

**FINANACIAL RATIOS AND SYSTEMATIC RISK OF INDUSRIAL GOODS FIRMS  
IN NIGERIA**

**Obani Chimaobi Desmond<sup>1</sup> Prof. M.S Ifurueze<sup>2</sup>, Dr(Mrs) T.N Ofor<sup>3</sup>, Dr P.C Ifurueze<sup>4</sup>**

<sup>1</sup> *Department of Accountancy, Faculty of Management Sciences Caritas University Amorji  
Nike Enugu State, Nigeria. Email: [obanichimaobi28@yahoo.com](mailto:obanichimaobi28@yahoo.com)*

<sup>2-3</sup> *Department of Accountancy, Faculty of Management Sciences Chukwuemeka  
Odumegwu Ojukwu University, Igbariam Campus, Anambra State, Nigeria. Email:  
[mifurueze@yahoo.com](mailto:mifurueze@yahoo.com)<sup>2</sup> [kechi4lv@yahoo.com](mailto:kechi4lv@yahoo.com)<sup>3</sup>, [tn.ofor@coou.edu.ng](mailto:tn.ofor@coou.edu.ng)<sup>3</sup>*

<sup>4</sup> *Department of Accountancy, Faculty of Management Sciences, Tansian University  
Umunya, Anambra State, Nigeria. Email: [priscachi2006@yahoo.com](mailto:priscachi2006@yahoo.com)*

**Abstract**

*The study examined the Determinants of Systematic Risk with emphasis on quoted industrial goods firms on the floor of the Nigerian stock exchange limited for period of Nine years spanning 2012 to 2020. The study adopted ex-post facto research design. Cross sectional panel data secondarily sourced were analyzed using ordinary least square regression analyses of E-view statistical software 8 at 5% level of significance. The results revealed that Liquidity has negative relationship and non-determinant of systematic risk of quoted industrial goods firms in Nigeria. Likewise, financial leverage has negative relationship and is a determinant of systematic risk of quoted industrial goods firms in Nigeria. Therefore, management of quoted industrial goods firms in Nigeria should endeavor to improve on the overall strategy for enhanced return on assets.*

**Keywords: Liquidity, Systematic Risk, Financial Leverage**

**1.0 Introduction**

The Phenomenon of decline in firms' stock prices, post global recession and financial crises, caused by economic meltdown that reverberated across the world; had extensively contributed to huge losses of investors' returns from their investment resulting to delists of various firms stock from their respective stock market ( Mouna & Anis, 2015 in Issac, 2019) as seen in the Nigeria Stock Market where in general, AG Leventis Nigeria, Continental Reinsurance Plc, Anino International Plc and Law Union and Rock Insurance Plc, as well in particular, Cement Company of Northern Nigeria Plc of the industrial goods firms sector which was vulnerable delisted from the Nigeria stock Market in 2020, making it a grand total of 115 vulnerable delisted firms from the Nigeria stock Market from the years 2002 to 2020 ( Emmanuel, 2020). To checkmate this exposure on the stock prices and enhance sustainable business performance amidst the threat posed by the global economic recession, fund managers, speculators, investors, regulators and risk managers' need for accurate and reliable information on the drivers of stock price attracted diverse studies in firm performance mechanism; including systematic risk. Systematic risk is the element of risk that comes as a result of changes in factors that affect the overall market. It refers to the Variance that occurs owing to economic factor and can be measured using the correlate coefficient of demand uncertainty with the return on a broad financial market index (Dian and Ari, 2013). Systematic risk correlates with the movement of the economy and to some extent with fortunes of all companies

in the economy (French, 2003). Systematic risk and its determinants have been widely discussed in financial literature; Shan, Hussain, Khan, Jacquemod and Shah (2020), Rashed, Wagar, Sabeela and Muhammed (2017), IgbaI, IgbaI and Khan (2015), Chee, Hooy and Chyn, (2010) etc. and are considered the most interesting in stock market studies (Nabaraj, 2015). Despite numerous studies on systematic risk and its determinants, the extant literature has no deal for systematic risk in pre-emerging market of Nigeria. The current research aims at expanding the evidence arising from the existing literature by exploring the main financial determinants of systematic risk in the Nigerian stock market. Two financial variables Liquidity and Financial Leverage are explored as possible determinants of the systematic risk of quoted industrial goods firms in Nigeria. This contributes another piece to the emerging puzzle of examining the determinants of systematic risk in Nigeria stock market.

## **2.0 Review of Related Literature**

### **2.1 Conceptual Framework**

#### **2.1.1 Liquidity**

The performance of any economic activity is primarily conditioned by the existence of liquidity in term of cash in hand and bank accounts, as well as cash derivatives. Liquidity is most commonly identified with being more certainly realizable at short notice without loss or the ability to convert an asset into money at a short notice with minimum loss (Rogers, 2014). Factors affecting the liquidity requirements of a firm are nature and size of the business, growth and expansion activities, manufacturing cycle, production policy, turnover of circulating capital, credit terms, operating efficiency and price level changes (Umobong, 2015) Chamberlain & Gordon, 1989) maintain that firm decision about liquidity to a large extant influence its achievements.

The sufficiency of money is related to the company's ability to constantly get by, the current payment obligations, manage to get through this obligation as inexpensively as possible without any statutory interest for late payments while taking advantage of settlement discounts and keeping the status of good prayer (Riistamaa & Jurkkio, 1996).

Liquidity can be examined in two different points of view; static liquidity and dynamic liquidity. Static liquidity is the immediate liquidity with the ability to get through obligations in certain time while dynamic liquidity on the other refers to the ability of getting through the obligation with further cash flows (Salmi, 2004). Conventionally, liquidity can be measured by Current ratio (current assets divided by current liability), Quick ratio (current asset excluding inventory and divided by current liability) and Cash ratio (cash divided by current asset) calculated as the ratio of Current Asset minus Inventory divided by Current Liability (Li, 2016 IgbaI, IgbaI & Shah, 2015, Alaghi, 2013, Hooy & Lee, 2010, Arslan, 2013). The study will measure Liquidity as the ratio of Current Asset minus Inventory divided by Current Liability

#### **2.1.2 Financial Leverage**

Leverage is not merely the extent of debt within the capital structure of a firm but consists of both financial and operating leverage otherwise known as combined leverage (Mohohlo & Halif, 2018). Financial leverage refers to how much debt a company has used to finance their asset. pandy (2009) Opinion that financial leverage is the use of the fixed-charge source of funds such as debt and preference capital along with the owners' equity in the capital structure

of a firm. It is employed by a firm when it intends to earn more return on the fixed-charge fund than their costs. It is a financial technique that uses borrowed funds or preferred stock (items not involving fixed financial cost) to improve the return on an equity investment. It is concerned with the relationship between the firm's earnings available to common stock holders or the owners. Financial leverage is often referred to as trading on the "equity" (Akintola & Cole, 2020)

Operating Leverage on the other hand is defined as the extent of the use of fixed cost in the operation of the firm. A firm with a high degree of operating leverage also has higher break-even point since it must make sufficient contribution to cover fixed cost before there can be any profit (Olowe, 2017). Olowe further state that operating leverage has implication for the financial manager by stating that a highly operating leverage firm will have its profit increasing at a high rate with a small increase in sales. On the other hand, for a highly operating leverage firm, a small drop in sales may wipe out profits and losses reported.

Operating and Financial leverage can be combined to show the total leverage effect for a given change in sales on earnings available to ordinary shareholders. Combined leverage combines the effect of business and financial risk (Olowo, 2017). They together cause wide fluctuation in earnings per share (EPS) for a given change in sales and operating costs (Saleem, Rahman & Sultena, 2012). The operating leverage affects Earnings before Interest and Tax (EBIT) and financial leverage affects Earnings per Share (EPS), Return on Equity (ROE) and Return on Investment (ROI). (Saleem et al, 2012).

Financial Leverage is calculated by Debt ratio measured by the ratio of total debt to total assets. Total debt contains short and long term loan or financing from financial institutions, debenture/bonds, deferred payment arrangements for buying capital equipment, interest bearing public deposits, and any other interest-bearing loans. (Mohamad, Mohd, Amirul & Sharifah, 2020, Alaghi, 2013 Hooy & Lee, 2010, Iqbal & Shah, 2010). The study will measure Financial Leverage as Debt Ratio.

### **2.1.3 Liquidity and Systematic Risk**

Liquidity indicates how much a company is able to pay short-term financial obligations at maturing date using available liquid assets. One way of measuring the liquidity variable is to use the current ratio i: e, the ratio between current asset by current liabilities. This measurement shows, how much the company's ability to pay current liabilities with current assets available (Putra, Iahindah & Bambang 2014, Ismail, 2016)

Liquidity is predicted to have a negative effect on the systematic risk (selva, 1995, Puspiteningtyas, 2010, 2015). Relatively high liquidity does not only reflect that the company has ability to repay short-term liability or maturing obligation, but also reflects that the company level of adaptation to environmental changes is higher, Thus, earning a lower degree of uncertainty and risk that will be acceptable (Dhingra, 1982).

Logically, it is known that the more liquid the company, the smaller the risk. Chun and Ramasamy (1989) using the current ratio and Tandelilim (1997) using quick ratio found that liquidity has negative effect on systematic risk. In contrast using the measurement by Chun and Ramasamy (1989), Capssaff, (1992) found that liquidity has positive influence on systematic risk. Puspiteningtyas (2017) using measurement of current assets divided by current liabilities, predicts negative effect of liquidity on systematic risk. Further, according to prior studies,

liquidity has both positive and negative impact on systematic risk. Jensen (1984) disclosed positive relationship among systematic risk and liquidity. The study contended that with increase in liquidity variables cost of free cash flows of the firms also increase which in turn increase systematic risk.

Most investors use liquidity ratios at the time of investment to forecast the current position of any firm. However, most studies concluded a negative relationship between systematic risk and liquidity as in the empirical studies of Loque and Merville (1972), Moyer and Charlfied (1983), Gu and Kim (1998, 2002), Lee and Jang (2006) and Eldomiaty et al (2009). They argued that with increase in liquidity of a firm, the systematic risk decreases.

#### **2.1.4 Financial Leverage and Systematic Risk**

Financial leverage indicates how much the company's operations are financed with debt. Financial leverage as an accounting variable, relates to the use of fund that have a fixed load with the hope to increase the revenue. One way to measure leverage variable is to use the financial leverage ratio of total debts which is the ratio between total debts to total assets.

Christie (1982), Puspitaningtyas (2010), and Shahzed, Ali, Ahmad & Ali (2015) revealed that company risk is a function of financial leverage. Dhingra (1982) state that financial leverage is one of the predictors of company's risk and the expected risk of a firm is positively related with the financial leverage. Gahlon (1981), Gahlon and Gentry (1982) and Mandelker and Rhee (1984) provide a theoretical model and empirical evidence that financial leverage determines the potential risk of the company and predicted to have positive relationship with systematic risk. The higher the ratio of financial leverage, the higher the company's assets are finance by debt and a significant risk to the company (Puspitaningtyas, 2010).

Tandelilin (1997) using the ratio between total debt with its own capital found that financial leverage has positive influence on systematic risk. Chun and Ramasamy (1989) using the ratio of long-term debt to shareholders' funds found that financial leverage has negative influence on systematic risk. Sufiyati and Na'im (1998) measure financial leverage to the average of the percentage change in earnings after interest and taxes divided by the percentage change in net operating income or earnings before interest and taxes found that financial leverage variable negatively affects systematic risk. Puspitaningtyas (2017) using measurements of long term debt divided by total assets found that financial leverage positively affects systematic risk because the greater the company's assets financed with debt, the greater the composition of debt in the capital structure.

In capital structure, when a firm increases its debt portion, it causes upturn of risk (Modiglian & Millier 1958 as cited in Igbal & Shah (2010). Gu and kim (2002) found positive and non-linear relationship between leverage and systematic risk. Lee and Jang (2006) argued that high leverage firm is highly susceptible to financial risk. Hong and Sarkar (2007) found that systematic risk is an increasing function of leverage. Sullivan, (1978) as cited in Gu and Kim (2002) contended that in large companies systematic risk is low because the large firms have the ability to lesser the effect of economic chances. Titman and Wessels (1998) argued that big firm have more chances for diversifications, lower the chances of bankruptcy and systematic risk.

## **2.2 Empirical Review**

Shah, Hussain, Khan, Jacquemod and Shah (2020) empirically studied on the determinants of systematic risk in commercial Bank of Pakistan over the period of seven (7) years (2010 to 2016) using firm size, operating efficiency, firm growth, liquidity, business mix, loan growth, asset quality and profitability as the proxy for the determinants of systematic risk while value at risk (VaR) and stock beta stood as the proxy for systematic risk. The data source for the proxy and analyzed using regression analysis found that insignificant positive relationship exists between asset quality measured by non-performing loan ratio, firm growth, business mix, and systematic risk (stock beta and value at risk), the findings further shown that significant negative relationship exist between liquidity, firm size, profitability and systematic risk. It was found that operating efficiency has insignificant negative relationship with systematic risk. While operating efficiency has insignificant negative relationship with stock beta, it has negative significant relationship with VaR. Finally, the study found that loan growth has insignificant positive relationship with stock beta and significant positive relationship with VaR of Pakistan banking firms.

Vongphachanh and Ibrahim (2020) looked at the effect of financial variables on systematic risk in six industries in Thailand for the period of 15 years (2002 to 2016) and found after a panel data analysis comprising; random effect model, fixed effect model and pool ordinary least square model of data from 372 non-financial listed firms in the sectors of Consumer Goods, Technology, Telecommunication, Utilities and Health care that financial leverage, liquidity, firm size, firm growth and profitability are the main factors affecting the systematic risk of listed Thailand non-financial firms. However, Thai consumer service is reported to have insignificant relationship between financial variables and systematic risk.

Haghighi (2020) studied on the Systematic risk Behavior in the life cycle stage of companies and the moderating effect of managerial ability of listed 124 companies in the sectors of Automotive, Chemical, Medicinal, Metals, Sugar and Food, Non-Metallic mineral etc. on the Iranian stock exchange market for the period of 7 years (2011 to 2017) revealed after regression analysis that significant indifference exist among the firm age, firm growth, business risk, financial leverage, operating efficiency, firm size and growth options characteristics with the systematic risk of the firms in the sample sectors. The finding further revealed that the managerial ability on the company life cycle stages has negative relationship with the systematic risk of listed sample firms on Iranian stock exchange market.

Karthika, Nileena and Raghunandan (2019) study on an examination of the systematic risk determinants in the Pharmaceutical industry for the period of 5years (2014 to 2018) using return on asset, current ratio, receivable turnover ratio, operating efficiency, debt to equity ratio, market capitalization and research & development to sales ratio as the proxy for determinants of systematic risk while beta for systematic risk. The findings from the data analyzed using IBM SPSS 25 shown that systematic risk is significantly impacted by all the financial ratios of Indian Pharmaceutical industry.

Zhang, Nielson and Haley (2019) study in the insurance industry, titled risk and return determinants of United States insurers for the period of 20 years (1992 to 2011) found that systematic risk is negatively significant related with return on equity (profitability) and positively significant related to liability to asset ratio (Leverage), firm size, incentive pay and option granted of life insurers industry in the United States of America using ordinary least square regression analysis.

Rohith and Selvarani (2019) examine the relationship between financial Ratios and systematic risk of steel industry in India for the period of four (4) years, 2015 to 2018. Quick ratio, return on asset, operating profit margin, wet profit margin and debt/ equity ratio were the proxy for financial ratios while Beta for systematic risk. Data source from yahoo financial, National stock exchange and money control document for 15 steel companies in India were using Pearson algorithm application. The findings indicate that quick ratio, operating profit margin and net profit margin have negative relationship with systematic risk while return on asset and Debt Equity ratio have positive relationship with systematic risk.

Osama and Yasmeen (2019) studied the impact of financial risk on systematic risk: International evidence. Data classified into short term (quick ratio, current ratio, and corporate value); long term (long term debt to equity, total debt to equity and interest coverage stood as the proxy for financial risk while market capitalization and Efficiency of stock Exchange stood for systematic risk. The data were source from 120 corporate institutions quoted on United States, Germany, South Korea and Egyptian stock markets respectively on the average of 30 firms per country's stock market and analyzed with Gnu Regression Econometrics and Time-Series panel data, regression analysis. It was found that positive relationships exist between quick ratio, total debt to equity and efficient market capitalization.

Kirill (2019) study on the Systematic risk and sentiment: Antecedents and Mediators of comparative analysis of systematic risk and effect of the financial crises on U.S. Tourism industry for the period of 10 years (2004 to 2013) found through fixed and random analysis of data from American Tourism firm that significant negative relationship exist between business growth, profitability, operating efficiency and systematic risk, while significant positive relationship exist between business size and the systematic risk of listed Tourism firms in the United States stock exchange market.

Mahsa and Shila (2018) investigated on the relation between systematic risk and financial assets pricing efficiency indicator of companies accepted in Tehran stock exchange Iran, using labour efficiency and capital indicator as the proxy for efficiency indicator and capital asset pricing model for systematic risk. Data sourced from 102 quoted companies for the period 2004 to 2009 and analyzed using Pierson correlation co-efficient and regression analysis found the existence of significant relationship between labour efficiency indicator (the number of personnel and personnel costs), capital efficiency indicator (the fixed assets and the total assets) and systematic risk of Iranian stock market.

Dedunu (2017) did a research work to determine the impact of financial variables on systematic risk of listed common stock on Colombo stock market, Sri – Lanka for the period, 2009 to 2016. Data for the analysis was sourced from 50 listed companies in the following Sri – Lanka sectors; manufacturing sector; beverage food and tobacco sector and hotel sector, were analyzed with descriptive statistics, correlation and regression analysis. Profitability, dividend payout, liquidity and leverage were proxy for financial variable. The result found dividend payout as non-impact factor of systematic risk while profitability, liquidity and leverage are the impact factors of systematic risk of quoted Sri – Lankan manufacturing, beverage food and tobacco and hotel Sectors common stock.

Puspitaningtyas (2017) study estimated systematic risk for the best investment decision of manufacturing firms in Indonesia. Data for analysis were sourced from 127 manufacturing firms in Indonesia stock market for the period of 5 years, 2011 to 2015, and were analyzed with multiple linear repression analysis. Financial leverage, liquidity, profitability and firm size

were the proxy for investment decision guide while Beta was used for systematic risk. The result found financial leverage, liquidity and profitability as the significant factors of systematic risk while firm size as insignificant factor of systematic risk of listed manufacturing firms in Indonesia.

Rashed, Wagar, Imran, Sabeela and Muhammed (2017) studied on the financial variables and systematic risk of cement companies quoted on Karachi stock market Pakistan. The study found from Data Sourced from 29 quoted cement companies in Karachi market for the period of 5 years (2008 to 2013) and analyzed with panel regression model that firm size, operating efficiency and profitability are significant financial variables of systematic risk of quoted Karachi cement companies while leverage and liquidity are not significant financial variables of systematic risk.

Pudji (2017) researched to ascertain the influence of fundamental factors and systematic risk on Indonesian stock price for the period of 6 years 2011–2015. Price earnings ratio, Earning per share (EPS), Net Profit Margin (NPM), price to Book value (PBV), stood as the proxy for fundamental factors where Beta for systematic risk. Finding from the analyzed data sourced from 15 quoted companies in LQ45 index using pool regression model showed that all the fundamental proxy factors (price earnings ratio, earning per share, net profit margin, price-to-book value have positive and significant influence on systematic risk.

Hafiza (2016) study to determine the determinants of systematic of south East Asian countries including Pakistan, China and India took credit Rating, government surplus, tax revenue, terms spread, export, dividend yield ratio, price to book ratio and earning to price ratio for the proxy of systematic risk determinants and Beta for systematic risk for the period 11 years 2004 to 2014. The result from panel regression analysis found government surplus, term spread, dividend yield ratio and earnings to price ratio as the determinants of systematic risk of south East Asian countries.

### **3.0 Methodology**

The study was predicated on ex-post facto research design. It made use of secondary data collected from ten quoted industrial goods firms on the Nigerian stock exchange market, central bank of Nigeria statistical bulletin and central security clearing system from 2012 to 2020 and was analyzed using random effect regression analysis. The firms are Dangote Cement, Lafarge/Wapco Cement, Nigeria Aviation Handling, UAC Nigeria, Academy Press, Beta Glass, Julius Berger, Cutix, John Holt and Red Star Express.

The variable of the study consists of the dependent and explanatory variable. The study used firm size and profitability as independent or explanatory variables while systematic risk proxy with Beta as the dependent variable

**Operationalization of Variables**

Variables (Code)	Proxies (Operational Definition)
Liquidity(LIQ)	Current assets-Inventory/Current liability
Financial Leverage(FLEV)	Total Debts/ Total Assets
Beta(BT)	<p>Covariance (ri rm)/ Variance rm. where ri = stock return proxy by market share price and rm = market return proxy by All Share index. BT is the market beta of asset i,</p> <p>Covariance (ri rm), is the product of standard deviation between Stock return (ri), and market return (rm) and it is calculated with the formula; <math>\sum(x_i-x)(y_i-y)/N-1</math>. Variance (rm) is the average of the expected rate of the market returns, calculated by the formula <math>\sum(x_i-x)^2/N-1</math></p>

**Model Specification**

In consistent with previous studies; this study adopted and modified the model of Igbai Khan and Igbai 2015 and Alaghi, 2013.

The adopted model is as thus stated:

$$Y = F (X_1, X_2, X_3, X_4, X_5, \dots) \dots\dots\dots 1$$

$$BETA = F (PROF, LIQ, LEV, FS, OE, \dots) \dots\dots\dots 2$$

The model of this study was analyzed using ordinary least square guided by the following line model.

$$Y = F(X_1, X_2) \dots\dots\dots (1)$$

$$BT = F (LIQ, FLEV) \dots\dots\dots (2)$$

Based on the above model we specify the following regression equation

$$BT_{it} = \beta_0 + \beta_1 LIQ_{it} + \beta_2 FLEV_{it} + \dots\dots\dots (3)$$

**Where:**

BT denotes BETA

LIQ = LIQUIDITY

FLEV= FINANCIAL LEVERAGE

i denotes number of firms

t denotes years or time series dimensions ranging from 2012 to 2020



$\Sigma$  is the error term of the model

$\beta_0, \beta_1, \beta_2, \beta_3, \dots$  is the regression model coefficients.

#### 4.0 Data Analysis and Interpretation

This study analyzes and interpreted the secondary data collected from the annual report of industrial goods firms. In analyzing the data, the study adopted the multiple regressions analysis to identify the possible effects of determinant of systematic risk of quoted industrial goods firms in Nigeria. The study conducted some preliminary analysis such as descriptive statistics and correlated analysis.

#### 4.1 Descriptive Analysis

The descriptive statistics for the dependent and independent variables used in this study were presented in Table 4.1 below:

**Table 4:1 Descriptive statistic for the variable deployed in this study**

	BT	LIQ	FLEV
Mean	0.272111	1.327000	0.574000
Median	0.055000	1.220000	0.465000
Maximum	2.130000	8.170000	1.790000
Minimum	0.000000	0.040000	0.040000
Std. Dev.	0.454217	1.086275	0.355331
Skewness	2.442149	3.318839	1.480566
Kurtosis	8.732258	20.29122	5.152390
Jarque-Bera	212.6818	1286.419	50.25405
Probability	0.000000	0.000000	0.000000
Sum	24.49000	119.4300	51.66000
Sum Sq. Dev.	18.36190	105.0195	11.23716
Observations	90	90	90

The descriptive statistics table above checks the normality distribution of all the variables by showing their mean, minimum, maximum, values including Jarque- Bera (JP) statistics. The information in table 4.1 above shows that the industrial goods firms' beta is 27. This depicts that the industrial goods firms systematic risk exposure against the stock market risk is 27%. It extends further, and implies that the quoted industrial goods firms in Nigeria are exposure up to the average of 27% of the market risk with standard deviation of 45%. The minimum risk exposure of quoted industrial goods firms in Nigeria is 0.0000 while their maximum risk exposure is 2 approximately.

Average liquidity of quoted industrial goods firms in Nigeria is 1.33% with standard deviation of 1.08%. Liquidity further maintains a minimum liquid of 4% of industrial goods firm's operation and a maximum liquid of 8.17% of the liquid of industrial goods firm's operations. This indicates that the listed companies on average have enough cash and receivable up to 133% to cover their current liabilities and variable. Financial leverage has mean of 0.57 with standard deviation of  $\pm 0.36$ . This indicates that on average 57% of the assets are financed by debt.

Financial leverage has a mean value of 0.57% approximately with the standard deviation of 0.3%. The minimum value is 4% while the maximum value is 1.79%. This indicates that on average, 57% of the assets are financed by debt.

**4.2 Correlation Matrix**

	BETA	FSIZE	ROA
BT	1.000		
LIQ	-0.088	1.000	
FLEV	-0.307	-0.246	1.000

Source: Researchers summary of result (2022) from E-view 8

The results from table 4.2 showed that LIQ and FLEV have negative correlation with Beta. This indicates that an increase in liquidity and financial leverage of industrial goods firms in Nigeria lead to decrease in the systematic risk of these organizations.

**4.3: Panel regression results**

Dependent Variable: BT  
 Method: Panel Least Squares  
 Date: 10/06/22 Time: 06:29  
 Sample: 2012 2020  
 Periods included: 9  
 Cross-sections included: 10  
 Total panel (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.626346	0.115304	5.432141	0.0000
LIQ	-0.073073	0.043317	-1.686936	0.0952
FLEV	-0.448200	0.132424	-3.384592	0.0011
R-squared	0.123227	Mean dependent var		0.272111
Adjusted R-squared	0.103072	S.D. dependent var		0.454217
S.E. of regression	0.430173	Akaike info criterion		1.183504
Sum squared resid	16.09921	Schwarz criterion		1.266831
Log likelihood	-50.25770	Hannan-Quinn criter.		1.217107
F-statistic	6.113767	Durbin-Watson stat		0.449727
Prob(F-statistic)	0.003278			

Source: Researchers Summary of results (2022) from E-View 8

In table 4.3 above, we observed that R-Squared and Adjusted R-Squared values were respectively 0.12 and 0.1. The value of R-Squared which is the coefficient of determination stood at 12%. This implies that 12% of the variations in individual dependent variable were explained in the model which 88% were unexplained in the model. The adjusted R-Squared stood at 10% and indicates that all the independent variables jointly explain about 10% of the variation in Beta of the sampled industrial goods firms in Nigeria over the 10 years period while about 90% of the total variations were unaccounted for, hence captured by the stochastic error term. The F-Statistics of 6.11 and the P-value of 0.003 shows that the entire regression models are well specified and generally significant at 5% level of significance. The Durbin Watson Statistics of 0.50 shows that the model is spread.

Specifically, the findings from each of the following respective explanatory variable are provided as follows:

### **Liquidity**

Table 4.3 above depicts that liquidity has negative coefficient of -0.0730 and is statistically, insignificant determinant of systematic risk of quoted industrial goods firms in Nigeria at 5% level of significance. This implies that a percentage increase in liquidity is associated with decrease in systematic risk by 7% approximately. The insignificant negative relationship found is in consonant with the findings of Rashed, Wagar, Imran, Sabeela and Muhammad (2017), who found that negative and insignificant relationship exist between liquidity and systematic risk of Pakistan cement firms, but contradicts the findings of Gu and Kim (2002), who found that positive significant relationship exists between liquidity and systematic risk of United States of America Restaurant industry.

### **Financial Leverage**

Financial Leverage as shown in table 4.3 has a negative coefficient value of -0.4482. This means that a percentage increase in the financial leverage is associated with a significant decrease in systematic risk by 0.4482. This simply implies that 1% increase in financial leverage of quoted industrial goods firms in Nigeria decreases the degree of systematic risk by 44%. It was further shown in table 4.3 that Financial Leverage is statistically significant determinant of systematic risk of quoted industrial goods firms in Nigeria at 5% level of significance. This result is in consonance with the findings of Liu and Lin (2015), Alaghi (2013), Pasquale and Elisabeth (2012), and Shin (2009) who found that firm financial leverage has statistical significant influence on systematic risk of United States Casino firms, Iranian quoted firms, and Italian Banking sector, but contradicts the findings of Igbal, Igbai and Khan (2015), Nelson, Richard and Woody (2010) who revealed that firm financial leverage has insignificant influence on systematic risk of Pakistan manufacturing sector and United States Restaurant firms respectively.

## **5.0 Conclusion and Recommendations.**

### **5.1 Conclusion**

In conclusion, we discovered that Liquidity has negative relationship, and as well, insignificant determinant of systematic risk of quoted industrial goods firms in Nigeria. Likewise, Financial Leverage has negative relationship but is a significant determinant of systematic risk of quoted industrial goods firms in Nigeria. This study further provide opportunity for regulators and managers to better understand the dynamics of systematic risk theories and practices of the market that improves the wealth creation of the investors and as well, Sustains the performance of industrial goods firm s in Nigeria. Above all, the study concludes that the need for efficient systematic risk management cannot be over emphasized because it raises public awareness of key issues and potential of systematic risk in emerging global stock market.

### **5.2 Recommendations**

1. Management of industrial goods firms in Nigeria should remained conscious towards the expansion of the firm's total assets since an additional increase in firm's assets attracts more systematic risk for the firm to contend.

2. Quoted industrial goods firms managers in Nigeria should endeavor to improve on the overall strategy for enhanced return on assets.

### **Reference**

- Alaghi, K. (2013). Determinants of systematic risk of the listed companies in Tehran Stock Exchange. *Journal of Basic and Applied Scientific Research* 3(1), 596-600.
- Arora, L., Kumar, S., & Goel, U. (2019, June 21-23). Firm performance and systematic risk (Paper presentation). 2<sup>nd</sup> International Conference on Business Management & Economics, Vienna, Austria.
- Arslan, C. (2013). The systematic risk determinants of Tourism industry in Turkey. (Unpublished Master's thesis). Banking and Finance Department, Eastern Mediterranean University, Ciazimagusa, North Cyprus.
- Akintola, A., Cole, A. A. (2020). Impact of combined leverage on capital Employed of selected listed Manufacturing firms in Nigeria. *IOSR Journal of Economics and Finance* 11(3), 51-56.
- Bui, M., & Nguyen, D.T., & Tran, T. (2017). Factors affecting systematic risk: Empirical evidence from non-financial sectors of Vietnam. *International Journal of Vietnam. International journal of Economic Research*, 14(15), 271-283.
- Capstaff, J. (1992). The usefulness of U.K Accounting and market data for predicting the perceived risk. Class of securities. *Accounting and business research*, 219-223.
- Chee, W., Hooy, & Chyn, H. L. (2010). The determinants of systematic risk Exposures of Airline industry in East Asia. *World Allied, Sciences Journal special issue of Tourism & hospitality*. 10, 91-98.
- Chun, L., & Ramasamy, M. (1989). Accounting variables as determinants of systematic risk in Malaysian common stocks. *Asia pacific Journal of management* 6(2), 339-350.
- Christie, A. A. (1982). The stochastic Behavior of common stock variances: Value, leverage and interest rate effect. *Journal of Financial Economics*, 407-432.
- Da Cunha, R., & Veras, A. (2018). Book-to-market ratio, return on equity and Brazilian stock returns. *Management Journal*, 53(43), 324-344.
- Dedunu, H. (2017). Financial variables impact on common stock systematic risk. *International Journal of Scientific Research and innovative Technology*, 4(10), 23 –32.
- Dian, C. A., & Aril, W. (2013). Systematic risk and accounting determinants: A new perspective from an emerging market. *J. Global Business Advancement* 6(1), 24 – 37.
- Dhingra, H. L. (1982). The impact of accounting variables on stock market measures of risk. *Accounting and Business Research*, 193-201.

- Emmanuel, A. B. (2020, December 28). Business Elite, Africa Publication.
- Eldomiaty, T. (2010). The fundamental determinants of systematic risk and financial transparency in DFM General index. *Middle Eastern finance and Economics*, 5, 63-74.
- Gahlon, J. M. (1981). Operating leverage as a determinant of systematic risk. *Journal of Business Research*, 9(2), 297-308.
- Gahlon, J., M. & Gentry, J. A. (1982). The relationship between systematic risk and the degrees of operating and financial leverage. *Journal of financial management*, 11(2), 15-23.
- Gu, Mattila & Kim, (2002). Hotel Real Estate investment trust risk features and beta determinants. *Journal of Hospitality & Tourism research* 26(2), 138-154.
- Gu, Z., & Kim, H. (2002). Determinants of restaurant systematic risk: A re- examination. *The Journal of Hospitality Research*, 4, 357-365.
- Gu, Z., & Kim, H. (1998). Casion firms' risk features and their beta determinants. *Progress in Tourism and Hospitality Research*, 4, 357-365.
- Hafiza, N. C. (2016). Determinants of systematic Risk: An Empirical investigation of the south Asia Countries (Master's thesis, Islamabad University of Sciences and Technology).
- Haghighi, R. (2020). The systematic behavior in the life cycle stages of companies and the moderating effect of management ability. *Journal of Accounting Auditing and Finance*, 1-8. <https://doi: 10.220067/ijaaf.2020/39278>
- Hooy, & Lee, (2010). The determinants of systematic risk exposures of Airline industry in East Asia. *World Applied Sciences Journal*, 10(1), 91-98.
- Hong, G., J. & Sarkar, S. (2007). Equity systematic risk (Beta) and its determinants. *Contemporary Accounting Research*, 24(2), 423-466.
- Igbai, M., J. & Shah, S. Z. (2010). Determinants of Systematic Risk. *Journal of commerce*, 4 (1), 47 – 56.
- Igbai, S., Igbai, & Khan, N. (2015). Systematic Risk Determinants: A case of manufacturing sector of Pakistan. *IISTE*, 5(7), 87 – 92.
- Karthika, G., Nileena, G. & Raghunandan, H. (2019). An examination of the systematic risk determinants in the Pharmaceutical industry. *International Journal of Business and Management invention*, 8(1), 91-96.
- Kirill, A. (2019). Systematic Risk and Sentiment: Antecedents and Mediators International (Doctoral thesis, Universitat Autònoma de Barcelona).
- Koque, L., & Mathison, T. J. (1996). Financial Policy and market expectations. *Financial management*. 1(3), 37-44.

- Lee, S., J. & Jang, C. S. (2006). The systematic risk determinants of U.S Airline industry. *Tourism Management* 28(2), 434-442.
- Mahsa, A., & Shila, R. (2018). Investigating the relationship between systematic risk and efficiency indications based on pricing the financial assets in companies accepted in Tehran stocks. *Journal of Humanities insight*. 135-138.
- Mandelker, G., N. & Rhee, S. G. (1984). The impact of the degree of operating and financial leverage on systematic risk of common stock. *Journal of Financial and Quantitative Analysis*, 1(1), 45-57.
- Modigliani, F., & Miller, M. (1958). The expected cost of equity capital, corporation finance, and the theory of investment. *America Economic Review*, 261-297.
- Mohamad, N., J. Mohd, F., B. Amirul, A., M. & Sharifah, F. S. (2020). Determinants of Systematic risk: Empirical evidence from Shariah compliants firms listed on Bursa Malaysia. *International Business Education journal*, 13(1), 71-82.
- Mohohlo, M. & Halif, F. (2018). The impact of operating leverage on the capital structure of Exchange listed firms before and after the 2008 global financial cases. *Journal of Economic and Financial Science* 11(1), 1-10.
- Mouna, A. and Anis, J. (2015). A study on small investors' sentiment financial literacy and stock returns evidence for emerging market. *International journal of Accounting and Economics studies*, 3(1), 10-19.
- Moyer, R., C. & Chatfield, R. (1983). Market power and systematic risk. *Journal of Economics and Business*, 35(1), 123-130.
- Mwaurah, I. (2019). Influence of financial risk on stock returns of commercial Banks listed in Nairobi securities exchange (Doctoral thesis, Jomo Kenyatta University of Agriculture and Technology).
- Olowo, R., A. (2017). Financial management: Concepts, financial system and business finance. University Press, Ibadan.
- Osama, W., & Yasmeen, T. (2019). The Impact of Financial risk on systematic risks. *International evidence Journal of Applied financial and Banking*, 9(6), 203 – 216.
- Pandy (2009). Financial management. India: (p245-255). *New Delhi*.
- Pudji, A. (2017). The influence of fund a mental factors and systematic risk to stock prices on companies listed in the Indonesian stock Exchange. *European Research Studies Journal*, 20(4), 230 – 240.
- Putra, A., P. Lahindah, L., & Bambang, R. (2014). Financial performance analysis before and after global crisis (case study in Indonesian Oil and Gas sector for the period of 2010-2011). *Review of Integrative Business and Economics Research*, 3(5), 42-51.

- Puspitaningtyas, Z. (2010). Manfaat informasi Akuntansi untuk memprediksi Risiko investas saham Berdasarkan pendekatan decision usefulness. *Journal akuntansi multiparadigma*, 1(3), 467-488.
- Puspitaningtyas, Z. (2017). Is financial performance reflected in stock price? *Advances in Economics. Business and management research*, 40(1), 17-28.
- Rashed, N., Wagar, A., Imran, Sabeela, S., & Muhammad, A. (2017). Financial variables and systematic risk. *Chinese Business Review*; 16 (1), 36 – 46.
- Riistamaa, V., & Jyrkkio, E. (1996). operatiivinen laskentatoimi 15<sup>th</sup> ed
- Rohith, V., Selvargni, R. (2019). Relationship between financial ratios and systematic Risk in steel industry. *Alliance international conference of artificial intelligence and machine learning (AICAAM)*; 253 – 263.
- Rogers, C. (2014). Is monetary theory for real? Why attempts to introduce money into real macroeconomic model fail (Master's thesis, University of Adelaide, Mimeo)
- Salmi, L. (2004). Mita Tilin paatos kertoo? 2<sup>nd</sup> ed Edita Publishing Oy
- Saleem, Q., Rahman, R., & Sultana, N. (2012). Leverage (financial and operating) impact of profitability of oil and gas sector of SAARC countries: *American base research journal*, 1(3), 29-56.
- Sarkar, (2007). Expansion financing and capital structure. <http://dx.doi.org/10.2139/ssrn.96604>
- Selva, M. (1995). The Association between Accounting determinants risk measures and analysis risk perceptions in a medium sized stock market. *Journal of International Financial Management and Accounting*, 207-229
- Shan, S., F. Hussain, A., Khan, M., Jacquemod, J., & Shah, Z. (2020). Determinants of systematic risk in commercial banks of Pakistan. *International Journal of Economics and Financial issues*. 10(3), 125-129.
- Shahzad, J., Ali, P., Ahmad, T., & Ali, S. (2015). Financial leverage and Corporate performance: Does financial crises owe an explanation? *Pakistan Journal of Statistics and Operation Research* 11(1), 65-88.
- Tandelilin, E. (1997). Determinants of systematic risk: The experience of some Indonesian common stock. *Kelola. Gadjah mada University Business Review*, 16(4)106-123.
- Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. *The Journal of Finance*, 43(1), 1-19
- Tripathi, V., & Neerza, (2015). Sources of systematic risks in BRICS stock markets: A survey of investment Analysis and market experts. *International journal of marketing, Financial services and management Research*; 4(5).

- Umobong, A. A. (2015). Assessing the Impact of liquidity and Profitability Ratio on Growth of profit in Pharmaceutical Firms in Nigeria. *European Journal of Accounting Auditing and Finance Research*, 3(10), 97 – 114.
- Vongphachanh, V., & Ibrahim, K. (2020). The effect of financial variables on systematic risk in six industries in Thailand. *ABC journal of Advanced Research*, 9(2), 63-68.
- Zheng, G., & Hyunjoon, K. (2002). Determinants of restaurant systematic risk: A re-examination. *Journal of Hospitality Financial management*, 10(1), 1-13.