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Capital structure and corporate performance in the emerging economies: a focus on Nigerian industrial sector firms

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Abstract
This study investigated the extent of influence of capital structure on the performance of firms in different industry classifications. Fixed effects panel data regression was applied on the historical data assembled from the firms' annual reports, 2007 to 2018. Combined industry results reveal insignificant and positive influence of short-term leverage and capital structure on return on assets (ROA), earnings per share (EPS), market price per share (MPPS) but negative impact on return on equity (ROE) while equity ratio exerts positive effect on ROA, ROE, EPS, MPPS with significance on ROA. Industry sector analysis results show positive, negative, insignificant and significant influence of short-term borrowing, owners' capital and long-term capital on financial performance of the firms. The industry sector analysis provides mixed results under each of the variables but mostly in line with the combined results. This implies that in as much as long-term capital helps to upgrade financial performance, firms should adopt strategies that would involve raising funds through short-term debt sources and owners' contribution. The empirical results lent some support to the agency and static trade-off theories of capital structure.

Keywords: Agency theory, financial performance; firm-specifics; Static trade-off theory; sub-Saharan Africa.

JEL Classifications: C23; C26; G32

INTRODUCTION

Capital structure (CS) has been a topical issue in corporate finance with some attributes of benefits and costs attached to it. Long-term debt and equity capital constitute the capital structure of the firm. According to Mardones and Cuneo (2020), company's performance is a key issue for investors, shareholders, and the economy in general. It is a medium of assessment of how well a company has utilized its resources in achieving the aims of the stakeholders over a specified period of time. Corporate performance has been measured by various indices by various researchers. These include earnings before interest and tax (EBIT), earning after interest and tax (EAIT), return on investment (ROI), return on capital employed (ROCE), return on assets (ROA), return on equity (ROE), liquidity, firm value, earning per share (EPS), market price per share (MPPS), cost of capital (COC), profitability (PROF), dividend yield (DY), growth in sales (SGR), Tobin's Q and customers satisfaction among others (Mardones and Cuneo, 2020). The operational performance concerning growth and expansions has been measured in relations to sales and market value (Hofer & Sandberg, 1987). It has been argued that CS is one of the factors that determine a company's performance. Some theories such as the irrelevance theory of Modigliani and Miller (1958), relevance theory Modigliani and Miller (1963) and Solomon (1963), trade-off theory of Kraus and Litzenberger (1973), agency theory of Jensen and Meckling (1976), signaling hypothesis of Ross (1977), pecking order theory of Myers and Majluf (1984), and Jensen (1986) free cash flow theory have their predictions that support or disapprove this argument. Shaba, Yaaba and Abubakar (2016) examine the impact of capital structure (owners' funds and borrowed funds) on profitability of 13 banks in Nigeria from 2005 to 2014 using autoregressive distributed lag model and found that about 83 per cent of total assets employed by the banks are financed by borrowed fund confirming the hypothesis that banks are highly levered institutions. Oyedokun, Job-Olatuji, and Sanyaolu (2018) examine the effect of capital structure on the financial performance of 10 manufacturing firms in

Nigeria from 2007 – 2016 using regression analysis and reveals statistically significant and non- significant effects of capital structure on performance variables.

The aim of the current study is to investigate the extent of the association between corporate financial performance proxy by ROA, ROE, EPS, MPPS and the capital structure variables viz gearing, equity, long-term capital, with inflation rate, interest rate, exchange rate, sales growth rate, growth in investment, firm size, firm age, asset tangibility, and operational risk as control variables in the developing economy Nigeria. Unlike previous studies the work is conducted along the different industrial sectors of the Nigerian economy with the exception of the financial institutions because of their peculiar regulatory platform. The evidence from previous studies shows contrasting results ((Rajan and Zingales, 1995 for firms in seven developed countries, Frank and Goyal, 2009 for non-financial firms in the United States and Qiu and La, 2010 for non-financial firms on the Australian Stock Exchange, Mardones and Cuneo, 2020 in Latin American companies) and no study has specifically addressed the issue from Nigerian perspective under the different industry classifications. Therefore, the main objective of this study is to find the effect of capital structure on performance of non-financial firms under the different industry classifications. Specifically, the study aims to investigate the effect of capital structure on ROA, ROE, EPS, and MPPS of firms under the different industrial classifications of the NSE.

Our study reveals the capital structure variables that influence the performance of the different industry firms in the economy. We employed panel data analysis to find out the impact of the variables on the performance of each sector. This paper is arranged in five sections. The introduction is in section one, the review of related literature and hypothesis development is in section two, the data and methods are displayed in section three, the results and discussion are shown in section four while the paper was concluded in section five.

Literature review and hypothesis development

Usually the discussions on capital structure have been differentiated into its irrelevance and relevance schools of thought but the theoretical framework of this study rests on its relevance based on the fact that there is no perfect capital market in the real world. And as such there is the mix of debt and equity in the capital structure that influences the performance of the firm. Solomon (1963) exemplified the relevance of capital structure saying that excessive levels of debt will induce markets to react by demanding higher rates of return. He argues that, in an extreme leverage position, the cost of capital must rise. This is because (1) the interest rate on debt is positively related to the debt to equity ratio, so as the firm borrows more, creditors will demand a higher rate of return on the borrowed funds, which can lead to higher weighted average cost of capital (WACC), (2) higher debt levels could lead to the probability of default on interest payments, thereby leading to bankruptcy which is a cost to the shareholders. This will also make the shareholders to gear up their cost of equity. Therefore, to minimize the WACC, firms should avoid operating with much debt and seek a level of mix of debt and equity that maximizes the tax savings induced by higher debt levels and, at the same time, minimizes the possibility of bankruptcy costs, minimizes WACC and maximizes the value of the firm. Recognizing the tax-deductibility of interest expense on debt, which reduces effective tax bill as more debt is employed Modigliani and Miller (1963) affirmed the relevance of capital structure by stating that when there are corporate taxes and interest payments are tax deductible, the firms' value and shareholders return increases as debt increases, by the present value of the interest tax shield. However, they claimed that the cost of capital of the firm will not rise, even if the use of leverage increases to excessive level because as a firm increases its leverage, the cost of equity will increase just enough to offset any gains to the leverage and this is countered by Solomon (1963).

The Static trade-off theory of capital structure holds that a firm's choice of the mix of debt and equity financing is determined by the balance of the costs and the benefits of debt. It claims that notwithstanding the benefits of tax-deductibility of interest payment on debt, a point or range will be reached beyond which debt becomes more expensive because of the increased risk (financial distress) of excessive debt to creditors as well as to shareholders. That is, as the degree of leverage increases, a level will reach when further debt engagement increases the risk of creditors and as a result the creditors demand higher interest rates if they are to grant further loan to the firm at all. Also, the excessive amount of debt makes the shareholders' position very risky which warrants increasing the cost of equity in order to cover their position. The implication is that below this particular level being referred to above, the overall cost of capital decreases with debt, but beyond that point the cost of capital would start increasing as a result of increased risk to creditors and equity holders and therefore it would not be advantageous to employ debt further. According to this theory, any increase in debt level causes an increase in bankruptcy, financial distress and agency costs, and hence decreases firm value and performance. Therefore, a firm should seek for a combination of debt and equity which minimizes the firm's average cost of capital and maximizes the market value per share and other performance indices. The trade-off between cost of capital and firm value set the maximum limit to the use of debt. In making efforts to achieve the trade-off between cost and benefit, Myers and Majluf (1984) pecking order theory suggests that there is no optimal leverage and firms should fund their operations by following a financing hierarchy where the internally generated funds (retained earnings) is used first and if the internal funds are not sufficient to meet the investment outlays, they should go for external finance

by issuing the safest debt security until they reached their debt capacity after which new equity financing will then be engaged.

The agency theory argues that as separation between managers and owners increases, borrowing capital to operate the firm instill added discipline on the managers as they will be more sensitive in making investment decisions and also secures tax-savings from tax-deductibility of interest expenses on debt. The expected implication is that as the engagement of debt increases the value and performance of the firm through the benefit of using debt will be enhanced through increased earnings. Some of the more common costs that the debt element of the capital structure can cause include bankruptcy (Jensen and Meckling, 1976) which is a function of how uncertain future cash flows are, agency cost (Myers, 1977) and loss of financing flexibility (loss of liquidity).

Yinusa, Ismail, Yulia and Olawale (2019) find that when debt financing is moderately employed it has significant positive relationship with firm performance of 115 Nigerian listed non-financial firms. Abubakar and Olowe (2019) reveals that short-term debt, long term debt and Debt-equity relate positively and significantly with financial performance of ten (10) Nigerian listed firms for the period 2012-2018. Hasan, Ahsan, Rahaman and Alam (2014) found significant positive association between EPS and short-term debt on a sample of 36 Bangladeshi Dhaka Stock Exchange listed firms during the period 2007–2012. Hasan et al. (2014) find that ROA has a significant negative relation with short-term debt and long-term debt and a significant negative association between EPS and long-term debt. Johnny and Ayunku (2019) recorded a positive and insignificant relationship between long-term debt ratio (LTD/TA) and ROE in the Nigeria microfinance banking subsector for 2009-2018. Hasan et al. (2014) found no statistically significant relation between both ROE and Tobin's Q and the capital structure indices.

Ajibola, Wisdom and Qudus (2018) registered a positive insignificant relationship between short-term debt ratio (STD) and ROE and established a negative insignificant relationship between LTD, STD, TD and ROA of Nigerian listed manufacturing firms for the period 2005-2014. Ajibola et al. (2018) found a positive significant relationship between long term debt ratio (LTD), total debt ratio (TD) and ROE. Ndubuisi, Juliet, and JI (2019) find significant effect of financial leverage measured by the total debt ratio, debt to equity ratio, and long-term debt ratio on the profit growth for a sample of 80 Nigerian listed non-financial firms over the period of 2000- 2015.

Ogebe, Ogebe, and Alewi (2013) established a significant negative relationship between capital structure (leverage) on firm performance (ROA) in Nigeria for the period 2000-2010 with macroeconomic control variables (gross domestic product, inflation) and classification of geared firms into highly and lowly geared firms setting a leverage threshold of above 10% as being highly geared. They strongly recommend that firms should use more of equity than debt in financing their business activities. Johnny and Ayunku (2019) showed a positive and significant relationship between total debt ratio (TD/TA) and ROE and revealed a negative and insignificant relationship between D/E and ROE in the Nigeria microfinance banking subsector for 2009-2018. Ndubuisi, Juliet, and JI (2019) find significant effect of financial leverage measured by the total debt ratio on the profit growth for a sample of 80 Nigerian listed non-financial firms.

Mardones and Cuneo (2020) find a positive relationship between capital structure and financial performance proxy by firm growth and firm size but record mixed results for short- and long-term financial leverage as well as liquidity and firm performance for the period 2000-2015. Aderemi, Sejoro and Alaka (2019) find that capital structure proxy by total debt to equity, long term debt to equity, short-term debt to equity, has a negative impact on ROA and ROE of 40 Nigerian listed firms for the period 2012-2017. They impliedly state that debt capital is not a profitable means of financing in the firms. Kharabsheh, Al-Gharaibeh and Zurigat (2017) document a significant non-monotonic relationship, i.e. positive at low debt levels but negative at higher debt levels from the Jordanian non-financial sector over the period 2006 -2016. Uremadu and Onuegbu (2018) record negative and insignificant impact of long-term debt to total asset and total debt to equity ratio on ROA in consumer goods sector firms in Nigeria. Abubakar and Olowe (2019) examine the impact of capital structure on financial performance of 10 selected quoted firms in Nigeria as at 31st December 2012 to 2018 using multiple regressions. The study reveals that short term debt, long term debt and debt equity showed a positive significant impact on financial performance of the selected firms. Salawu, Quadril, Ajani, Ofe (2018) examine the pattern of debt and equity on the financial performance of 29 listed insurance firms in Nigeria between 2006 and 2014. Return on assets (performance), leverage (capital structure) and other control variables were analyzed using random effect model. The study revealed that capital structure (LEV) had significant negative effect on the financial performance of the insurance companies. This implies that, the higher the debt relative to equity, the lower the performance of the insurance company financially.

From the foregoing, we observe significant and insignificant positive and negative associations between performance and short-term debt. Based on the use of more short-term term debt than the long-term debt as observed from the data extracts from the financial statements of the firms it can be assumed that it is cost-effective and cheaper, hence we hypothesize that

H1. There is no positive association between short-term debt leverage and firm performance in the emerging market.

From the extant literature there are mixed results on the influence of long-term debt (LTD) portion of the capital structure on corporate performance and in this study we adopted equity ratio (EQR) in place of the LTD as EQR has not been used severally in previous studies quite unlike the LTD. Since majority results of previous studies found positive association between LTD and performance and equity capital is a complement of the LTD in the CS, we propose hypothesis two (H2) as follows.

H2: There is a negative association between equity ratio of the capital structure and firm performance in the emerging market.

None of the previous studies addressed the effect of the total capital structure to total assets ratio. Based on the fact that CS provides both the permanent and most times the circulating capital of the business we assume that it drives postively the operations of the business. Therefore we propose hypothesis 3 as follows.

H3. There is no negative association between capital structure ratio and firm performance in the emerging market.

The findings on the association between inflation, interest rate, exchange rate are inconclusive. Ndubuisi et al. (2019) found no relationship between profit growth of the firms and interest and exchange rates. On firm size and growth, it has been emphasized that bigger firms with growth prospects both in sales and investment assets have economies of scale in the use of their resources, high market share, more profitable investment opportunities, greater efficiency, more diversification, lower operational risk, relatively cheaper sources of financing, have the financial capacity to hire capable hands, and low labour turnover and all these combine to provide good results to the firms (Abor, 2005; Mainelli and Giffords, 2010; Rettl and Whited, 2014; Nawaz et al.,2011; Nwude and Nwude, 2021). However, there may be operational inefficiencies that can cause these size-benefits not to materialise as recorded by Fama and French (1993), Klapper and Love (2004) as cited in Mardones and Cuneo (2020). Based on this, we propose

H4. There is no negative association between firm size and firm performance in the emerging market.

H5. There is no negative association between sales growth rate and firm performance in the emerging market.

H6. There is no positive association between operational risk and firm performance in the emerging market.

Age is a critical determinant of firm survival though based on industry type. Its relationship with firm performance is still ambiguous. Older firms are assumed to perform better than the younger ones due to years of experience gained through learning-by-doing and adaptation to environmental changes that affect firm performance. Umar and Adamade (2015) record an inverse relationship between firm age and financial performance. Coad, Holm, Krafft, Quatraro (2018) gathered that there is no one-size-fits-all position of age on firm performance. Increasing evidence has been revealed on the association of age and firm performance in developed economies but little attention has been given to emerging markets. Based on this we hypothesize that

H7. There is no positive association between firm age and firm performance in the emerging market.

Materials and methods

Sample, variables, and data collection

The sample comprises 62 listed non-financial firms from 11 different sectors of the stock exchange selected by purposive sampling technique based on availability of data required for the study. The sectors are agricultural, conglomerates, construction, consumer goods, healthcare, ICT, industrial goods, oil &gas, and services from which 3, 6, 1, 14, 5, 2, 10, 7, 14 firms were selected and analyzed. The study uses a set of financial data collected from annual financial statements of each of the listed subject-firms. Nigeria is selected for this research, because its economy has the second most developed markets in Africa and there is need to showcase this level of study to enrich the literature in addition to what has been discovered majorly in developed markets. The period of study covers the years 2007–2018. The 2007 is two year-gap from the end (December 2005) of the banking consolidation that affected many firms in Nigeria due to fund mobilization to achieve the threshhold capitalization of N25billion for each bank. Data availability ended 2018. Our research hypotheses were adapted in line with ones developed by Mardones and Cuneo (2020) which were derived from the works of Paniagua, Rivelles, and Sapena (2018), Phuong and Bich (2017), Espinosa, Maquieira, Vieito, and Gonzalez (2012). This study employed panel data which has the time-series and cross-sectional dimensions into the regression model to identify the relationship between the explained and explanatory variables. To find the extent of the relationship between CS variables and financial performance, the estimation was conducted using Eviews version 9.0 software. The fixed effects model was adopted on the panel data based on Hausman test.

We propose four models for our study. The models (1-4) define the relationship between capital structure variables and financial performance.

Model specification

$$ROA_{i,t} = \beta_0 + \beta_1 SDR_{i,t} + \beta_2 EQR_{i,t} + \beta_3 CSR_{i,t} + \beta_4 INF_{i,t} + \beta_5 INT_{i,t} + \beta_6 EXR_{i,t} + \beta_7 SGR_{i,t} + \beta_8 AGR_{i,t} + \beta_9 FMS_{i,t} + \beta_{10} FMA_{i,t} + \beta_{11} AST_{i,t} + \beta_{12} OPR_{i,t} + e \quad (1)$$

$$ROE_{i,t} = \beta_0 + \beta_1 SDR_{i,t} + \beta_2 EQR_{i,t} + \beta_3 CSR_{i,t} + \beta_4 INF_{i,t} + \beta_5 INT_{i,t} + \beta_6 EXR_{i,t} + \beta_7 SGR_{i,t} + \beta_8 AGR_{i,t} + \beta_9 FMS_{i,t} + \beta_{10} FMA_{i,t} + \beta_{11} AST_{i,t} + \beta_{12} OPR_{i,t} + e \quad (2)$$

$$EPS_{i,t} = \beta_0 + \beta_1 SDR_{i,t} + \beta_2 EQR_{i,t} + \beta_3 CSR_{i,t} + \beta_4 INF_{i,t} + \beta_5 INT_{i,t} + \beta_6 EXR_{i,t} + \beta_7 SGR_{i,t} + \beta_8 AGR_{i,t} + \beta_9 FMS_{i,t} + \beta_{10} FMA_{i,t} + \beta_{11} AST_{i,t} + \beta_{12} OPR_{i,t} + e \quad (3)$$

$$SMV_{i,t} = \beta_0 + \beta_1 SDR_{i,t} + \beta_2 EQR_{i,t} + \beta_3 CSR_{i,t} + \beta_4 INF_{i,t} + \beta_5 INT_{i,t} + \beta_6 EXR_{i,t} + \beta_7 SGR_{i,t} + \beta_8 AGR_{i,t} + \beta_9 FMS_{i,t} + \beta_{10} FMA_{i,t} + \beta_{11} AST_{i,t} + \beta_{12} OPR_{i,t} + e \quad (4)$$

Measurement of variables and descriptive statistics

We present the details of each variable in Table 1.

Table 1: Details of model variables

Variables	Abbreviation	Detail
Return on assets	ROA	Earnings before interest and tax to total assets
Return on equity	ROE	Earnings after tax to shareholders' funds
Earnings per share	EPS	Earnings after tax divided by total number of shares
Share market value	SMV	Average daily market price per share (MPPS)
Short-term debt ratio	SDR	Short-term debt to total assets
Equity ratio	EQR	Shareholders' funds to total assets
Capital structure ratio	CSR	Sum of long-term and equity to total assets
Inflation rate	INF	Average inflation rate for each year
Interest rate	INT	Average interest rate for each year
Exchange rate	EXR	Average exchange rate for each year
Growth in sales	SGR	Annual percentage change in sales
Growth in assets	AGR	Annual percentage change in total asset investment
Firm size	FMS	Natural logarithm of total assets
Firm age	FMA	from date of incorporation to 2018
Asset Tangibility	AST	Total fixed assets
Operational risk	OPR	Standard deviation of the last 3years of ROA

Source: Adapted from Mardones and Cuneo (2020) with some modifications.

Descriptive statistics

The summarized descriptive statistics of all variables are shown in Table 2. For all the sample firms the average ROA, ROE, EPS, and MPPS is 11.66%, 15.97%, N2.13, and N39.11 respectively. In all, MPPS (SMV) shows the greatest standard deviation followed by EPS, ROE and ROA, which can be explained by wide dispersion of the daily share prices and annual profit after tax leverage and operational income among the subject-firms. The greatest profitability with ROA is 158.32% and ROE is 2898.45%, EPS is N54.26, and MPPS is N1463.35 while the lowest are in negatives except the MPPS. These firms have average short-term debt, equity and total long-term financing ratio of 0.442, 0.394 and 0.5619 respectively. With regard to leverage, the firms use more short-term debt (SD) than long-term debt (LD).

The sector with the highest average performance in terms of ROA, ROE, EPS, and MPPS is Consumer Goods with 15.53%, Consumer Goods with 22.98%, Oil&Gas with N5.72 and N91.89 respectively and the lowest is Healthcare with 6.16%, Conglomerate 0.67%, Hospitality with –N0.01 and N2.99 respectively. Oil&Gas sector generates the highest EPS, SMV and second highest short-term borrower. Airlines/Maritime services sector possesses the highest ratio of total capital structure to total asset followed by the hospitality sector due to the nature of their services and capital requirements. Publishing sector has the highest equity to total asset ratio followed closely by Airlines/Maritime services sector. Rate of growth in sales (SGR) and asset investment (AGR) are highest in the Agricultural sector firms followed by oil and gas. Construction sector and oil and gas firms are largest in size. Hospitality sector firms and agric firms have the highest proportion of tangible assets (TAN). Office equipment, air/maritime services and agric sector firms have the highest level of operational risk (OPR).

Correlation matrix

From the correlation matrix in table 3, there is a positive correlation between SDR and financial performance measured by ROE and SMV, a negative correlation with ROA and EPS for all firms. Also, the cases of equity to total asset ratio (EQR) and total capital structure to total asset (CSR) provide mixed results in opposite direction to that of SDR. The variables SGR, OPR, AGR, CASH, PROF, and LIQ are correlated positively with performance. The variables INF, INT, EXR, SGR, AGR, FMS, AGE, TAN, and OPR produce mixed results as shown in the correlation matrix Table 3. ROA is positively influenced by EQR, CSR, SGR, and OPR while all others have negative influence on it. SDR, INF, SGR, AGR, FMS, AST and OPR possess a positive correlation with ROE while other variables possess a negative correlation with it. All except SDR, AGR and OPR relate positively with EPS. SDR, INT, EXR, SGR, FMS, FMA, and AST possess a positive effect on MPPS while other variables possess a negative effect on it. There is no evidence of collinearity among the variables that may lead to outcome bias.

Regression results and discussion

The regressions were performed at 95% confidence level. Based on the results of Hausman test, the fixed effects model was recommended. For all the firms, 0.1853, 0.0065, 0.0853, 0.0897 variations in ROA, ROE, EPS, and SMV respectively are explained by the independent and control variables. SDR and CSR have positive and insignificant relationship with all the performance measures except ROE. EQR has positive relationship with all the performance measures but only significant in ROA.

For sectoral analysis, 0.4328, 0.5345, 0.6629, 0.8259 variations in ROA, ROE, EPS, and SMV respectively are explained by the independent and control variables in the agric sector. Likewise, 0.5394, 0.2319, 0.3308, 0.6050 variations in ROA, ROE, EPS, and SMV respectively are explained by the independent and control variables in the conglomerate sector. Similarly, others are respectively 0.5988, 0.6477, 0.4618, 0.6171 for healthcare, 0.8546, 0.5528, 0.7104, 0.8581 for office equipment and 0.5676, 0.3439, 0.3439, 0.8550 for the publishing sector. Others can be depicted from table 4.

For all the firms, short-term debt **(SDR)** has positive and insignificant impact on all the performance measures except the ROE which is negative. It replicates the same relationship in air/maritime services sector-firms. There is a positive and insignificant association between short-term debt leverage and firm performance measured by ROA in all the firms, agric, oil and gas, air/maritime service, hospitality and publishing sectors but significant in air/maritime service sector only. With respect to firm performance measured by ROA the H1 hypothesis is upheld in five out of the ten sectors namely conglomerates, consumer goods, healthcare, office equipment, and industrial goods sectors, with negative and insignificant association with short-term debt leverage. For the ROE, it is upheld in all firms and six sectors viz, conglomerates, consumer goods, office equipment, and industrial goods, oil and gas, and air/maritime services sector-firms with negative and insignificant association with short-term debt leverage but significant in conglomerates, and industrial goods. With EPS, the hypothsis is accepted under 4 sectors viz conglomerates, consumer goods, office equipment, and hospitality while agric, office equipment, oil and gas are the 3 sectors for MPPS.

Equity ratio **(EQR)** for all the firms possess positive effect on all the performance indices but significant on only ROA. For the sectors, it has positive except ROA and insignificant effect on agric and publishing sector-firms. It impacts positively on all in healthcare with significant effect on EPS and MPPS and insignificant throughout in the industrial sector-firms, has positive and insignificant effect on ROA, ROE and EPS in conglomerates and office equipment (significant on ROA). There is a negativeand insignificant association between equity ratio of the capital structure and firm performance measured by ROA in agric, air/maritime, and publishing sectors, ROE in air/maritime, and hospitality, EPS in consumer goods (significant), oil and gas, MPPS in conglomerates, consumer goods, office equipment, oil and gas,and hospitality.

The total capital structure relative to the total assets **(CSR)** for all the firms, CSR has positive and insignificant effect in all the performance indices except ROE with negative influence. CSR possesses significant and negative effect on ROA and ROE in industrial goods sector and positive on ROA in air/maritime sector whereas it has negative and significant effect on all the explained variables under healthcare sector except ROA that has insignificant effect. There is a positive and insignificant association between capital structure ratio and firm performance measured by ROA for all firms, in agric, conglomerates, oil and gas, air/martime (significant), hospitality and publishing, measured by ROE in agric, and hospitality, EPS in consumer goods, industrial goods, oil and gas, and air/martime. There is also, a positive and insignificant association on MPPS in conglomerates, consumer goods, industrial goods, and hospitality.

With respect to inflation rate **(INF)**, a positive and insignificant relationship was observed for each performance index for all-firms (except MPPS) and most of the sectors, which is consistent with what has been proposed in extant literature. This indicates that firms operating in high inflationary economy price their products in line with the mood of the inflation in order to generate more profitability. On the average, a positive and insignificant relationship was observed in agric, conglomerate, consumer goods, oil and gas for ROA, ROE and EPS; consumer goods, office equip for ROA and

ROE; and others. However, inflation impacts negatively on all the industrial goods firms, ROA in healthcare, and air/maritime services firms, on ROE in hospitality and publishing, EPS in consumer goods, healthcare, office equip, air/maritime and publishing, MPPS in agric, consumer goods, and healthcare.

Interest rate (INT) shows a negative relationship with all the performance measures in all firms combined but significant only with ROA. Under sectoral analysis, it has a negative and significant impact on ROA under consumer goods, on ROE under agric, and on MPPS under the oil and gas sector. There is a negative association between interest rate and all the performance indices in agric, conglomerate, oil and gas, and air/maritime service sectors, and mixed results of positive, negative and insignificant relationship were identified in other sectors. Mixed results of positive, negative and majorly insignificant relationship were also observed with exchange rate.

In terms of growth in sales (SGR), we observe a positive and insignificant effect on ROA, ROE, and EPS but negative on MPPS on combined firms, healthcare, and air/martime service sectors. There is equally a positive and insignificant effect on all indices under agric, and conglomerate firms, on ROA and ROE under consumer goods, office equip, industrial goods, oil and gas. A negative and insignificant effect was observed on all the indices in hospitality, EPS and MPPS under consumer goods, industrial goods, oil and gas and mixed results in others. Therefore, we can accept the H5 hypothesis that there is a postive and insignificant association between sales growth rate and firm performance measured by ROA, ROE, EPS in combined firms, healthcare, and air/martime service, on all indices under agric, and conglomerate firms, on ROA and ROE under consumer goods, office equip, industrial goods, oil and gas. The H5 is rejected on all other sectors.

Additional investment in terms of asset growth rate (AGR) yields mixed results in all the performance indices but shows negative and insignificant effect on all the indices under the agric sector only.

Firm size (FMS) possesses a positive effect on all indices for the combined firms with significance except in ROE, consumer and industrial goods with significance on EPS and MPPS. This is in line with what obtains majorly in extant literature as large firms are expected to secure high profitability due to the economies of scale and easy access to resources under normal situation. There is a negative and significant effect on all indices for the oil and gas while mixed results in all other sectors.

The H7 hypothesis is rejected based on the results obtained in the combined firms as firm age possesses a positive effect on all the performance indices though with significant impact on EPS and MPPS. Same is repeated in consumer goods with significance on ROA and ROE, in oil and gas and air/maritime with significance on ROA, EPS and MPPS. Other sectors show mixed results on each of the indices. The H7 hypothesis is rejcted based on results obtained from the combined firms but accepted on sectoral results as there is a negative relationship with ROA in office equip, ROE in conglomerate, healthcare, hospitality and publishing, EPS in agric, and industrial goods, MPPS in office equip, industrial goods, hospitality and publishing.

Regarding the asset tangibility, apart from the negative and insignificant influence it exhibits on all the indices under oil and gas and air/maritime, positive and insignificant influence on all the indices under the healthcare, all other sectors have mixed results in all the indices. In the combined results it exerts insignificant and positive effect on ROE, EPS, and MPPS, and negative and significant effect on ROA.

Operational risk (OPR) in terms of volatility of return on asset exerts positive influence on ROA (significant) and ROE and negative and insignificant influence on EPS and MPPS in the combined firms. Also, there is positive influence on all the indices in office equip and industrial goods. However, we can still accept the H6 hypothesis based on results obtained on ROA in healthcare and publishing, ROE in healthcare, oil and gas, and publishing, EPS in consumer goods, oil and gas, air/maritime, hospitality and publishing., MPPS in agric, conglomerate, oil and gas.

CONCLUSION

The aim of this study was to investigate the extent of the influence of capital structure variables on firm performance of ten industrial sector-firms of the emerging economy. Using panel data regression analysis with the fixed effects model, the research findings from the combined results reveal that short-term financial leverage and capital structure ratio possess insignificant and positive influence on ROA, EPS, MPPS but negative impact on ROE while equity ratio exerts positive effect on ROA, ROE, EPS, MPPS with significance on ROA. The industry sector analysis results show that equity ratio (EQR) possesses positive influence on ROA, ROE, EPS, MPPS but significant in EPS and MPPS in healthcare sector, positive and insignificant influence on all in industrial goods sector firms. It also possess negative and insignificant influence on ROA (agric), MPPS (conglomerates, office equip), EPS and MPPS but significant on EPS (Consumer goods), EPS and MPPS (oil & gas), ROA and ROE (Airlines/Maritime service firms), ROE and MPPS (Hospitality firms), and ROA (publishing sector firms). There is positive and mostly insignificant impact on all others under the different sectors. Capital structure ratio (CSR) has positive and insignificant effect on ROA, ROE (agric firms), ROA, MPPS (conglomerates), EPS, MPPS (consumer and industrial goods firms), ROA, EPS (oil and gas sector firms), EPS, significant ROA (airlines/maritime service firms), ROA, ROE, MPPS (hospitality firms), and ROA (publishing

firms), while all others has negative and insignificant relationship. CSR also has negative and significant relationship with ROE, EPS, MPPS and non-significant with ROA in the healthcare sector firms and non-significant with all under the office equip firms. SDR has positive and insignificant effect on all except MPPS in agric sector, MPPS in conglomerates, consumer goods, EPS, MPPS, ROE (significant) in healthcare, all in office equip and publishing firms, EPS, MPPS in industrial goods, ROA, EPS in oil and gas sector, all except ROE in airlines/maritime services sector, and all except EPS in hospitality industry.

Firm size possesses a significant and positive effect on ROA, EPS, MPPS and insignificant in ROE. Growth in sales displays a positive and insignificant effect on ROA, ROE, and EPS but negative on MPPS. Operational risk exerts negative and insignificant influence on EPS and MPPS, positive and significant influence on ROA and insignificant on ROE. Firm age possesses a positive effect on all but with significant impact on EPS and MPPS. While exchange rate and asset growth rate produce mixed results, inflation rate has a positive and insignificant relationship with each performance index except MPPS, and interest rate shows a negative relationship with all the performance measures but significant only on ROA. Asset tangibility exerts insignificant and positive effect on ROE, EPS, and MPPS, and negative and significant effect on ROA.

The main limitations of this study centre on non-inclusion of non-financial measures of firm performance. We recommend that future research can identify and engage those non-financial variables that also determine firm performance. Importantly, this study conducted along the industry sectors could be extended to other emerging market economies to enrich more the literature.

The novelty of this study lies in the fact that this is the first study that showcase the influence of capital structure using equity ratio and capital structure ratio of all the quoted non-financial firms from the lens of their respective industry sectors in any emerging economy in the sub-saharan Africa.

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