ENTERPRISE RISK MANAGEMENT (ERM) AND FIRM'S PERFORMANCE: STUDY OF SELECTED MANUFACTURING FIRMS ON NIGERIAN STOCK EXCHANGE

Adegbola Olubukola Otekunrin'; Tony, Ikechukwu Nwanji; Adebanjo Joseph Falaye; Babatunde Taiwo Adesina; Babatunde Taiwo Adesina; Frank Dayo Awonusi; Eseosa David Obadiar; Samuel Abiodun Ajayi; & Damilola Felix Eluyela
Department of Accounting and Finance,
Landmark University, Omu-Aran, Kwara State, Nigeria:
Email: otekunrin.adegbola@lmu.edu.ng, nwanji.tony@lmu.edu.ng;
falaye.adebanjo@lmu.edu.ng , Adesina.babatunde@lmu.edu.ng;
awonusi.frank@lmu.edu.ng; obadiaru.eseosa@lmu.edu.ng;
ajayi.abiodun@lmu.edu.ng; eluyela.damilola@lmu.edu.ng

ABSTRACT

The contemporary business environment is embroiled with enterprise risks which can have a negative impact on an organizations existence and success. These risks represent the threats to the ability of an enterprise to execute business process and create customer value. This study was carried out to find out whether the management of these integrated risks through enterprise risk management (ERM) can lead to better firm's performance in Nigerian manufacturing In line with extant researches in this area, the proxy used for performance of firms in this study is profitability and it is measured by firm' return on equity ratio (Lo, 2003; Hossein & and Mahdi, 2009). Descriptive research design was adopted in this study. The secondary data used were taken from the annual reports of the selected manufacturing firms. Random sampling technique was used for selecting firms for this study. The study revealed that practice of ERM is positively and significantly related to firm's performance proxied by profitability and measured by the level of return on equity (ROE). The study also revealed lliquidity level of a firm which is proxied by current ratio (CR) is positively and significantly related to the level of return on equity (ROE). Leverage level proxied by debt to total equity ratio of a firm is negatively and significantly related to the level of return on

Enterprise Risk management (ERM) and FIRM'S Performance: Study of Selected Manufacturing Firms on Nigerian Stock Exchange

Adegbola Olubukola Otekunrin' et al

equity (ROE). Finally solvency level proxied by debt to total asset ratio of a firm is negatively and significantly related to the level of return on equity (ROE). It is recommended that the manufacturing sector should adopt ERM practice in order to enhance firm performance and by extension increases organization's reputation.
Keywords: Enterprise, Risk, Profitability, Leverage, Solvency

INTRODUCTION

Managing risk is a fundamental concern in today's dynamic global environment (Loeb, Tseng, 2009). Risk management involved organization identifying and analysing threats, examines alternatives then accepts or mitigates those threats (Stanton, 2012). Recently, corporate risk management has expanded well beyond insurance and hedging of financial exposures to include other kinds of risks, such as operational risk, reputation risk and most recently strategic risk (Nocco & Stulz, 2006). According to Casualty Actuarial Society (2003), risks are being considered as source of opportunities for value creation and not something to be minimized or avoided. The impact of risk on firms has been a long standing issue which many risk professionals have tried to resolve. Royal Bank of Scotland (hereafter refers to as RBS) was considered to have a well-staffed risk management function.

In 2010, a report by the Chartered Institute of Management Accountants found that there were three great weaknesses in RBS' risk management program and these includes an overly aggressive risk culture and heavy dependence on mathematical risk models that tended to show that the bank's risk levels were acceptable and this allowed overall risks to develop unchecked. RBS' risk management approach was a silo- based approach and is traditional risk management (hereafter refer to as TRM). Over the years the approach to risk has evolved from traditional risk management which was a method used and is still used in a number of firms to enterprise risk management (hereafter refer to as ERM). TRM as a risk management approach involved using a silo- based approach in evaluating risk,

whereby various departments in an organization evaluate and manage their risks independently. This lead to inefficiency as risks that are managed in silos can lead to many other problems such as; gaps in risk analysis, risk moderation, lack of a process to aggregate critical risks and an absence of sharing risk information across the organization. Such problems make it particularly challenging to fully understand and manage the major risks the organization is facing. When companies operate in separate business units, a single risk has the power to affect different sections of the firm.

The problem most Chief Financial Officer's face is that they are unable to promote the sharing of risk information between departments in an organization. When a unified risk management strategy is put in place the Chief Financial Officer's can drive a better understanding of how risks are connected and interact with each other. It is against this backdrop that this study examined enterprise risk management (hereafter refer to as ERM) and firms' performance in the selected Nigerian manufacturing firms. ERM is a management process that requires a firm's management to identify and assess the collective risks that affect firm value and apply an enterprise wide strategy to manage those risks in order to establish an effective risk management strategy (Meulbroek, 2002). The main objective of this study was to examine the relationship between ERM and performance of manufacturing firms. In line with extant researches in this area, the proxy used for performance of firms in this study is profitability and it is measured by firm' return on equity ratio (Lo, 2003; Hossein & and Mahdi, 2009). The study sought to achieve the specific objective by examining the extent to which leverage, solvency, liquidity and practice of ERM enhances the profitability of selected the manufacturing firms in Nigeria. This study help to find out what extent does leverage, solvency, liquidity and practice of ERM enhance the performance of firms in the selected manufacturing firms in Nigeria? Leverage is measured by debt to total equity ratio. Solvency is measured by debt to total asset ratio, liquidity is measured by current ratio and business risk is represented by practice of enterprise

Enterprise Risk management (ERM) and FIRM'S Performance: Study of Selected Manufacturing Firms on Nigerian Stock Exchange

Adegbola Olubukola Otekunrin' et al

risk management (ERM). ERM is proxied by 1 for practice of ERM and otherwise is 0 (Meulbroek, 2002; Acharyya and Johnson, 2006; Hoyt and Liebenberg, 2011).

Objectives of the Study

The study sought to achieve the following specific objective to;
1. ascertain the extent to which debt to total equity ratio enhances the return on equity of firms
2. investigate the extent to which debt to total asset ratio enhances the return on equity of firms
3. examine the extent to which current ratio enhances the return on equity of firms
4. determine the extent to which practice of ERM enhances the return on equity of firms

Research Questions

The following are the specific research questions answered by this study
1. Is debt to total equity ratio of a firm related to its level of return on equity?
2. Is debt to total asset ratio of a firm related to its level of return on equity?
3. Is current ratio of a firm related to its level of return on equity?
4. Is practice of ERM related to its level of return on equity?

Research Hypotheses

The following null hypothesis was tested;

Hypothesis One

H_0: debt to total equity ratio and return on equity ratio are not significantly related

Hypothesis Two

H_0: debt to total asset ratio and return on equity ratio are not significantly related

Hypothesis Three

H$_0$: current ratio and return on equity ratio are not significantly related

Hypothesis Four

H$_0$: practice of ERM and return on equity ratio are not significantly related

REVIEW OF RELATED LITERATURE

Horcher (2005) explains that exposure and risk are closely connected and are often used interchangeably. Holton (2004) stated that a lot of financial literature yields many discussions of risk but few definitions. After an extensive research Holton (2004) concluded that risk encompasses a lot of situations in several areas of life while situations that involve risk may appear dissimilar, there is a similarity that could be noted. Individuals are both exposed and uncertain in a lot of situations. They have information on the likely happenings but are uncertain because they do not know what exactly will happen. It is individuals that that make up organizations. Though organizations, firms and government are not self-aware through the individuals that make up organizations, risk is taken. Kraus and Lehner (2012) explained that risk management is traceable to the late 1940s and early 1950s and it started as a so-called "silo-based" approach to corporate risk management until the mid-1990s. Dickinson (2001), states that the 'silo-based' approach is the TRM which is characterized by the management of individual risks in single units in a vastly disaggregated method. To this effect therefore, the different risk types; liquidity, credit, market, and operational risk are managed individually. According to Eikenhout (2015), the limitation of this method is that it leads to inefficiencies in risk management since the risk have to be split up and managed individually. He explains that, traditional risk management focuses on financial risk and manages risks in individual cases while ERM manages the risks as a package and focuses not only on financial risks, but also on non-financial risks.

Saeidi, Sofian and AbdulRasid (2014) opined that the 1990s saw a major paradigm shift in the area of corporate risk management. As an alternative of relying only on silo based approaches to analyze and

address risks, organizations started using a more holistic approach towards risk management. The authors presented a table as specified Olson and Wu (2007) showing the comparison between the management approaches of traditional risk management and enterprise risk management.

TABLE 2.1: The Old and New Approach of Risk Management

Traditional risk management	Enterprise risk management
Risk as individual hazards	Risk viewed in context of business strategy
Risk identification and assessment	Risk portfolio development
Focus on discrete risks	Focus on critical risks
Risk mitigation	Risk optimization
Risk limits	Risk strategy
Risks with no owners	Defined risk responsibilities
Haphazard risk quantification	Monitoring and measurement of risks
"Risk is not my responsibility"	"Risk is everyone's responsibility"

Source: Olson and Wu (2007)

ERM and Firm Value

Kraus and Lehner (2012) stated that ERM has become known as a new paradigm for managing the portfolio of risks faced by firms and convey synergic value by utilizing natural hedges. While the TEM did not seem to produce the desired results, Lam, (2000) affirms this by stating that ERM was developed because the traditional form of risk management did not produce effective results. Nocco and Stulz (2006) assert that ERM creates value through its effects on firms at both company-wide level and a business-unit level by aiding senior management to quantify and manage the risk-return trade-off the entire firm is faced, By embracing this perspective, ERM is able to help the firm to maintain the access to the capital markets and other resources that are essential to implement its strategy and business plan. At the business-unit level, the managers and employees at all levels of the company see ERM as a way of life. At the company-wide level and the business level, a well-designed ERM system ensures that all material risks are "owned and risk-return tradeoffs cautiously evaluated by operating managers and employees all through the organization (Nocco & Stulz, 2006).

Saeidi *et al.* 2014) are of the opinion that the inability to solve challenges such as globalization, competition, strict regulation, litigation, technology, and complex financial models which are facing businesses today could cause negative consequences for a business and expose the business to risk. They note that the only approach to meet the risks connected with conducting business in today's environment is to "balance risk." They concluded that ERM is one technique that has been developed to help in meeting the challenges facing businesses in an increasingly complex global market. Hoyt and Liebenberg (2011) affirm the above as they posit that ERM offers a framework that combines all risk management activities thus enabling the identification of interdependencies amongst risks. Therefore, the goal of an ERM strategy is to reduce volatility by avoiding aggregation of risk across different sources. Eckles, Hoyt and Miller (2014) assert that research on ERM has provided proof that firms that adopt ERM are able to produce a greater reduction of risk per dollar consumed on risk management. Previous researches has found that appropriate practice of ERM create value that enhance the profitability of firms. Although the findings of Lin, Wen and Yu (2010) show that ERM is related with a lower profit. Researches are still on going on the profitability of firms and ERM because as it is important for firms to make profit, it is also important for them to manage risks that can have serious implication on the profit. It is against this backdrop that this study examined ERM and firms' performance selected Nigerian manufacturing using profitability as proxy for firms' performance and it is measured by ROE.

Drivers towards ERM

The American Society for Health Care Risk Management (2014) gives examples of some internal and external risk drivers. The internal risk drivers include the availability or non-availability of resources, organizational culture and employee distraction (e.g. interruptions, employee fatigue). The examples of external drivers include government rules and regulations, activities of competitors, terrorism, natural disasters, and the availability of key personnel.

Enterprise Risk management (ERM) and FIRM'S Performance: Study of Selected Manufacturing Firms on Nigerian Stock Exchange

Adegbola Olubukola Otekunrin' et al

Where the organization can effectively manage its risks drivers through ERM, risks may be transformed to opportunities (Banham, 2004).

Risk culture and risk governance

The Financial Stability Board (hereafter refer to as FSB) considers risk culture effective when it promotes sound risk-taking, addresses emerging risks (beyond risk appetite), and ensures employees conduct business in a "legal and ethical manner" (Boseman & Kingsley, 1998). FSB highlights the importance of subcultures across the organization adhering to consistent high standards and values. It has become necessary in recent times for organization to adopt a risk culture for risks to be properly understood and managed. Boseman and Kingsley (1998) opine that risk culture is organization's propensity to take risks as perceived by the managers in the organization. According to O'Donovan (2011), a risk culture is grounded on particular beliefs and assumptions. These can be grouped according to specific cultural canons, namely risk, integrity, governance and leadership, decision-making, empowerment, teamwork, responsibility and adaptability. They are usually expressed in everyday workplace practices through attitudes and behaviours and, when they are expressed by leaders, they serve as powerful (human) culture embedding mechanisms. Risk culture significantly affects the ability to take strategic risk decisions and deliver on performance promises. According to Kpodo and Agyekum, (2015: 686) "Organizations with inappropriate risk cultures will inadvertently find themselves allowing activities that are totally at odds with stated policies and procedures or operating completely outside these policies". ERM helps firms to abide with effective risk culture and risk governance as it allow members of senior management to take ownership for particular risks. Under ERM, risks can normally be reported from "regional or facility-level on up (bottom-up approach) and then consolidated at group level, where they are

sometimes filtered and/or complemented by additional risks (top-down approach) (OECD, 2014:78),"

METHODOLOGY

Quantitative method of research was adopted for the study. The purpose of using quantitative research is to develop and employ mathematical models. The annual reports of the companies under review were analyzed to determine the relationship that exists between enterprise risk management and firm's performance. Secondary data used was obtained from the annual reports of the selected firms on the Nigerian Stock Exchange for a ten year period (i.e. from 2005-2014). Data requirements, which were the financial statements of the firms investigated were obtained from the annual reports which were sourced electronically from the company's website. Four (4) firms comprising of Guinness, Unilever Nigeria plc, 7UP bottling company and nestle were selected based on random sampling technique. Descriptive research design was adopted in this study.

Model Specification

$$ROE = B_0 + B_1 LOGSIZE + B_2 CR + B_3 ERM + B_4 DBTA + B_5 DBEQ + e \dots\dots\dots\dots\dots\dots Equation\ 1$$

Where

ROE= return on equity

CR= current ratio

ERM = Enterprise Risk Management, dummy variable 1 = practice ERM and 0 otherwise

DBTA=debt to total asset

DBEQ=debt to total equity

Firm Size (LOGSIZE) = Natural Logarithm of Total Assets

Enterprise Risk management (ERM) and FIRM'S Performance:
Study of Selected Manufacturing Firms on Nigerian Stock
Exchange

Adegbola Olubukola Otekunrin' et al

B_1, B_2, B_3, B_4 and B_5 are the slopes of business, liquidity, leverage, solvency and financial risk respectively, and e is the stochastic error term that is observed along with the variables.

A Priori Expectation

$B_1 > O$, $B_2 > O$, $B_3 > O$, $B_4 < O$, $B_5 < O$

Research data were analyzed using generalized method of moments (GMM). GMM as a method of data analysis is applied when the parameter of interest is finite dimensional whereas the full shape of the distribution function of the data may not be known, therefore the maximum likelihood estimation and related techniques are not applicable. The choice of GMM technique was informed by the researchers' uncertainty about the true shape of the distribution function of the research data. In order to ensure that the results of the study are not spurious, research data were subjected to stationarity test, where the data were found not to be stationary, they were integrated of order one (i.e. the data were be differenced once). Engle and Granger (1987) observed that most non- stationary time series data become stationary after integration of order one. Stationarity test were performed using augmented dickey fuller test.

DATA PRESENTATION AND DISCUSSION OF FINDINGS
Descriptive Statistics
Table 4.1 GUINNESS

	DBEQ	DBTA	ERM	ROE	LOGSIZE	CR
Mean	1.230000	1.038000	0.430000	0.424000	35.83000	1867121.
Std. Dev.	0.272274	0.235599	0.062004	0.041419	7.562047	861313.0
Skewness	–1.018863	0.225223	–0.109078	–0.121840	0.075270	–0.517668
Kurtosis	3.418342	2.321990	1.585586	2.881702	1.607515	2.758346
Jarque–Bera	1.803057	0.276083	0.853400	0.030573	0.817365	0.470966
Probability	0.405949	0.871063	0.652659	0.984830	0.664525	0.790189

SOURCE: Authors computation 2017

The result in table 4.1 shows that DBEQ, ROE are all positively skewed. Furthermore, the coefficient of kurtosis shows that the excess kurtosis are 0.4183, –0.678, –1.41,–0.12,–1.392 and –0.24 for CR, DBEQ, DBTA, ERM, ROE, and LOGSIZE respectively. The implication is that while the distributions of DBEQ, DBTA, and ROE are not normally distributed, those of CR, ERM and LOGSIZE are normally distributed being approximately mesokurtic in peakedness. DBEQ, DBTA and ROE have platykurtic peakedness. Some of the results are consistent with the Jarque– Bera tests with asymptotic significant probabilities of 0.41, 0.87, 0.65, 0.98, 0.66, and 0.79 for CR, BDEQ, DBTA, ERM, ROE, and LOGSIZE respectively.

Table 4.2 UNILEVER

	DBEQ	DBTA	ERM	ROE	LOGSIZE	CR
Mean	0.914000	2.480000	0.639000	0.270000	37.64000	1046292.
Std. Dev.	0.159944	0.686052	0.067239	0.045704	27.73002	654335.7
Skewness	–0.617747	0.098020	–0.350953	0.309146	–1.968774	0.286562
Kurtosis	2.120917	1.839003	1.595615	1.988456	5.839929	1.628422
Jarque–Bera	0.958014	0.577644	1.027070	0.585627	9.820620	0.920708
Probability	0.619398	0.749146	0.598377	0.746161	0.007370	0.631060

SOURCE: Authors computation 2017

The result in table 4.2 shows that DBEQ, ERM and LOGSIZE are all positively skewed. Furthermore the excess kurtoses in all the variables are significantly different from zero. Thus indicating that the variables are not normal. Some of the results are consistent with the Jarque– Bera tests with asymptotic significant probabilities of 0.61, 0.74, 0.59, 0.74,

Enterprise Risk management (ERM) and FIRM'S Performance: Study of Selected Manufacturing Firms on Nigerian Stock Exchange

Adegbola Olubukola Otekunrin' et al

0.01, and 0.63 for CR, BDEQ, DBTA, ERM, ROE, and LOGSIZE respectively. The extremely large and extremely small values of excess kurtosis are indicative of highly dispersed values from the mean.

Table 4.3 7UP BOTTLING COMPANY

	DBEQ	DBTA	ERM	ROE	LOGSIZE	CR
Mean	1.049000	2.333000	0.62800\0	0.281000	22.15000	222304.0
Std. Dev.	0.267642	0.693639	0.083106	0.052589	3.227400	105039.2
Skewness	– 0.502524	0.304742	0.391577	0.448010	1.129986	0.715163
Kurtosis	2.544091	1.950485	2.374411	2.266225	3.024111	2.251134
Jarque-Bera	0.507489	0.613730	0.418622	0.558865	2.128355	1.086096
Probability	0.775890	0.735750	0.811143	0.756213	0.345011	0.580975

SOURCE: Authors computation 2017

The result in table 4.3 shows that DBEQ, DBTA, ERM, ROE, LOGSIZE are all positively skewed. Furthermore the excess kurtosis in DBEQ, DBTA and ROE, apart from CR, and ROE are significantly different from zero. Thus indicating that the variables are not normal except CR, and ROE. Some of the results are consistent with the Jarque- Bera tests with asymptotic significant probabilities of 0.77, 0.73, 0.81, 0.75, 0.35, and 0.58 for CR, BDEQ, DBTA, ERM, ROE, and LOGSIZE respectively.

Table 4.4 NESTLE PLC

	DBEQ	DBTA	ERM	ROE	LOGSIZE	CR
Mean	1.151000	2.920000	0.612000	0.272000	1.159000	1904792.
Std. Dev.	0.220729	2.286084	0.116409	0.094962	0.804176	1363776.
Skewness	0.692259	1.513914	0.990901	-0.706416	1.609065	0.358780
Kurtosis	2.308485	3.677335	2.604196	2.384675	4.062215	1.980485
Jarque-Bera	0.997950	4.011053	1.701750	0.989467	4.785274	0.647626
Probability	0.607153	0.134589	0.427041	0.609733	0.091388	0.723386

SOURCE: Authors computation 2017

The result in table 4.4 shows that all the variables are positively skewed except ERM. Furthermore the excess kurtoses in all the variables, apart from DBTA are significantly different from zero. Thus, indicating that the variables are not normally distributed except for DBTA. Some of the results are consistent with the Jarque-Bera tests for normality of data with asymptotic significant probabilities of 0.61, 0.13, 0.42, 0.61, 0.09,

and 0.72 for CR, BDEQ, DBTA, ERM, ROE, and LOGSIZE respectively.

4.4 TEST FOR STATIONARITY

Augmented dickey fuller or Phillips Peron's unit root test is usually used to test for stationarity, to determine whether there is a presence of unit root or the series are stationary. We investigated the time series characteristics of variables (CR, DBEQ, DBTQ, ERM, ROE, and LOGSIZE). A variable is said to be stationary when it has no unit root, while it is non-stationary when it has a unit root.

TABLE 4.5 GUINNESS AUGMENTED DICKEY FULLER TEST (ADF)

	VARIABLES	TEST STATISTIC	PROBABILITY	REMARK
ROE	1ST DIFFERENCE	–3.568550	0.0362	STATIONARY
CR	2ND DIFFERENCE	–2.893607	0.5060	NOT STATIONARY
ERM	1ST DIFFERENCE	–4.211711	0.0158	STATIONARY
DBTA	2ND DIFFERENCE	–4.383877	0.0204	STATIONARY
DBEQ	2ND DIFFERENCE	–7.146651	0.0020	STATIONARY
LOGSIZE	LEVEL	–3.606040	0.0344	STATIONARY

SOURCE: Authors computation 2017

In table 4.5 above, at the second difference CR was non-stationary, while ROE, ERM, DBTA, DBEQ and LOGSIZE are stationary. Therefore we accept the null hypothesis of CR which means that it contains a unit root as indicated that its probability is greater than 0.05. On the other hand, we reject the null hypothesis and accept the alternative hypothesis of ROE, ERM, DBTA, DBEQ and LOGSIZE because their probability is less than 0.05 (in other words they do not contain a unit root). Since CR, DBTA and DBEQ were not stationary at first difference, there was a need for second difference. At the second difference DBTA and DBEQ became stationary while CR still remained non- stationary at second difference.

Enterprise Risk management (ERM) and FIRM'S Performance: Study of Selected Manufacturing Firms on Nigerian Stock Exchange

Adegbola Olubukola Otekunrin' et al

TABLE 4.6 UNILEVER AUGMENTED DICKEY FULLER TEST (ADF)

	VARIABLES	TEST STATISTIC	PROBABILITY	REMARK
ROE	1ST DIFFERENCE	–6.109773	0.0028	STATIONARY
CR	2ND DIFFERENCE	–3.384447	0.0511	STATIONARY
ERM	2ND DIFFERENCE	–2.648234	0.1275	NOT STATIONARY
DBTA	2ND DIFFERENCE	–2.277100	0.2004	NOT STATIONARY
DBEQ	2ND DIFFERENCE	–2.493236	0.1539	NOT STATIONARY
LOGSIZE	2ND DIFFERENCE	–8.282010	0.0004	STATIONARY

SOURCE: Authors computation 2017

In table 4.6 above, at the second difference ERM, DBTA and DBEQ were non-stationary, while ROE, CR and LOGSIZE are stationary. Therefore we accept the null hypothesis of ERM, DBTA and DBEQ which means that they contain a unit root as indicated that their probability is greater than 0.05. On the other hand, we reject the null hypothesis and accept the alternative hypothesis of ROE, CR and LOGSIZE because their probability is less than 0.05 (in other words they do not contain a unit root). Since most of the variables were not stationary at level, first difference, and second difference the generalized method of moments was allowed to iterate to convergence.

TABLE 4.7 7UP BOTTLING COMPANY AUGMENTED DICKEY FULLER TEST (ADF)

	VARIABLES	TEST STATISTIC	PROBABILITY	REMARK
ROE	LEVEL	–4.586638	0.0081	STATIONARY
CR	2ND DIFFERENCE	–3.090518	0.0802	NOT STATIONARY
ERM	1ST DIFFERENCE	–6.342079	0.0015	STATIONARY
DBTA	2ND DIFFERENCE	–2.809814	0.1109	NOT STATIONARY
DBEQ	2ND DIFFERENCE	–2.422712	0.1711	NOT STATIONARY
LOGSIZE	2ND DIFFERENCE	–4.798555	0.0135	STATIONARY

SOURCE: Authors computation 2017

In table 4.7 above, at the second difference CR, DBTA and DBEQ were non-stationary, while ROE, ERM and LOGSIZE are stationary. Therefore we accept the null hypothesis of CR, DBTA and DBEQ which means that they contain a unit root as indicated that their probability is greater than 0.05. On the other hand, we reject the null hypothesis and accept the alternative hypothesis of ROE, ERM and LOGSIZE because their probability is less than 0.05 (in other words they do not contain a unit

root). Since most of the variables were not stationary at level, first difference, and second difference the generalized method of moments was allowed to iterate to convergence.

TABLE 4.8 NESTLE PLC AUGMENTED DICKEY FULLER TEST (ADF)

	VARIABLES	TEST STATISTIC	PROBABILITY	REMARK
ROE	1ST DIFFERENCE	–20.61864	0.0000	STATIONARY
CR	1ST DIFFERENCE	–4.092045	0.0184	STATIONARY
ERM	1ST DIFFERENCE	–3.728937	0.0293	STATIONARY
DBTA	LEVEL	–6.272031	0.0016	STATIONARY
DBEQ	1ST DIFFERENCE	–4.117925	0.0178	STATIONARY
SNDP	2ND DIFFERENCE	–4.341874	0.0212	STATIONARY

SOURCE: Authors computation 2017

In table 4.8 above, at the level, first and second difference ROE, CR, ERM, DBTA, DBEQ and LOGSIZE are stationary. Therefore we reject the null hypothesis and accept the alternative hypothesis of ROE, CR, ERM, DBTA, DBEQ and LOGSIZE because their probability is less than 0.05 (in other words they do not contain a unit root).

TEST OF HYPOTHESES

TABLE 4.9 GUINNESS PLC

Dependent Variable: ROE
Method: Generalized Method of Moments
Sample: 2004–2013
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CR	7.731451	2.953191	2.617999	0.0072
ERM	213.3056	19.21752	11.09954	0.0001
DBTA	–465.5475	33.14514	–14.04573	0.0000
DBEQ	–135.6737	9.011361	–15.05585	0.0000
LOGSIZE	1.55E–06	1.17E–06	2.442876	0.0031

R-squared	0.295364	Mean dependent var	35.83000
Adjusted R-squared	–0.268346	S.D. dependent var	7.562047
S.E. of regression	8.516442	Sum squared resid	362.6489
Durbin–Watson stat	2.027895	J-statistic	0.999869
Instrument rank	6	Prob(J-statistic)	0.317342

SOURCE: Authors computation 2017

Enterprise Risk management (ERM) and FIRM'S Performance: Study of Selected Manufacturing Firms on Nigerian Stock Exchange

Adegbola Olubukola Otekunrin' et al

Results in table 4.9 show that the adjusted coefficient of determination (adjusted R-square bar) was 0.2954, thus indicating that 29.54% of the variation in the firm's profitability (ROE) is explained by variations in the explanatory variables (profitability risk, liquidity risk, leverage risk, solvency and financial risk). The calculated value of the Durbin Watson statistic is 2.028. This value is within the permissible limits of 4-du, du; thus indicating that the stochastic error terms are not serially correlated. This implies that the results of the test are not spurious. Based on the result for Table 4.9 and in line with *apriori* expectation on liquidity level of a firm which is proxied by current ratio (CR), current ratio (CR) is positively and significantly related to the level of return on equity (ROE). Consequently, we reject the null hypotheses that: current ratio and return on equity ratio are not significantly related and accept the alternative hypotheses. In line with *apriori* expectation on practice of ERM, practice of ERM is positively and significantly related to the level of return on equity (ROE). Consequently, we reject the null hypotheses that: practice of ERM and return on equity ratio are not significantly related and accept the alternative hypotheses. In line with *apriori* expectation on Firm Size (LOGSIZE), Firm Size (LOGSIZE) is positively and significantly related to the level of return on equity (ROE). In line with *apriori* expectation on leverage level proxied by debt to total equity ratio of a firm. Debt to total equity ratio is negatively and significantly related to the level of return on equity (ROE). Consequently, we reject the null hypotheses that: debt to total equity ratio and return on equity ratio are not significantly related and accept the alternative hypotheses. In line with *apriori* expectation on solvency level proxied by debt to total asset ratio of a firm. Debt to total asset ratio is negatively and significantly related to the level of return on equity (ROE). Consequently, we reject the null hypotheses that: debt to total asset ratio and return on equity ratio are not significantly related and accept the alternative hypotheses.

TABLE 4.10   UNILEVER PLC

Dependent Variable: ROE
Method: Generalized Method of Moments
Sample: 2004-2013
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CR	44.68242	15.73226	2.840179	0.0062
ERM	131.3172	92.37766	2.441525	0.0144
DBTA	-561.4822	84.27198	-6.662739	0.0011
DBEQ	-92.56450	16.31534	-5.673466	0.0024
LOGSIZE	1.46E-05	4.35E-06	3.369753	0.0199

R-squared	0.930816	Mean dependent var	37.64000
Adjusted R-squared	0.875468	S.D. dependent var	27.73002
S.E. of regression	9.785661	Sum squared resid	478.7958
Durbin-Watson stat	1.705525	J-statistic	0.003943
Instrument rank	6	Prob(J-statistic)	0.949932

SOURCE: Authors computation 2017

Results in table 4.10 show that the coefficient of determination (adjusted R-square bar) was 0.875, thus indicating that 87.5% of the variation in the firm's profitability (ROE) is explained by variations in the explanatory variables (profitability risk, liquidity risk, leverage risk, solvency and financial risk). The calculated value of the Durbin Watson statistic is 1.71. This value falls approximately within the permissible limits of 4-du, du; thus indicating that the stochastic error terms are not serially correlated. This implies that the results of the test are not spurious. Based on the result for Table 4.10 and in line with *apriori* expectation on liquidity level of a firm which is proxied by current ratio (CR), current ratio (CR) is positively and significantly related to the level of return on equity (ROE). Consequently, we reject the null hypotheses that: current ratio and return on equity ratio are not significantly related and accept the alternative hypotheses. In line with *apriori* expectation on practice of ERM, practice of ERM is positively and significantly related to the level of return on equity (ROE). Consequently, we reject the null hypotheses that: practice of ERM and return on equity ratio are not significantly related and accept the

Enterprise Risk management (ERM) and FIRM'S Performance: Study of Selected Manufacturing Firms on Nigerian Stock Exchange

Adegbola Olubukola Otekunrin' et al

alternative hypotheses. In line with *apriori* expectation on Firm Size (LOGSIZE), Firm Size (LOGSIZE) is positively and significantly related to the level of return on equity (ROE). In line with *apriori* expectation on leverage level proxied by debt to total equity ratio of a firm. Debt to total equity ratio is negatively and significantly related to the level of return on equity (ROE). Consequently, we reject the null hypotheses that: debt to total equity ratio and return on equity ratio are not significantly related and accept the alternative hypotheses. In line with *apriori* expectation on solvency level proxied by debt to total asset ratio of a firm. Debt to total asset ratio is negatively and significantly related to the level of return on equity (ROE). Consequently, we reject the null hypotheses that: debt to total asset ratio and return on equity ratio are not significantly related and accept the alternative hypotheses.

TABLE 4.11 7UP BOTTLING
Dependent Variable: ROE
Method: Generalized Method of Moments
Sample: 2004-2013
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CR	1.348312	0.662049	2.526112	0.0013
ERM	160.8507	11.09508	14.49747	0.0000
DBTA	-135.3669	14.33221	-9.444943	0.0002
DBEQ	-24.98349	2.860765	-8.733152	0.0003
LOGSIZE	1.77E-05	3.76E-06	4.693148	0.0054

R-squared	0.910246	Mean dependent var	22.15000
Adjusted R-squared	0.838443	S.D. dependent var	3.227400
S.E. of regression	1.297226	Sum squared resid	8.413976
Durbin-Watson stat	2.907806	J-statistic	0.510052
Instrument rank	6	Prob(J-statistic)	0.475116

SOURCE: Authors computation 2017

Results in table 4.11 show that the coefficient of determination (adjusted R-square bar) was 0.8384, thus indicating that 83.84% of the variation in the firm's profitability (ROE) is explained by variations in

the explanatory variables (profitability risk, liquidity risk, leverage risk, solvency risk and financial risk). Based on the result for Table 4.11 and in line with *apriori* expectation on liquidity level of a firm which is proxied by current ratio (CR), current ratio (CR) is positively and significantly related to the level of return on equity (ROE). Consequently, we reject the null hypotheses that: current ratio and return on equity ratio are not significantly related and accept the alternative hypotheses. In line with *apriori* expectation on practice of ERM, practice of ERM is positively and significantly related to the level of return on equity (ROE). Consequently, we reject the null hypotheses that: practice of ERM and return on equity ratio are not significantly related and accept the alternative hypotheses. In line with *apriori* expectation on Firm Size (LOGSIZE), Firm Size (LOGSIZE) is positively and significantly related to the level of return on equity (ROE). In line with *apriori* expectation on leverage level proxied by debt to total equity ratio of a firm. Debt to total equity ratio is negatively and significantly related to the level of return on equity (ROE). Consequently, we reject the null hypotheses that: debt to total equity ratio and return on equity ratio are not significantly related and accept the alternative hypotheses. In line with *apriori* expectation on solvency level proxied by debt to total asset ratio of a firm. Debt to total asset ratio is negatively and significantly related to the level of return on equity (ROE). Consequently, we reject the null hypotheses that: debt to total asset ratio and return on equity ratio are not significantly related and accept the alternative hypotheses.

Enterprise Risk management (ERM) and FIRM'S Performance: Study of Selected Manufacturing Firms on Nigerian Stock Exchange

Adegbola Olubukola Otekunrin' et al

TABLE 4.12 NESTLE NIGERIA PLC

Dependent Variable: ROE
Method: Generalized Method of Moments
Sample: 2004-2013
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CR	60.66285	34.69987	2.748216	0.0008
ERM	13.01731	153.5042	2.884801	0.0057
DBTA	-144.6690	51.67673	-2.799500	0.0080
DBEQ	-45.18354	4.969476	-9.092215	0.0003
LOGSIZE	3.22E-06	6.92E-06	3.464347	0.0019

R-squared	0.993672	Mean dependent var	115.9000
Adjusted R-squared	0.988610	S.D. dependent var	80.41759
S.E. of regression	8.582665	Sum squared resid	368.3107
Durbin-Watson stat	1.665566	J-statistic	2.187193
Instrument rank	6	Prob(J-statistic)	0.139163

SOURCE: Authors computation 2017

Results in table 4.12 show that the coefficient of determination (adjusted R-square bar) was 0.9886, thus indicating that 98.86% of the variation in the firm's profitability (ROE) is explained by variations in the explanatory variables (profitability risk, liquidity risk, leverage risk, solvency risk and financial risk).The calculated value of the Durbin Watson statistic is 1.666. This value is within the permissible limits of 4-du, du; thus indicating that the stochastic error terms are not serially correlated. This implies that the results of the test are not spurious. Based on the result for Table 4.12 and in line with *apriori* expectation on liquidity level of a firm which is proxied by current ratio (CR), current ratio (CR) is positively and significantly related to the level of return on equity (ROE). Consequently, we reject the null hypotheses that: current ratio and return on equity ratio are not significantly related and accept the alternative hypotheses. In line with *apriori* expectation on practice of ERM, practice of ERM is positively and significantly related to the level of return on equity (ROE). Consequently, we reject the null hypotheses that: practice of ERM and return on equity ratio are not significantly

related and accept the alternative hypotheses. In line with *apriori* expectation on Firm Size (LOGSIZE), Firm Size (LOGSIZE) is positively and significantly related to the level of return on equity (ROE). In line with *apriori* expectation on leverage level proxied by debt to total equity ratio of a firm. Debt to total equity ratio is negatively and significantly related to the level of return on equity (ROE). Consequently, we reject the null hypotheses that: debt to total equity ratio and return on equity ratio are not significantly related and accept the alternative hypotheses. In line with *apriori* expectation on solvency level proxied by debt to total asset ratio of a firm. Debt to total asset ratio is negatively and significantly related to the level of return on equity (ROE). Consequently, we reject the null hypotheses that: debt to total asset ratio and return on equity ratio are not significantly related and accept the alternative hypotheses.

CONCLUSION
Results of this study indicate practice of ERM is positively and significantly related to firm's performance proxied by profitability and measured by the level of return on equity (ROE), thus buttressing the need to manage enterprise risks in order to reduce their negative impact on profitability. This is consistent with the theoretical position of Doherty (1985) observation that the paradigm shift towards a more holistic strategy approach to risk management was a logical response to business scandals and enterprise risks. In line with *apriori* expectation on liquidity level of a firm which is proxied by current ratio (CR), current ratio (CR) is positively and significantly related to the level of return on equity (ROE). Also Firm's Size (LOGSIZE) is positively and significantly related to the level of return on equity (ROE). In line with *apriori* expectation on leverage level proxied by debt to total equity ratio of a firm. Debt to total equity ratio is negatively and significantly related to the level of return on equity (ROE). Finally, in line with *apriori* expectation on solvency level proxied by debt to total asset ratio of a firm. Debt to total asset ratio is negatively and significantly related to the level of return on equity (ROE). The findings are also consistent with the risk bearing theory

Enterprise Risk management (ERM) and FIRM'S Performance: Study of Selected Manufacturing Firms on Nigerian Stock Exchange

Adegbola Olubukola Otekunrin' et al

of profit which posits that individuals who take risk are entitled to a reward since the findings of the study emphasize the need to manage risk in order to optimize profit. Solvency, liquidity, leverage and financial risk are significant predictors of profitability in all the firms (Guinness, Unilever, 7up, and Nestle) studied. Arising from the above, effective and sound enterprise risk management will prove useful in reducing the enterprise risks that affect profitability and thus translates to enhancement in corporate performance. In other words, having a holistic view to risk management has a significant and positive impact on the performance of the firm.

RECOMMENDATIONS

In view of the problem definition and research findings, this study recommended that firms in the manufacturing sector should be encouraged to establish enterprise risk management frameworks with a view to equipping them to respond appropriately to the jeopardy posed by enterprise risks as they arise from time to time; Policy makers in government should do all that is practically possible to reckon with all the factors that can affect a firm's performance when formulating policies that will affect the operations of firms. Thus, they should take a holistic view of all situations to ensure that cost trade-offs are considerably minimized in all strata of the economy. Specifically, macroeconomic policies that impact on corporate performance, especially interest and inflation rates should be formulated with the interest of the firms in mind, since the economy is the hand maiden of the industry. Strategic managers in manufacturing companies should take decisive steps aimed at measuring and controlling enterprise risks through effective risk management strategies to ensure that the goals, especially those that relate to the financial performance of the manufacturing companies are not jeopardized by uncertainties occasioned by these risks. Lastly, strategic managers in the manufacturing sector should, as a matter of corporate interest, pay meticulous attention to the activities of the risk management department and ensure that the department if functional. The activities of the department should be under constant

monitoring and scrutiny to ensure that suspicious trends are promptly uncovered.

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Enterprise Risk management (ERM) and FIRM'S Performance: Study of Selected Manufacturing Firms on Nigerian Stock Exchange

Adegbola Olubukola Otekunrin' et al

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