigerian financial sector. The study investigates 40 companies from the period 2012 to 2016 resulting into 200 firm observations. The method used to measure financial performance was Return on Assets (ROA) while Value at Risk (VaR) was used as a proxy for Enterprise Risk Management (ERM). The study used other control variables such as Leverage Board Size, Firm Size, Institutional Ownership and Risk Management Committee Size The empirical findings show that ERM is positively and significantly related to financial performance. They recommended that the regulatory authorities in charge of the financial sector should ensure that all firms in the sector adopt ERM as a matter of urgency and continue to ensure strict compliance with the ERM framework.

In the study by Salaudeen et al. (2018), they evaluated the relationship between enterprise risk management and performance of Twenty (20) consumer goods companies listed on the Nigerian Stock Exchange. The independent variables used are existence of risk management committee, existence of financial expertise, existence of audit committee, existence of Chief risk officer and board size. The collated data were analyzed using descriptive statistics and generalized least square. The results reveal that risk management committee, financial expertise and board size have significant positive effect on performance. The results also revealed that existence of audit committee has a significant negative effect on performance while existence of chief risk officer has no significant effect on performance. They therefore recommended that the regulatory authorities and other relevant institutions are enjoined to reassess their supervisory role with the view to strengthen the ERM process and taking the issue of risk management seriously at every level of organizations to provide reasonable assurance.

Based on the literature review, a gap has been identified that need to be filled. Most studies on this subject were done on firms under the construction and financial sectors with scanty or no attention given to the quoted firms under the non financial sector of the Nigeria. This is what the study is set out to fill.

3. Methodology

3.1. Data source and method of data analysis

The study was based on secondary data using annual reports documents from the various companies. The nature of this study necessitated the use of secondary data. The data were collected for the period 2011 to 2016 for 48 non-financial firms in the Nigerian Stock exchange. The panel data analysis is preferred in this study as it considers the cross-sectional and time-series characteristics of the sample data. In essence, the panel data analysis accommodates “time as well as the heterogeneity” effects of the quoted companies. In estimating equations, the pooled, fixed and random effect panel data analyses techniques are adopted. The pooled specification assume the intercept and slope coefficients are constant across years and industries. However, this is too simplified since there may be industrial-specific effects, hence, the remaining specifications, which

can be represented as below;

$$y_{it} = \alpha_{it} + \beta_t x_{it} + e_{it} \quad (1)$$

where y_{it} is the dependent variable x_{it} and β_t and are *k*-vectors of non-constant regressors and parameters for $i = 1, 2, 3, \ldots, N$ cross-sectional units (industries). Each cross-section is observed for dated period $t = 1, 2, 3, \ldots, N$

The *Fixed-effect* estimator allows *it* α_{it} to differ across industrial units by estimating different constant for each industry. This is done by subtracting the "within" mean from each variable and estimating OLS using transformed data (Greene, 2011).

The *Random effect* on the other hand, assumes that the term α_{it} is the sum of a common constant α and time-invariant variable u_t that is uncorrelated with the residual e_{it}. Therefore, instead of treating α_{it} as fixed, we assume that it is a random variable with a mean value of $\alpha_{t.}$. And the intercept value for an individual industry can be expressed as

$$\alpha_{it} = \alpha_t + \varepsilon_i \qquad i = 1, 2, 3, \ldots, N \quad (2)$$

where ε_i is a random error term with a mean value of zero and variance of σ_ε^2 Substituting (1) into (2), we obtain;

$$y_{it} = \alpha_t + \beta_t x_{it} + \varepsilon_i + e_{it}$$

$$= \alpha_t + \beta_t x_{it} + \omega_{it} \quad (3)$$

$$\omega_{it} = \varepsilon_i + e \quad (4)$$

In any case, we would use the *Hausman test* to select between fixed and random panel estimation techniques.

3.2. The model

The baseline model therefore modifies that of Mookerjee (1992) and presents shareholder value as a function of firm risk and other mechanisms in the firm that both contribute to risk management or shareholder value. The baseline mode is therefore specified as:

$$\text{Shareholder Value} = f(Risk, Risk\ Management, X) \quad (5)$$

where X = other control variables that affect shareholder value and also acts as stabilizing factors in the model. Shareholder value is proxy in the model as dividend per share (DPS) and earnings per share (EPS). Thus, the model focuses on the risk and risk management factors that affect these two shareholders value factors. Thus,

$$\text{SHV} = f(DPS, EPS) \quad (6)$$

Theoretical formulations propose that the payment of dividends and the subsequent raising of external finance induce investigation of the firm by financial intermediaries such as investment banks, regulators of the securities exchange where the firm's stock is traded, and potential investors. This capital market monitoring reduces agency costs and lead to appreciation in the market value of the firm. Moreover, total agency cost, as defined by Jensen and Meckling (1976), is the sum of the agency cost of equity and the agency cost of debt. The latter is partly due to potential wealth transfer

from bond to equity holders through assets substitutions. Thus Easterbrook (1984) notes that by paying out dividends and then raising debt, new debt contracts can be negotiated to reduce the potential for wealth transfer. The risk management factors therefore can be evaluated on the basis of agency and transaction costs factors as they interact with risk and other factors and generate changes in shareholder value (DSP and EPS) among the selected firms. The general model is therefore specified as:

$$DPS_I = \delta_0 + \delta_1 risk_i + \delta_2 acosts_i + \delta_3 tcosts_i + \delta_4 X_i + \varepsilon \quad (7)$$

and

$$EPS_I = \beta_0 + \beta_1 risk_i + \beta_2 acosts_i + \beta_3 tcosts_i + \beta_4 X_i + \varepsilon \quad (8)$$

where the subscript, *i*, denotes the sample observation, *i* = 1,2,…n; *DPS* and *EPS* are a proxies for the firms shareholder value; *accosts* represents agency costs; *tcosts* captures transaction costs; *X* measures other firm characteristics such as *size* and *age* of the firm. The model in Equations (4) and (5) can be expanded by exploring the key variables that represent agency and transaction costs. Here, we follow Schooley and Barney (1994); Mohd et al. (1995), and Manos (2002) in the expansion. To measure agency costs, the *acosts* variable is broken down into three variables that exert monitoring capacity on the firms. These include: *inst*, measuring institutional ownership; *dirs*, measuring insider ownership; and *foreign*, measuring foreign ownership. The *tcosts* variable is broken down into two variables that promote risk in the firm. The two risk variables include including leverage—which represents financial risk in the firm—and firm growth. In the study, the *risk* variable is measured as the standard deviation of stock prices at year end over the sample period, measuring business risk. Moreover, cash flow within the firms is critical for assessing the pattern and extent of risks in the organization as well as the management of risks. Hence, two cash flow variables (tax—*CIT* and retained earnings—*retain)* are included in the model. In its expanded form, the model is specified as:

$$DPS_I = \delta_0 + \delta_1 risk_i + \delta_2 insti + \delta_3 dirs + \delta_4 foreign + \delta_5 lev_i + \delta_6 growth_i + \delta_6 size_i + \delta_8 age_i + \delta_9 cit_i + \delta_{10} retain_i + \varepsilon \quad (9)$$

and

$$EPS_I = \beta_0 + \beta_1 risk_i + \beta_2 insti + \beta_3 dirs + \beta_4 foreign + \beta_5 lev_i + \beta_6 growth_i + \beta_7 size_i + \beta_{8a} ge_i + \beta_9 cit_i + \beta_{10} retain_i + \varepsilon \quad (10)$$

4. Empirical analysis

The annualized summary statistics for the main variables in the study are presented in Table 1 for the sampled firms in the study while those for all the variables in the analysis are also reported. The mean dividend per share value is 1.17 percent for the entire sample with maximum value reaching over 12.93 percent. Some companies did not pay dividend for certain periods that is why the minimum dividend value is zero. There appeared to be quite a lot of variation in the dividend per share of the firms given that the standard deviation is large when compared to the mean value, suggesting a high level of variability of the pattern of dividend per share either across the firms or overtime within firms.

Table 1. Descriptive statistics.

	Mean	Max.	Min.	Std. Dev.	Skew.	Kurt.	J-B	Prob
DPS	1.17	12.93	0.00	2.45	3.03	12.04	1406.46	0
CIT	691,335	2,518,743.4	648,904	7,417,844	−4.46	35.3	13275.7	0
EPS	2.16	26.67	−9.86	4.0	2.49	11.8	1200.1	0
AGE	25.02	49	1	12.6	−0.55	2.1	24.6	0
FOREIGN	0.27	0.88	0	0.3	0.47	1.59	34.2	0
INSTITUTION	0.16	0.78	0	0.2	1.44	3.80	105.7	0
DIRSH	2.86	31.12	0	6.1	2.92	11.9	1342.0	0
RISK	5.77	121.19	0	14.0	4.71	28.5	8758.5	0
LEVERAGE	0.96	9.40	0	1.38	3.02	14.44	1931.19	0.96
GROWTH	0.76	28.37	−7.66	2.5	5.55	60.9	41160.3	0

Source: Author's computation based on E-views 9.

The other summary statistics for dividend per share also indicates that the distribution of the variable among the firms is not symmetric; the skewness value shows that more companies less dividends than the reported mean value which also suggest that that some firms paid very large dividend values (as suggested by the maximum value). The J-B statistic for the dividend payout variable is significant at the 1 percent level and implies that the probability distribution of the sample for the variable is not normally distributed. This invariably suggests that the dividend series across the firms is heterogeneous and exhibit firm-specific characteristic. This is one justification for the application of the panel data estimation technique in this study. Similar descriptive statistics to those of DPS also apply to the earnings per share data. Average EPS for the sampled period is 2.16 with a high maximum value. The standard deviation also shows that there was a large spread in the EPS among the firms. Average age of the manufacturing firms in the sample is 25 years which is a fairly long period, although there were also quite young firms in the sample. In the same vein, the risk associated with the firms has a value of 5.77 percent on average with maximum value exceeding 121 percent. This indicates that there have been high risks for the firms sampled in the study and some individual firms could have quite extensive risks.

The descriptive statistics for the other variables in the study also present interesting outcomes. For the corporate taxes of the firms (CIT), the mean and maximum values clearly shows that on average, tax liabilities are higher than dividend layout for Nigerian firms. The degree of variability is also very high among the firms, although the skewness value is negative; indicating that more firms paid higher taxes than the reported mean value for the period of the sample. The J-B statistic also indicates non-normal distribution and indication of heterogeneity in the pattern of CIT liability by the firms. Indeed, all the variables in the study had highly significant J-B values, clearly showing that those individual firms characteristic are quite important in the measurement of the variables. The investor pattern for the firms shows that foreign ownership was 27 percent of the firms while institutional ownership had 16 percent. The directors' share in the companies was 2.86 percent on average, although there were particular firms where directors had up to 31.12 percent of shareholding. Foreign ownership therefore appears to be the dominant ownership structure among the firms (maximum value is 88 percent). Moreover, some of the firms have do not have any of the forms of ownership structure outlined. The descriptive statistics also show that there is relatively even spread, in ownership structure for the firms, especially when foreign ownership is considered. The standard

deviation value is low, and the skewness is quite close to zero. Average leverage (debt to asset ratio) value is also relatively high for the firms, but surprisingly, some of the firms did not report any debt for some of the periods in the sample. Average growth rate for the firms is 0.76 percent, which is relatively low. Some firms grew at average 28.37 percent in some of the years in the sample.

To further examine the background behavioral patterns in the data series in the study, the unconditional correlations coefficients are determined between the variables in the study. The (unconditional or ordinary) correlation analysis is conducted on the data for the main variables used in the empirical analysis. The result of the correlation tests is shown in Table 2 below. The correlation matrices for the variables indicate that dividend per share has a very strong correlation with earnings per share, which indicates that the two shareholder value variables are highly related as in terms of measuring the same attributes of the firm. Both DPS and EPS also have significant negative correlation with business risks in the organization. This indicates that both sets of variables move in opposite directions. For instance, when firm risks are rising, DPS and EPS are falling. In the same vein, both DPS and EPS have similar correlations with CIT (or reduction in cash flow) suggesting that falling cash flow is related with falling DPS or EPS among the firms.

Table 2. Pairwise correlation matrix.

	DPS	EPS	RISK	AGE	CIT	DIRSH	FOREIGN	GROWTH	RETAIN	SIZE
EPS	0.85									
	(0.00)									
RISK	−0.60	−0.55								
	(0.00)	(0.00)								
AGE	0.31	0.29	0.29							
	(0.00)	(0.00)	(0.00)							
CIT	−0.27	−0.25	−0.41	−0.21						
	(0.00)	0.00	0.00	0.00						
DIRSH	0.19	0.19	−0.12	−0.50	0.05					
	(0.00)	(0.00)	(0.05)	(0.00)	(0.43)					
FOREIGN	0.26	0.30	0.22	0.20	−0.19	−0.25				
	(0.00)	0.00	0.00	0.00	0.00	(0.00)				
GROWTH	−0.01	0.00	−0.02	−0.02	−0.01	−0.02	0.05			
	(0.92)	0.97	0.74	0.71	0.81	0.73	(0.41)			
INSTUTITION	−0.09	−0.07	−0.11	0.10	0.12	−0.17	−0.45	0.03		
	(0.13)	0.25	0.07	0.11	0.04	0.01	0.00	(0.67)		
RETAIN	−0.05	0.10	−0.07	−0.02	0.06	−0.04	−0.01	−0.02		
	(0.43)	0.10	0.27	0.75	0.32	0.49	0.84	0.80		
SIZE	0.39	0.45	0.31	0.18	−0.21	−0.33	0.35	0.17	0.11	
	(0.00)	0.00	0.00	0.00	0.00	0.00	0.00	(0.01)	(0.06)	
LEVERAGE	−0.09	−0.10	−0.07	0.08	0.02	0.10	−0.20	−0.14	−0.06	−0.50
	(0.15)	0.11	0.27	0.16	0.73	0.09	0.00	(0.02)	0.31	(0.00)

Source: Author's computation based on E-views 9.

We find a relatively high positive correlation between directors' share and both DPS and EPS just like there is a positive correlation between foreign shares and both DPS and EPS. On the other

hand, there is no significant correlation between institutional shares and either DPS or EPS. Moreover, while firm age of the company has strong correlations with most of the variables, growth did not have strong correlations. This implies that firm growth prospects have limited relationships with the other variables in the study. Leverage, which represents financial risks, has weak correlation with both DPS and EPS. This gives indication of the low and weak relationship between financial risks and shareholder values among the firms. On the other, leverage has a significant foreign ownership, firm growth and firm size.

Table 3. The Hausman test result for fixed/random effect.

		Concentration Model		Values Model		
Test Summary		Chi-Sq. Statistic	Prob.	Chi-Sq. Statistic		Prob.
Cross-section random		1.59	0.83	857.32		0.0
Variable	Fixed	Random	Prob.	Fixed	Random	Prob.
Risk	0.01	0.04	0.00	0.24	0.35	0.00
Lev	−1.23	2.45	0.00	−1.83	2.88	0.00
Retain	−0.42	−0.24	0.30	−0.93	−0.74	0.11
Dirsh	−0.02	−0.08	0.00	−0.09	−0.19	0.00
Cit	0.01	0.04	0.23	0.05	0.11	0.14
Age	−0.15	−0.02	0.15	−0.13	−0.09	0.08
Growth	0.04	1.41	0.00	−0.03	2.18	0.00
Outshares	−0.01	0.05	0.00	0.01	0.11	0.00
Size	−0.01	0.00	0.80	−0.18	0.01	0.76
Insti.	−0.02	−0.08	0.00	−0.09	−0.19	0.00

Source: Author's computation based on E-views 9.

The first set of analysis of the results is the estimates of the aggregate behaviour of dividend per share in the face of changes in risks and other related factors. Another set of analysis (in the next section) estimation of the earnings per share equation. Though the Hausman test has shown that the Random Effect (RE) estimates are more appropriate in the estimations, we include fixed effects estimate for the sake of robustness checks. The result of the estimates of the initial model with basic cash-flow factors is reported in Table 4. In the RE estimates, the goodness of fit is impressive, with the adjusted R squared value indicating that over 56 percent of the systematic variations in DPS is captured in the model. The F value for the result is also high and easily passes the significance test at the 1 percent level (when the probability value is considered). This suggests a significant relationship between dividend per share and all the independent variables combined.

Table 4. Estimation for DPS.

Variable	Random effect		Fixed effect	
	Coefficient	Prob.	Coefficient	Prob.
Constant	−1.973**	0.000	−0.517	0.850
Risk	−0.081**	0.000	−0.001	0.910
Lev	0.003	0.803	−0.035	0.735
Retain	0.001	0.807	−0.006**	0.000
Dirsh	0.007*	0.037	0.007	0.738
Insti	0.021*	0.044	0.018	0.050*
Cit	0.003	0.940	0.003	0.105
Age	0.012**	0.000	−0.015	0.739
Growth	−0.019	0.151	−0.015	0.610
Foreign	−0.218**	0.000	−0.074	0.503
Size	0.310**	0.000	0.209	0.236
Adjusted R-squared	0.561		0.871	
F-statistic	40.734		34.752	
D-W	0.89		1.96	

Source: Author's computation based on E-views 9.

The relevance of each of the variables in the model is determined by considering the individual coefficients of the variables in terms of significance and signs (Iyoha, 2004; Greene, 2002). The focus is on the Random Effects estimation since it is the robust result (as demonstrated by the Haussman test). A close examination of the individual coefficients in the model reveals that the coefficient of risk is negative and significant in the result. This shows that risks in the firm has a significant negative impact on dividend per share for the firms. The coefficient is relatively high suggesting that a 1 percent increase in firm risk will lead to a 0.08 percent drop in DPS for the firms. Apparently, higher risks tend to reduce shareholder value through reduction in dividend per share. This outcome can be rationalized since the business risks tend to affect the cash flow of the firms.

With respect to the agency costs variables that are expected to mitigate risks in the firm (manage firm risks), the results show that both director shares and institutional shares have significant positive impacts on DPS. Thus, with more internal shares (through director ownership) and institutional-based shareholding, a greater percentage of risk management is ensured in the firms. This leads to rising shareholder value through increased DPS for the firms. On the other hand, the coefficient of foreign shares is negative and also significant. This implies that more foreign share ownership among Nigerian firms actually leads to reduction of earnings per share for the firms. The results may be as a result of the low monitoring capacity of foreign shareholders or the pure dis-interest of such segment of the shareholders to focus on firm risks.

For the financial risk variable (leverage), the result shows that the variable has no significant effect on DPS, though the coefficient is positive. This implies that it is the business risk and not the overall financial risks faced by the firms that actually reduce shareholder value for these firms. Firm growth also fails the significance test at the 5 percent level. This implies that other risks in the firm that are not business-linked may not have significant impact on the shareholder value. The cash flow variables of retained earnings and CIT may also play essential roles in determining the extent of risks within a business organization. However, the coefficient of both variables failed the significance test at the 5 percent level. This implies that reduction in cash flow (through more tax obligation) or increase in ash flow (through retained earnings) has no significant impact on dividend per share in the firms. Both firm age and firm size have significant positive impacts on DPS in the model.

In Table 5, the result of the estimated equation for earnings per share (EPS) is presented. The focus is again on the Random effects (RE) estimates. Although the adjusted R-squared value is higher in the Fixed Effects estimates (at 0.808), the other diagnostic statistics are better in the RE estimates. Thus, the result shows that about 76 percent of the systematic variations in EPS were explained by the selected explanatory variables in the model. In the same vein, the model appears to have performed very well based on overall analysis. This is confirmed by the highly significant F-value at the 1 percent level. Thus, the null hypothesis of no significant relationship between the dependent variable and all the independent variables combined cannot be accepted for these estimates.

Considering the individual variables in the model, the results in Table 5 show that the coefficient of the risk variable is also negative and highly significant at the 1 percent level (given that the p-value for the coefficient is less than 0.01). This clearly confirms that business risks have an unambiguous negative impact on the shareholder value. This is because the coefficient of risk was negative and significant in both the DPS and the EPS equations. Rising risks have strong negative implications for the shareholders in the firms used for the sample in this study. This also suggests that shareholders would rather ensure that business risks emanating from the firms are well attended to using every means within its power.

Table 5. Results for EPS.

Variable	Fixed effect		Random effect	
	Coefficient	Prob.	Coefficient	Prob.
constant	3.960	0.443	−2.103**	0.001
Risk	−0.022*	0.046	−0.108**	0.000
Lev	0.027	0.887	0.076*	0.031
Retain	0.002	0.305	0.004	0.542
Dirsh	−0.014	0.692	−0.017*	0.052
Insti	0.005	0.072	0.048**	0.001
Cit	−0.003	0.411	0.001	0.581
Age	0.007	0.933	0.008*	0.049
Growth	−0.032	0.544	−0.029	0.332
Foreign	−0.639**	0.001	−0.960**	0.000
Size	0.410	0.231	1.031**	0.000
Adjusted R-squared	0.808		0.764	
F-statistic	21.68		100.5	
D-W	1.72		1.21	

Source: Author's computation based on E-views 9.

The coefficient of leverage (for financial risk) is surprisingly positive in the RE estimation, indicating that larger leverage positions actually lead to increases in earnings per share. Apparently, financial risks are pleasant to shareholders. This implies that financial risks are risks that the shareholders will be willing to always take in order to boost their earnings, even though it may not have significant effects on the dividend situation for the shareholders. Firm growth, on the other hand fails the significance test at the 5 percent level. Thus, the risks associated with firm growth do not have any impact on shareholder value.

For the risk management (or agency cost variables), the results show that director shares now has a negative impact on EPS, while institutional shares still has a very strong positive impact on EPS. The result also shows that foreign share ownership still has negative and significant impact on EPS among the selected firms. This result therefore implies that the strongest risk management composition of ownership comes from institutional shareholding which has the better facilities to monitor risks in the firms. It is when institutional ownership is high among the firms that the firms can better manage its risks and also improve shareholder value. The two coefficients of cash flow also fail the significance test at the 5 percent level. This again presents the fact that for the firms, cash flow situation does not represent a critical risk condition since there is room to easily manage such conditions. Rather, it is business risks that are the focus in this direction. The coefficients of firm age and size also pass the significance tests and are both positive. This shows that older and bigger firms tend to present better shareholder value than smaller or younger firms in Nigeria.

5. Conclusion

In this study, the enterprise risk management practice on shareholder value is examined. The goal was to investigate the impact of risks itself and risk management on benefits of shareholding as well as on dividend payout among these firms in Nigeria. Given that risk and reward are the very essence of business, effective risk management has become the primary vehicle to deliver maximum shareholder value while simultaneously reducing the potential for share value loss, this study intends to confirm whether adequate risk management techniques provides reward systems to firm owners through dividend and other earning structures. The study employed annual data for 48 non-financial firms in the Nigerian Stock Exchange for the period 2011 to 2016. The panel data analytical framework was used in the empirical analysis with focus on the Random Effects (RE) estimation technique. The results from the empirical analysis show that in general, the effect of risk on shareholder value depends on the pattern of risk, as well as on the value being considered. Several aspects of the study have presented particular issues that are relevant for both policy and operational recommendations.

(i) First, given that business risks have been shown to largely reduce shareholder value, there is need for companies in Nigeria to adopt more appropriate measures for reducing business risks and ensuring compliance at all times and at all levels. In this direction, using cash flow as a basis for either observing or assessing risks should not be the focus since the study has shown the ineffectiveness of cash flow analysis in either mitigating risks sor improving shareholder value. Moreover, enterprise risk management implementation should not just be for compliance purposes but also for the purposes of pursuing best practice and long-term survival. When this is done, then risk management will be considered as part of strategic plans which need to be reviewed on a more frequent basis. This will both lead to value creation for the shareholders and ensure long run sustainability of the companies. In the same vein, inculcation of enterprise risk management in business strategic activities can be achieved by a

process of risk transformation. This will ensure that risk management is integrated into the conduct of daily business, taking risk management to higher levels of excellence by driving practices throughout the organization. This means embedding risk management in the daily activities of employees so as to align the conduct of business and of risk management with the business strategies. In terms of risk management, the more risk identification and management is integrated as part of the daily processes and procedures, the better chances the organization has of improving the risk culture since risk management will then be considered as part of corporate processes instead of an additional step.

(ii) Given the effects of financial risks demonstrated in this study, demanding a lowered risk premium in terms of firms' debt instruments essentially implies that larger proportions of the companies' earnings will be made available for distribution to the equity-holders as dividend payments. This will subsequently enhance shareholders' value in the companies.

(iii) There is also need for active risk and opportunity planning within the companies. This is achieved by allowing business projects to always go through a systematic risk and opportunity process as part of preparing the business case before final decisions about the projects have been made.

(iv) Advancement in business activities also implies adoption of more technology-based risk management apparatus in the companies. This can aid even foreign share owners to participate in the monitoring of risks in the system. Therefore, an effective long-term solution for compliance, governance and sustained growth in shareholder value is to integrate a formal technology-based system of sustained enterprise risk management into the heart of all business processes, practices, control and governance activities.

(v) Lastly, one of the most challenging aspects of driving and embedding risk management into companies is educating all levels of the organization on what risk management is, how it should be approached, and what that means for daily decision-making. Thus, there is need for training and education of both owners and especially employees on the processes of risk management over time.

Acknowledgments

We thankfully acknowledge authors whose books and other works were used in this paper.

Conflict of interest

The author declares no conflict of interest in this paper.

References

Beasley M, Pagach D, Warr R (2008) The information conveyed in hiring announcements of senior executives overseeing enterprise-wide risk management processes. *J Accounting Auditing Financ* 23: 311–332.

Bromiley P, McShane M, Nair A, et al. (2015) Enterprise Risk Management: Review, Critique, and Research Directions. *Long Range Plann* 48: 265–276.

Cadbury A (2002) *Corporate Governance and Chairmanship: A Personal View*, Oxford University Press, Oxford.

Collier PM, Berry A, Burke GT (2006) *Risk and Management Accounting: Best Practice Guidelines for Enterprise—Wide Internal Control Procedures*, 1st Edition

Coşkun Y (2012) Financial Failures and Risk Management. *Sermaye Piyasası Dergisi* 10: 100–109.
Dorfman MS (2007) *Introduction to Risk Management and Insurance (9th Edition)*, USA: Pearson.
Eduardus T, Hermeindito K, Putu A, et al. (2007) Corporate governance, risk management and bank performance, University Yogyakarta, Indonesia.
Gates S, Nicolas J, Walker PL (2012) Enterprise risk management: A process for enhanced management and improved performance. *Manage Accounting Q* 13: 28–38.
Hagerty J, Scott F (2005) Spending in the Age of Compliance. *AMR Res*.
Hoyt RE, Liebenberg AP (2011) The value of enterprise risk management. *J Risk Insur* 78: 795–822.
Huber C, Scheytt T (2013) The Deposit of Risk Management: Reconstructing Risk Management after the Financial Crisis. *Manage Accounting Res* 24: 88–99.
Manab NA, Kassim I, Hussin MR (2010) Enterprise-wide risk management (EWRM) practices: between corporate governance compliance and value creation. *Int Rev Bus Res Pap* 6: 239–252.
Meulbroek LK (2005) A senior manager's guide to integrated risk management. *Appl Corp Financ* 14: 56–70.
Naeche N (2012) NAICOM releases guideline for Risk Management Framework for Insurers, Re-InsurersTo commence implementation July 2012. Worldstage. Available from: http://worldstagegroup.com/worldstagenew/index.php?active=news&newscid=3894&catid=2.
Ohiorenoya EA, Iwedi M, Igbanibo DS (2016) Sectorial Analysis of the Risk-Return Characteristic of Quoted Stocks in the Nigerian Stock Exchange. *Account Financ Manage J* 1: 25–55.
Olayinka E, Emoarehi E, Jonah A, et al. (2017) Enterprise Risk Management and Financial Performance: Evidence from Emerging Market. *Int J Manage Accounting Econ* 4: 937–952.
Onyeka SC (2012) Towards effective compliance with the guidelines for developing enterprise risk management framework for insurers and reinsurers. *J Insur Law Practice* 2: 3–11.
Pagach D, Warr R (2010) The Characteristics of Firms that Hire Chief Risk Officers. *J Risk Insur* 78: 185–211.
Roberts H (2005) *Enterprise risk management: Along-term solution for compliance, governance and sustained growth in shareholder value*, Entropy International White Paper.
Salaudeen YM, Atoyebi TA, Oyegbile BA (2018) Enterprise Risk Management and Performance of Selected Listed Consumer Goods Companies in Nigeria. *Appl Financ Accounting* 4: 112–121.
Sobel PJ, Reding KF (2004) Aligning corporate governance with enterprise risk management. *Manage Accounting Q* 5: 29–37.
Tahir IM, Razali AR (2011) The Relation between Enterprise Risk Management and Firm Value: Evidence from Malaysian Public listed Companies. *Int J Econ Manage* 1: 32–41.
Udoka C, Orok A (2017) Assessment of the Enterprise Risk Management (ERM) in the Nigerian Banking Industry. *Asian J Econ Empir Res* 4: 68–74.
Wu DD, Olson D (2010) Enterprise risk management: a DEA VaR approach in vendor selection. *Int J Prod Res* 48: 4919–4932.
Zahiruddin G, Norlida AM (2013) Enterprise Risk Management and Value Creation: Initial Findings amongst Non-Financial Public Listed Companies in Malaysian Bourse. *Asian Econ Financ Rev* 3: 913–922.

AIMS Press

© 2020 the Author(s), licensee AIMS Press. This is an open access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0)