EFFECTS OF FINANCE COST ON THE PROFITABILITY OF LISTED MINING FIRMS IN NIGERIA

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Abstract
This study focused on the effect of finance costs on the profitability of listed mining firms in Nigeria. The study was prompted because of the burden of debt via interest cost in discouraging investment in the Nigerian mining industry. Thus, the study determined the effect of the finance cost ratio (FCR) on the return on asset (ROA) of listed mining firms in Nigeria and the effect of the interest coverage ratio (ICR) on the return on equity (ROE) of listed mining firms in Nigeria. The study answered four research questions and tested four hypotheses. Secondary data was used for the execution of this research work with an ex-post facto research design. Data extracted from the financial statement of a listed mining firm in the Nigeria Exchange Group (NGX) were analyzed using the regression analysis statistical tool with the aid of Statistical Package for Social Science (SPSS) Version 22.0. The result of the analyses carried out show that the financial cost ratio (FCR) has a positive and significant effect on the return on asset (ROA) of listed mining firms in Nigeria. It also revealed that the interest coverage ratio (ICR) has a negative and non-significant effect on return on equity (ROE). It was therefore recommended amongst others that companies should use their internal financing resources as far as possible to mitigate the effect of excessive interest cost on the profitability of the firms and that government should create a good business environment by regulating the levels of interest rates and thus making it easy for mining firms to access debt finance with lower cost implications.
Keywords: *Profitability, Return on Equity, Return on Asset, Finance Cost, Mining, Royalty, Exploration.*

Introduction

In our present-day economy, finance is defined as the provision of money at the time when needed. Every entity, whether big, medium, or small needs finance to carry on its operations to achieve its strategic objectives. As Africa's mining sector plays host to numerous international players developing local projects, the arrays of funding options are plentiful – be they the tried-and-tested traditional models or the more recent innovative models, such as streaming and royalty transactions. Mining is the production section of the extractive industry which requires huge investment and is capital intensive. The investors sometimes may not have the required capital, so they resort to borrowing. It is a universal knowledge and concept that borrowing has a cost implication for the borrower. Mining activities before 2007 in Nigeria were carried out in accordance with the provisions of the Federal Minerals and Mining Act (FMMA) of 1999. In 2007, the Nigerian Mining and Minerals

Act (NMMA) was enacted, repealing the FMMA of 1999, to regulate the exploration and exploitation of minerals in Nigeria. The sector has immense revenue generation capacity for the country, considering the untapped value potential yet to be unlocked and utilized (Adewole, 2021).

The sector is poised for robust near- and mid-term growth as investors move to make the most of the opportunities in iron ore, gold, zinc, limestone, bitumen, barite, and lead mining. Efforts are also being channeled by the government into the mining of metals such as titanium, tungsten, lithium, and cobalt, which have various applications in industries such as aerospace, telecommunications, and electric vehicle manufacturing. It is no news that the mining sector forms a significant part of the gross domestic product of certain economies in West Africa and Africa as a whole.

Debt financing has grown rapidly in recent years. Debt financing is one of the common ways for a company to increase its capital to run its business. Manufacturing firms usually opt for debt financing, which has consequences related explicitly to the firm's profitability. Therefore, it is the most crucial decision for the management because, in any corporate firm, it is the management's job to make capital-structure decisions that ensure a balanced proportion of both equity and debt. In doing so, policymakers must consider the relevant costs and benefits of these capital instruments (Ahmed & Wang, 2011). Bank lending is the most common source of external finance for many corporate entities which are often heavily reliant on traditional debt to fulfill their start-up, cash flow, and investment expansion needs. While it is commonly used by entities to remediate short and long-term liquidity traps, however, traditional bank finance poses challenges to emerging and growing organizations, to newer, innovative, and fast-growing companies, with a higher risk-return profile (Lucia, 2015). Decisions about the financing of capital projects are the main decision-making domain in a company, and it is a significant phase in a company’s growth. One of the main concerns of companies that are experiencing growth in their life cycle is the methods to acquire financial resources or invest their surplus. The necessity to acquire financial resources is first because the value of companies’ assets decreases because of some external factors such as exchange rate, inflation, and bank interest, and secondly, because operational mechanisms of companies cause that company to need money in the form of financial resources, to purchase new assets, increase company`s capacity, employ new employees, and purchase raw materials (Razaghi, 2007).

The mining industry is a high-risk business entity that is prone to several causative factors as regards profitability and continuous survival of the business. Whatever debt finance acquires for expansion, growth, or acquisition of assets poses an obligation that reduces the profitability of the entity in terms of finance cost

obligation. The dismal performance of the Nigerian mining sector could be attributed to the inadequacy of financial support and the high cost of capital for the mining sector, which ultimately has contributed to the reduction in capacity utilization of the mining sector in the country. The insignificant contribution of the sector to the gross domestic product could be because of continued deterioration in infrastructural facilities as well as lack of access to low-cost finance characterized by rising lending rates. Also, the debt overhang has discouraged investment in the mining sector, through its implied credit constraints in international capital markets because of flawed interest rate policies by successive monetary authorities in Nigeria. Few studies have been carried out in the area of debt financing cost and profitability of firms (e.g., Dada, 2014; Samadi, 2011). Therefore, the present study is on the effect of finance cost on the profitability of listed mining firms in Nigeria. This noted gap motivated the study.

However, the study deems it fit to determine the effect of finance cost on the profitability of listed mining firms in Nigeria. The specific objectives are:

1. To determine the effect of the financial cost ratio on the return on assets of listed mining firms in Nigeria.
2. To establish the effect of interest coverage ratio on the return on equity of listed mining firms in Nigeria.
3. To ascertain the effect of the financial cost ratio on the return on equity of listed mining firms in Nigeria.
4. To assess the effect of interest coverage ratio on return on asset of listed mining firms in Nigeria.

Predicated on these objectives, the researchers formulated the following hypothesis to guide the study:

H_{O1}: Financial cost ratio has no significant effect on the return on assets of listed mining firms in Nigeria.

H_{O2}: Interest Coverage Ratio has no significant effect on the return on equity of listed mining firms in Nigeria.

H_{O3}: Financial cost ratio has no significant effect on the return on equity of mining firms in Nigeria.

H_{O4}: The interest coverage ratio has no significant effect on the return on assets of mortgage banks in Nigeria.

The paper is organised as follows' the next section reviews relevant literature with regards to context justification and provide a theoretical background for the study, respectively. Next describes the sample data and empirical methodology. The last section summaries the main results, offers conclusion and recommendations.

Reviews of related Literature

Conceptual Review

Finance Cost

According to International Accounting Standard 23, borrowing cost defines finance costs as "interest and other costs that an entity incurs in connection with the borrowing of funds". Finance costs are also known as "financing costs" and "borrowing costs". Finance cost is the cost, interest, and other charges involved in the borrowing of money to build or purchase assets. Companies finance their operations either through equity financing or through borrowings and loans. These funds do not come for free. The providers of funds want rewards for their funds. The equity providers want dividends and capital gains. The providers of loans seek interest payments. Interest cost is the price of obtaining loans and borrowings. The total expenses associated with securing funds for a project or business arrangement may include interest payments, financing fees charged by intermediary financial institutions, and fees or salaries of any personnel required to complete the financing process. This cost includes interest on loans and overdraft charges. The financing decision is concerned with the raising of funds that finance assets.

An interest expense is an accounting item that is incurred due to servicing debt. Interest expenses are often given favourable tax treatment (Kagan, 2020). For companies, the greater the interest expense the greater the potential impact on profitability. Coverage ratios can be used to dig deeper (Kagan, 2020). Finance cost can be measured under the solvency ratio because it is a key metric used to measure an enterprise's ability to meet its long-term debt obligations and is often used by prospective business lenders. Solvency Ratio is the ratio used to assess a company's ability to meet its debt obligations (Munawir, 2007). Finance cost can be measured with interest coverage ratio and financial coverage ratio as seen below. A proper balancing of debt and equity is imperative to ensure a trade-off between risk and return to the shareholders (Khadka, 2006). Thus, this financing decision in turn leads to value maximization.

Interest Coverage Ratio (ICR)

Pandey (2010) says that the interest coverage ratio or the times-interest-earned is used to test the firms' debt-servicing capacity. The interest coverage ratio is computed by dividing earnings before interest and taxes (EBIT) by interest charges. The interest coverage ratio shows the number of times the interest charges are covered by funds that are ordinarily available for their payment. Since taxes are computed after interest, interest coverage is calculated in relation to before-tax earnings. This ratio indicates the extent to which earnings may fall without causing any embarrassment to the firm regarding the payment of the interest charges. A higher ratio is desirable, but too high a ratio indicates that the firm is very

conservative in using debt and that it is not using credit to the best advantage of shareholders. A lower ratio indicates excessive use of debt or inefficient operations. The firm should make efforts to improve operating efficiency or relieve debt to have a comfortable coverage ratio. Emekekwue (2008) says that the interest coverage ratio measures the number of times that a firm can earn the interest it hopes to pay.

Financial Costs Ratio

The financial cost ratio is also known as the interest expenses ratio (Akabom & Ejabu, 2018), it informs about the share of financial costs (expenses) in the value of revenues from sales, thus it indicates which part of revenues from sales is used for covering the financial expenses (mainly interest). The value of this ratio depends on the debt level and the credit's interest rate. High ratio values suggest excessive financial expenses with respect to the level of revenues from sales. When assessing the changes in the ratio's value over time (over a few periods): the increase in the ratio's value is assessed negatively and interpreted as an increased negative impact of financial expenses on revenues from sales, the decrease of the ratio's value is assessed positively and interpreted as a reduced negative impact of financial expenses on revenues from sales. Akabom and Ejabu (2018) in their study show that interest expenses on loan repayment of multinational companies significantly affect the performance of the firms.

Profitability

It is hardly a surprise that existing and future shareholders in the mining industry are predominantly concerned about returns on their investments. Regardless of whether investors are seeking a capital appreciation of their stock portfolio or plan to grow their money through dividend payments, or a combination of both, they typically make money when a company does. Mining companies that provide a competitive and sustainable rate of return to their shareholders are highly sought-after targets for investors. Horrigan, (2013), explains that the profitability ratios group, also known as performance ratios, assesses the company's ability to earn profits on sales, assets, and equity, it measures the return earned on a company’s capital and the financial cushion relative to each unit of sales, These are critical to determining the attractiveness of investing in company shares and investors in using these ratios widely, much like the operational performance ratios, these ratios give users a good understanding of how well the company utilized its resources(assets) in generating profit and shareholder value. The profitability ratios show the return on assets, return on equity, return on investment, and return on capital employed. A potential investor will invest by analyzing these ratios, so the management strives to improve the operating performance (Niresh, 2012).

Profitability is an indicator of management performance demonstrated by the profit generated for managing the company's assets (Brigham, 2010). Profitability can be measured using the profitability ratio which will show how effectively the company

is operating to produce a profit for the company through ratios such as ROA (Return on Assets), ROE (Return on Equity), and NPM (Net Profit Margin) (Brigham & Houston, 2010).

1 Return on Assets (ROA) is one of the profitability ratios. In the analysis of financial statements, this ratio is most often highlighted, because it can indicate a company's success to create profits. ROA can measure the company's ability to generate profits in the past to then be projected in the future. Assets in question are overall company properties, obtained from the capital itself or from foreign capital that has been converted into company assets used for corporate sustainability. According to Brigham & Houston (2001), return on asset (ROA) is calculated by comparing available net profit for common shareholders to total assets. Emekekwue (2008) also states that return on assets is a ratio that seeks to measure the amount of profit generated from the entire assets of the firm. This ratio is the best measure used to make comparisons of a company with the industry within which it operates.

2 ROE is seen as a tool most used by investors in making investment decisions. According Mahbuba and Farzana (2013) state that the Return on Equity (ROE), is one of the profitability ratios that is used to determine the amount of return given by the company for every unit of capital from the owners. Return on Equity (ROE) is the rate of return that is achieved by the firm for each currency unit that further becomes the company's capital. According to Brigham & Houston (2001), the notion of ROE is the net ratio of ordinary equity that measures the rate of return on ordinary shareholder investment. This Return on Equity Ratio shows the efficient use of own capital. If this ratio is higher, the better. That means the bank's position will be stronger, and vice versa. Return on Equity is calculated by dividing net income by shareholder equity. In this context, how large the banks provide yield every year per one currency that investing by the investors (Tang, 2016). ROE is a measure of the return achieved by investors from their investment in a company. The higher results lead to better stock returns. According to Berggrun et al. (2020), profitability affects stock returns. Return on Equity (ROE) is a measure of a company's ability to generate profits using its own capital. It is one of the financial ratios which is calculated by dividing profit after tax on equity (Vakilifard, 2010). This ratio is provided to show the profitability power of the company toward the book capital of shareholders (Weigand & Baker, 2009).

Relationship between finance cost and profitability

The amount of interest expense for companies that have debt depends on the broad level of interest rates in the economy. Interest expense will be on the higher side during periods of rampant inflation since most firms will have incurred debt that carries a higher interest rate. On the other hand, during periods of muted inflation,

interest expense will be on the lower side. The amount of interest expense has a direct bearing on profitability, especially for companies with a huge debt load. Heavily indebted companies may have a hard time serving their debt loads during economic downturns. At such times, investors and analysts pay particularly close attention to solvency ratios such as debt to equity and interest coverage. An interest expense is an accounting item that is incurred due to servicing debt. Interest expenses are often given favourable tax treatment. For companies, the greater the interest expense the greater the potential impact on profitability. Coverage ratios can be used to dig deeper. Bhaduri (2002), explains that cash flow under the control of management can be reduced through both interest payments on borrowed funds and the ability to issue debt. When interest payment is made on borrowed funds, cash flow is reduced, and less cash will be left for managers to expend on fruitless commitments.

A conceptual framework showing the relationship between finance cost and profitability of listed mining firms in Nigeria.

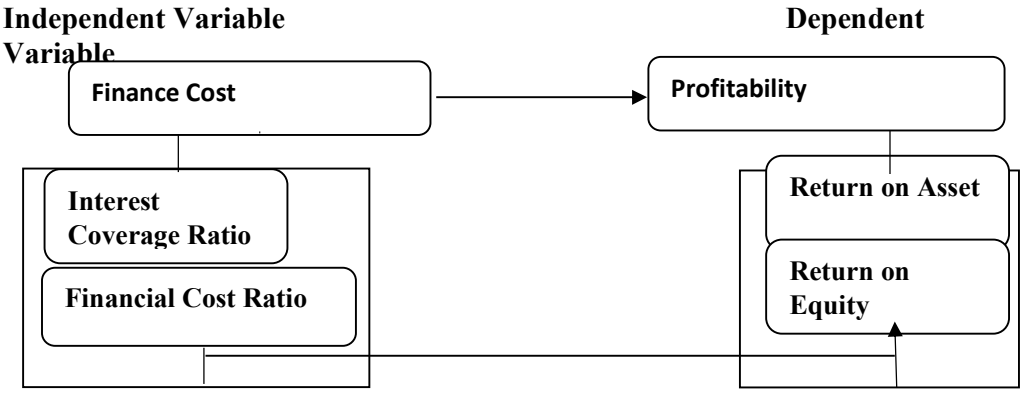

Figure 1. Conceptual framework

Theoretical Framework

The Market Timing Theory

Is a theory of how firms decide to finance their investments either with equity or debt instruments considering the financial market. In other words, companies generally chose the form of financing which at a point in time seems to be more valued by the financial markets and in the interest of the investors. Abor (2007) emphasized that firms will prefer to issue equity when the cost of equity is relatively low and prefers to issue debt when they perceive the relative cost of equity as high. The market timing theory states that low-levered companies are those that raise funds when their market valuations are high while high-levered companies are those that raise funds when their market valuation is low. Mining firms as capital-intensive

companies are highly leveraged in nature. This work is anchored on market timing theory that a company can choose between debt and equity sources of capital after taking into consideration the fund that will benefit the overall strategic decision of the firm. Pandy (2010) states that a mix of debt and equity can increase the value of the firm by reducing the weighted average cost of capital (WACC) up to a certain level of debt. He posited that financial leverage is very critical to the survival and performance of corporate entities. It also entails that debt funds are cheaper than equity funds which imply that the cost of debt and the increased cost of capital, with a weighted basis, will be less than the cost of equity that existed on equity before debt financing. Therefore, this work is anchored on this theory because it serves as the foundation for investigating the effect of Finance cost on the profitability of listed mining firms in the Nigeria Stock Exchange. The theory is very pertinent as it is the basis on which finance cost stands since firms trading on the debt run less risk due to tax shield than those trading on equity financing.

Empirical Review

Hossain et al. (2019) studied the empirical analysis of the relationship between capital structure and a firm's financial performance in a developing country like Bangladesh. The investigation has been conducted by using a panel data procedure for a sample of Dhaka stock market enlisted all IT firms during the year 2013-2017. This research works was performed using three performance measures including return on equity, return on asset, and earnings per share as dependent variables, where the capital structure is considered as debt ratio (DR), equity ratio (ER), long-term debt ratio (LTDR), short-term debt ratio (STDR) and used as independent variables. However, descriptive statistics, correlation, pooled ordinary least square analysis, fixed effect, and Random effect model have been analyzed to find the relationship between capital structure and financial performance. The study revealed that capital structure has a positively significant impact on return on assets (ROA).
Ji (2019) examined the usefulness of the cash-based interest coverage ratio (CICR). It also verified the usefulness of the accrual-based interest coverage ratio (AICR), which is used as a criterion for exiting insolvent companies. The research model for the hypothesis test of this study is based on the Ohlson model, which has been used for the test of stock value relevance in many previous studies. As a result of the empirical analysis, the CICR is used as useful information by investors in the capital market. This study suggests that supervisors and financial institutions can make rational decision-making if they consider AICR and CICR as criteria for exiting insolvent companies. The contribution of this study was to suggest that the CICR can be a useful indicator for determining whether a company is insolvent due to its relatively low forecast error and high predictability.

In the work of Ivo and Anyanwaokoro (2019), they evaluated the effect of leverage financing on the performance of quoted cement manufacturing firms in Nigeria for

the period 2006-2017. Purposive sampling techniques were used in selecting the four (4) cement manufacturing firms in Nigeria out of the eight (8) cement manufacturing firms quoted in the Nigerian Stock Exchange (NSE). The analytical tool adopted was ordinary least square (OLS) simple and multiple regressions. The findings of the study showed that Debt Ratio and Debt to Equity Ratio have a negative insignificant effect on the Return on Assets (ROA) of quoted cement manufacturing firms in Nigeria. On the other hand Interest Coverage Ratio (ICR) has a positive and insignificant effect on the return on assets of quoted cement firms in Nigeria. This implies that an increase in Debt Ratio and Debt to Equity Ratio decreases ROA, while the increase in ICR increases the ROA of cement manufacturing firms.

Uremadu and Onyekachi, (2019) studied the effect of capital structure on corporate performance in Nigeria. The study employed return on asset, long-term debt-to-asset ratio, and total debt-to-equity ratio with a special focus on the consumer goods industrial sector of the economy with multiple regression analysis. The results from the research found a negative and insignificant impact of capital structure on the corporate performance of the consumer goods firm sector of Nigeria.

Aziz and Abbas, (2019) examine the association of different debt financing on firm's performance in 14 sectors of Pakistan. Secondary data is collected from about 14 different sectors in Pakistan Stock Exchange, for the period of 9 years (2006 to 2014). The results of the study indicated that debt financing has a negative but also significant impact on firm performance in Pakistan. This study's findings recommend that companies should more rely on their internal source of finance because it is the cheap and reliable source of finance in the Pakistani context.

Dada (2014) investigated the relationship between the profitability and debt of big firms in Nigeria. ROA and ROE were used to measure the performance of the company while debt of short-term and long term used in the study as independent variables. Fixed effect and panel data techniques used for analysis. The results showed that if there is an increase in debt then the profitability of the corporation declines. This study can be extended by including all firms in Nigeria instead of large firms only.

Kirmi, (2017) studied the link between capital structure and profitability of listed petroleum and energy firms in Kenya with descriptive and causal research design techniques in measuring the impact of short and long-term debt on return on assets from 2012 to 2016. The findings from the study established a high positive association between short-term debt and return on assets and an average negative association between long-term debts and return on assets and a weak positive association between total debt and return on assets.

Ishaya and Abduljeleel (2014) observed that debt is negatively related to profitability, but equity is directly related to profitability. They did a study to

examine the capital structure and profitability of the Nigerian listed firms from the agency cost theory perspective. Firms‟ panel data from 70 out of a population of 245 firms listed at the Nigerian securities exchange for the period 2000 – 2009 were used and analyzed using fixed-effects, random-effects, and Hausman Chi Square estimations. Their findings were consistent with the survey by Shubita and Alsawalhal (2012) and provided evidence against the agency cost theory.

Ekwueme and Onakeke's (2021) in their study was inspired by liquidity risk that confronted the Nigerian mortgage banking business in terms of profitability. As a result, the study investigates the impact of liquidity risk on the profitability of Nigerian mortgage banks. This research effort was carried out using secondary data and an ex-post facto research design. The regression statistical technique in the SPSS Version 22.0 was used to assess data derived from the financial statements of listed mortgage banks on the Nigerian Stock Exchange (NSE). The results of the analysis demonstrate that Loan to Deposit has a substantial impact on mortgage banks' net interest margins in Nigeria and that Current Ratio has a significant impact on mortgage banks' net interest margins in Nigeria. It was so recommended, among other things, that bank management adopt sound lending policies and maintain a sufficient balance between loans and deposits because bank profit is largely dependent on deposits mobilized and liquidity created through loans given.

Assad (2016) in his paper intends to explore the effect of capital structure on firm profitability. For empirically investigating the effect of capital structure, a sample of 30 firms has been selected from the FTSE-100 index of the London Stock Exchange. The data period for the study was from 2005 to 2014. The study used multiple regression analysis methods to explore the impact of capital structure on firm performance. The results revealed that Interest Coverage has a positive significant impact on ROA, ROE, and ROIC whereas DE has a positive significant impact on ROE but a negative significant impact on ROA and ROIC. The study concluded that an optimal level of capital structure, effective utilization, and allocation of resources shall be employed to achieve the targeted level of efficiency in business

Methodology

This study adopted an ex-post facto research design since the study seeks to review the effect of past factor(s) on the present happening or event, and its strengths. It is the most appropriate design to use when it is not always possible to select, control and manipulate all or any of the independent variables (Olannye 2006). To ascertain the size of the sample for the study, purposive sampling method was deployed. The population of this study is made up of listed mining companies in the Nigerian Exchange Group (NGX), within the year 2008 to 2020. Hence, Multiverse Mining and Exploration Plc were purposively selected because of the availability and completeness of their financial data. This accounted for 100% of the sample of the population.

Method of Data Analysis

This study adopts both descriptive and inferential statistical analysis. The data collected through secondary sources were tabulated, and findings from the report were presented in tables and analyzed using both descriptive and inferential statistics. Regression analysis and correlation are the statistical tools adopted. These methods were used to test the hypotheses and solve research questions to determine the relationships between financial cost proxy and profitability of mining firms.

Model Specification

The hypotheses were tested using the Simple Linear Regression Model. In writing the model equation, the following symbols were used to denote their respective variables.

ROA = Return on Asset, ROE = Return on Equity, FCR = Financial Cost Ratio

ICR = Interest Coverage Ratio

a = Constant of the equation, b = Coefficient of the independent variable, u = Error terms

The model is summarized below:

ROA = a + FCR (b) + u ……..... (1)

ROE = a + ICR (b) + u ……..... (2)

ROE = a + FCR (b) + u ……..... (3)

ROA = a + ICR (b) + u ……..... (4)

Data Analysis

Descriptive Statistics

It represents the variables financial results were available for the years 2008-2020.

Table 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROE	13	-96.83	2.54	-27.1115	30.54529
ROA	13	-12.71	2.41	-4.6023	5.35012
ICR	13	-214.29	273.78	-1.8731	141.31371
FCR	13	-56.58	-.14	-10.9069	17.01487
Valid N (listwise)	13				

Source: *Data analysis from SPSS 22.*

The study descriptive statistic using the profitability variable of ROE and ROA has a negative Mean of -27.1 and -4.6 respectively which is evidenced by the consistent reported loss recorded by the firm. While their standard deviation shows a positive value of 30.5 and 5.3 respectively. The finance cost variables, ICR and FCR revealed a negative Mean of -1.9 and -10.9 respectively. Their standard deviation also shows the positive values of 17.0 and 141.3 respectively. It is a warning sign for the company that the company may not have the ability to offer assured payment of interest to the lenders in the future.

Test of Hypotheses

Test of Hypotheses I

Ho: Financial cost ratio has no significant effect on the return on assets of listed mining firms in Nigeria.

Table 2. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.574[a]	.329	.268	4.57687

a. Predictors: (Constant), FCR

Source: *Data analysis from SPSS 22.*

As shown in Table 2 above, return on asset is positively related to finance cost. This is shown by a positive coefficient of correlation of *.57*. The coefficient of determination of *.33* implies that the model developed can explain up to 33% of changes in listed mining firms' profitability in Nigeria.

Table 3. Analysis of variable (ANOVA) hypothesis 1.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	113.060	1	113.060	5.397	.040[b]
	Residual	230.425	11	20.948		
	Total	343.485	12			

a. Dependent Variable: ROA

b. Predictors: (Constant), FCR

Source: *Data analysis from SPSS 22.*

From the ANOVA in Table 3 above, the *p-value* of *.04* implies that the relationship is significant at 95% since the *p-value* is less than 0.05 (.04 < .05). The model developed is also significant for prediction. The ANOVA table is used to find out if the model is statistically significant or not. The *p-value* is the evidence against a null hypothesis. The smaller the p-value, the stronger the evidence that you should reject the null hypothesis.

Table 4. Coefficient of correlation of hypothesis 1

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	-2.635	1.526		-1.727	.112
FCR	.180	.078	.574	2.323	.040

a. Dependent Variable: ROA

Source: *Data analysis from SPSS 22.*

Decision

The regression analysis was performed for testing whether the financial cost ratio has no significant effect on the return on assets of the listed mining firms in the Nigeria Exchange Group. The value of β is 0.57 (which is positive), T-value is 2.32, and the *p-value* or significance level is .04 (which is less than 0.05). Results illustrate that finance cost has a moderate positive relationship and a significant effect on return on assets. The *p-value* is less than the significant level. Hence, the null hypothesis is rejected, and the alternate hypothesis is accepted. Therefore, that financial cost ratio has a significant effect on the return on assets of listed mining firms in Nigeria.

Test of Hypothesis II

Ho: Interest Coverage Ratio has no significant effect on the return on equity of listed mining firms in Nigeria.

Table 5. Model Summary of hypothesis II

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.454[a]	.206	.134	28.42363

a. Predictors: (Constant), ICR

Source: *Data analysis from SPSS 22.*

As shown in Table 5 above, return on equity is positively related to the interest coverage ratio. This is shown by a positive coefficient of correlation of *.45*. The coefficient of determination of *.21* implies that the model developed can explain up to 21% of changes in listed mining firms' profitability in Nigeria.

Table 6. Analysis of variable (ANOVA) Test of Hypothesis II

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2309.251	1	2309.251	2.858	.119[b]
	Residual	8886.928	11	807.903		
	Total	11196.179	12			

a. Dependent Variable: ROE

b. Predictors: (Constant), ICR

Source: *Data analysis from SPSS 22.*

From the ANOVA Table 6 above, the *p-value* of *.119* implies that the relationship is non-significant at 95% since the *p-value* is greater than 0.05. The model developed is also significant for prediction. The ANOVA table is used to find out if the model is statistically significant or not. The *p-value* is the evidence against a null hypothesis. The smaller the *p-value*, the stronger the evidence that you should reject the null hypothesis.

Table 7. Coefficient of correlation of hypothesis II

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-27.295	7.884		-3.462	.005
ICR	-.098	.058	-.454	-1.691	.119

a. Dependent Variable: ROE

Source: Data analysis from SPSS 22.

Decision

The regression analysis was performed for testing whether the interest coverage ratio has a significant effect on the return on equity of the listed mining firm in the Nigeria Exchange Group. The value of β is *-.454* (which is negative), T-value is *-1.691* and the *p-value* or significance level is *.119* (which is greater than 0.05). Results show that the interest coverage ratio has a moderate negative relationship and a non-significant effect on return on equity. Because this *p-value* is greater than the significant level *(.119 >.05*). Hence, the null hypothesis is accepted, and the alternate hypothesis is rejected. Therefore, the interest coverage ratio has no significant effect on the Return on Equity of listed mining firms in Nigeria.

Test of Hypothesis III

Ho: Financial cost ratio has no significant effect on the return on equity of mining firms in Nigeria.

Table 8. Model Summary of hypothesis III

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.476[a]	.226	.156	28.06370

a. Predictors: (Constant), FCR

Source: *Data analysis from SPSS*

As shown in Table 8 above, return on asset is positively related to finance cost. This is shown by the positive coefficient of correlation of *.476*. The coefficient of determination of *.23* implies that the model developed can explain up to 23% of changes in listed mining firms' profitability in Nigeria.

Table 9. Analysis of variance (ANOVA) of hypothesis III

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	2532.896	1	2532.896	3.216	.100[b]
Residual	8663.283	11	787.571		
Total	11196.179	12			

a. Dependent Variable: ROE

b. Predictors: (Constant), FCR

Source: *Data analysis from SPSS 22.*

From the ANOVA Table 9 above, the *p-value* of *.10* implies that the relationship is non-significant at 95% since the *p-value* is greater than *0.05*. The model developed is also significant for prediction. The ANOVA table is used to find out if the model is statistically significant or not. The *p-value* is the evidence against a null hypothesis. The smaller the *p-value*, the stronger the evidence that you should reject the null hypothesis.

Table 10. Coefficient of correlation of hypothesis III

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	T	Sig.
1 (Constant)	-17.798	9.357		-1.902	.084
FCR	.854	.476	.476	1.793	.100

a. Dependent Variable: ROE

Source: *Data analysis from SPSS 22.*

Decision

The regression analysis was performed for testing whether the financial cost ratio has no significant effect on the return on equity of the mining firm in the Nigeria Exchange Group The value of β is *.47* (which is positive), T-value is *1.17,* and the *p-value* or significance level is *.100* (which is greater than 0.05). Results illustrate that finance cost has a moderate positive relationship and a non-significant effect on return on equity. The *p-value* is greater than the significant level. Hence, the null hypothesis is accepted, and the alternate hypothesis is rejected. Therefore, the financial cost ratio has no significant effect on the return on equity of listed mining firms in Nigeria.

Test of Hypothesis IV

Ho: The interest coverage ratio has no significant effect on the return on assets of mortgage banks in Nigeria.

Table 11. Model Summary of hypothesis IV.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.659[a]	.434	.382	4.20498

a. Predictors: (Constant), ICR

Source: *Data analysis from SPSS 22*

As shown in Table 11 above, the return on assets is positively related to the interest coverage ratio. This is shown by a positive coefficient of correlation of *.659*. The coefficient of determination of *.434* implies that the model developed can explain up to 43% of changes in listed mining firms' profitability in Nigeria.

Table 12. Analysis of variable (ANOVA) of hypothesis IV.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	148.985	1	148.985	8.426	.014[b]
	Residual	194.501	11	17.682		
	Total	343.485	12			

a. Dependent Variable: ROA
b. Predictors: (Constant), ICR
Source: *Data analysis from SPSS 22*

From the ANOVA Table 12 above, the *p-value* of *.014* implies that the relationship is significant at 95% since the *p-value* is less than 0.05. The model developed is also significant for prediction. The ANOVA table is used to find out if the model is statistically significant or not. The *p-value* is the evidence against a null hypothesis. The smaller the *p-value*, the stronger the evidence that you should reject the null hypothesis.

Table 13. Coefficient of correlation of hypothesis IV

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	-4.649	1.166		-3.986	.002
ICR	-.025	.009	-.659	-2.903	.014

a. Dependent Variable: ROA
Source: *Data analysis from SPSS 22.*

Decision

The regression analysis was performed for testing whether the interest coverage ratio has no significant effect on the return on assets of the listed mining firm in the Nigeria Exchange Group. The value of β is *-.66* (which is negative), T-value is *-2.9,* and the *p-value* or significance level is *.014* (which is less than 0.05). Results show that the interest coverage ratio has a strong negative relationship and a significant effect on return on assets. The *p-value* is less than the significant level. Hence, the null hypothesis is rejected, and the alternative hypothesis is accepted. Therefore, the interest coverage ratio has a significant effect on the return on assets of listed mining firms in Nigeria.

Discussion of Findings

The result of the first findings shows that the financial cost ratio has a positive and significant effect on the return on assets of listed mining firms in Nigeria. The results agree with Gilchris (2013) who found that net interest margin had a positive and significant impact on profitability as measured by ROA and ROE. Locally, the findings also concur with that of Otuori (2013) who found that higher interest rates

offered lenders in an economy a higher return relative to other countries thus attracting foreign capital and leading to increase profitability.

The second hypothesis shows that the interest coverage ratio has a negative and non-significant effect on the return on equity of listed mining firms in Nigeria which is also in line with the work of Anifowose et al (2020) in their study, the effect of financial leverage on firms performance, a case of listed pharmaceutical firms in Nigeria which shows that Interest Coverage Ratio (ICR) has negative relation with Return on Assets (ROA) and Return on Equity (ROE. As seen in the market timing theory that firm must have done a feasibility study on the best source of capital before obtaining the fund, therefore, the ability to meet its interest cost obligation must have been established from the onset, and the interest coverage ratio will have little effect on the profitability of the firm.

The third findings show that the financial cost ratio has a positive and non-significant effect on the return on equity of listed mining firm in Nigeria which collaborate with Maroko (2014) found a positive relationship between financial leverage, cost of equity, debt interest, and organization financial performance.

The fourth finding shows that the interest coverage ratio has a negative and significant effect on the return on asset of a listed mining firm in Nigeria as supported by the works of Zelalem (2020) which found that Interest Coverage Ratio (ICR) have a significant effect on Banks' performance measured by Return on Assets (ROA) and Return on Equity (ROE). on the contrary, Ivo and Anyanwaokoro (2019) found that Interest Coverage Ratio (ICR) has a positive and insignificant effect on the return on assets of quoted cement firms in Nigeria. This implies that an increase in Debt Ratio and Debt to Equity Ratio decreases ROA, while an increase in ICR increases the ROA of cement manufacturing firms. This is because interest on debt is fixed unlike equity, and could affect the company during the period of price changes.

Conclusion and Recommendation

Based on the finding, the following conclusion is made, the finance and interest cost of listed mining firms in Nigeria have a positive and significant effect on return on asset. The Interest coverage ratio has a negative and non-significant effect on the Return on Equity of listed mining firms in Nigeria. The financial cost ratio has a positive and non-significant effect on the return on equity of listed mining firms in Nigeria. The interest coverage ratio has a negative and significant effect on the return on assets of listed mining firms in Nigeria. Considering the above-mentioned results, below recommendations are proposed:

1. Management of mining firms should endeavour to use their internal financing resources as far as possible to mitigate the effect of excessive interest costs on the profitability of the firms.
2. Management should seek to adopt other ways of financing their activities since interest expense had a negative relationship with Return on Equity and profitability.
3. Firms (both highly and lowly geared) should take into cognizance the amount of leverage incurred because it is a major determinant of a firm's performance/profitability, this is important for all the firms whether highly geared or lowly geared firms.
4. The government should create an enabling and business-friendly environment so that the firms can thrive and thus increase the firm's performance level. This in turn would increase the firm's profitability.

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