

Does the COVID-19 Pandemic Matter in the Capital Structure Decisions of Firms? An Empirical Study of Ghanaian Non-Financial Listed Firms

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Abstract

The purpose of the paper is to investigate the impact of COVID-19 pandemic on the capital structure decisions of non-financial firms listed in Ghana and also assess the changes in the capital structure of listed firms due to the COVID-19 pandemic. The paper adopted quantitative research approach. A panel data of (12) listed Ghanaian firms between the periods 2017 to 2022 was used for the study. Data was obtained from audited financial statements of the firms. The findings of the study after controlling for firm heterogeneity revealed that the COVID-19 crisis period did not significantly affect the capital structure decisions of the listed firms. However, the COVID-19 crisis significantly moderates a positive effect of tangibility on the financing choice of firms highlighting the importance of collateralization in a period of pandemic. A further assessment indicates that there was no significant difference in the true mean value of short-term debt and long-term debt ratios between the pre-COVID-19 period and the COVID-19 period despite a marginal increase in the short-term debts and long-term debts by the firms during the COVID-19 period in the year 2020.

Keywords

Capital Structure Decisions, COVID-19, Ghana, Non-Financial Firms

1. Introduction

The judicious management of resources within firms requires a good decision

on the choice of financing. This makes the study of financing decisions in corporate finance a relevant subject as it could have many implications on the prospects of the firm. The operation of firms within an environment suggests the role of internal and external factors that could necessitate the mix of finance adopted by a firm (Lemma & Negash, 2013; Enos et al., 2020). External factors such as the happenings of the recent global health crisis otherwise known as COVID-19 have affected economies worldwide concerning the growth of the economy, health care, and movement of persons and goods (Baker et al., 2020).

Since the COVID-19 pandemic, it can be noted that the Ghanaian economy has not been completely safeguarded from the influence of this pandemic as evidenced by the reduction of Ghana's economy by 3.2% in the second quarter and 1% in the third quarter of the year 2020, an indication of Ghana's recession for the first time in 38 years (World Bank, 2021). It cannot be ignored that the financing decisions or capital structure of firms have been widely studied; the dynamic nature of today's global economy makes it appropriate to understand how current or ongoing events could affect the financing results of firms. The unanticipated global health crisis, COVID-19, necessitated the government of Ghana to introduce monetary and fiscal measures in an attempt to mitigate the impact of the COVID-19 pandemic on the various economic units (PwC, 2020). Such interventions by the government could influence the economy and affect the financing decisions of firms.

Previous authors have analyzed the effect of the global financial crisis and firm-specific factors on capital structure (Enos et al., 2020; Demirguc-Kunt et al., 2015). Others have looked at the relationship between macroeconomic factors and capital structure (Narayan & Phan, 2020). The recent COVID-19 pandemic has paved way for research into how the COVID-19 has affected the financial markets (Narayan & Phan, 2020; Ofori-Boateng et al., 2021), firm performance (Hu and Zhang, 2021), profitability and capital structure (Mohammad, 2021) though not exhaustive. There is literature gap based on the mixed conclusion. The paper, actually attempts to fill this gap and contributes to the existing body of knowledge by using powerful instruments, like correlation and panel regression, to explore how COVID-19 pandemic matters in the capital structure decisions. The study explores how the COVID-19 pandemic matters in the capital structure decisions in sample of non-financial firms in Ghana. The conclusion of the study may offer exclusive insight into how the global health pandemic (i.e., COVID-19) could affect the financing choice of listed non-financial firms in Ghana as well as assessing the changes in the capital structure of these firms before and during the COVID-19 pandemic. The distinctiveness of the management of the global health crisis (COVID-19) by the authorities in Ghana, a Sub-Saharan African country would contribute to the study. Based on this, the purpose of this study is therefore to determine the effect of the COVID-19 pandemic on the total leverage of non-financial listed firms in Ghana.

Objectives of the Study

- 1) To determine the effect of the COVID-19 pandemic on the Total leverage

of non-financial listed firms in Ghana.

2) To determine the interaction effect of the COVID-19 pandemic and firm-level characteristics (i.e., profitability and liquidity) on the total leverage ratio of Ghanaian non-financial listed firms.

2. Literature Review and Hypothesis Development

2.1. Relevant Theory

This section highlights and explains some of the important theories on the capital structure over time, which could also serve as an input to explaining the rationale behind the empirical result of the study.

2.1.1. The Modigliani and Miller Irrelevance and Relevance Proposition

Modigliani and Miller (1958) initially opined on the irrelevance of capital structure composition to the value of the firm and the cost of debt. They assumed that in a perfect market where there exists no solvency cost, asymmetric information, agency cost, separation of finance from operations, transaction cost and tax, the rise in debt had no impact on firm value and the average cost of capital.

The perfect market conditions by Modigliani and Miller (1958) were not practical, leading to the revision of their theory to include the influence of corporate tax. Modigliani and Miller (1963) acknowledged that the existence of corporate tax was an incentive to increase debt financing due to the tax shield arising from the interest deductibility of debt, hence reducing the cost of debt and the overall cost of capital.

2.1.2. Trade-Off Theory of Capital Structure

The concept of a trade-off as used in financing choice decisions constitutes a set of decisions that assess the advantages and disadvantages associated with the use of debt financing. It, therefore, reasons to indicate that the tax-bankruptcy cost theory and agency cost theory could be classified as traded-off theories of capital structure (Lemma & Negash, 2013).

Static trade-off theory: This theory highlights the tax-bankruptcy cost trade-off with the view that the marginal tax advantage of debt could be diminished by the marginal cost of equity if much debt finance is utilized by the firm beyond the targeted optimal capital structure, and could lead to financial distress (Watson & Head, 2016). Thus, the static trade-off theory aims at a target capital structure as a guide to determining the mix of debt and equity financing (Watson & Head, 2016).

Agency Cost Theory: The agency problem in finance which brings about the problem of agency cost could be extended to the capital structure decisions of the firm. Assessing agency cost in capital structure decisions could be viewed from the conflict of interest between equity holders and managers of the firm on one side, and a conflict of interest between equity holders and debt holders (Jensen & Meckling, 1976). Debt financing provides an avenue to mitigate the possible conflict of interest between management and shareholders through the effec-

tive utilization of free cash in a form of debt repayment, which otherwise may have been exploited by management for their interest (Frank & Goyal, 2009). Further, the conflict of interest between shareholders and debt holders arises when management who acts on behalf of shareholders ends up engaging in moral hazard activities like risk shifting or borrowing more or increasing debt. This could therefore lead to the transfer of value from creditors to shareholders (Abor, 2008).

2.2. Empirical Review and Hypothesis Formulation

The section discusses scientific evidence on the study of the determinants of capital structure decisions. Evidence on firm-specific determinants of capital structure is discussed and a hypothesis is formulated about the COVID-19 crisis.

2.2.1. COVID-19 Pandemic and Capital Structure Decisions

The COVID-19 Pandemic which has been known to be a worldwide crisis has influenced various economies around the globe (World Bank, 2021). Empirics show the influence of the COVID-19 pandemic on the capital structure decisions of firms. For instance, Vo, Mazur, and, Thai (2021) used the basic partial-adjustment model to compute the speed with which publicly listed firms at the cross-country level counterbalance the deviation from the target leverage. Their study provides unique evidence of a significant increase in firms' adjustment to the targeted leverage during the COVID-19, which is higher among firms in the economy severely affected by the COVID-19 crisis. Further, Haque and Varghese (2021) concluded in their study of US publicly listed firms that, leverage decreased by 5.3% due to the COVID-19 crisis as compared to the mean of 19% for the period before the COVID-19 shock, even though there was a marginal increase in debt maturity during the pandemic. Similarly, Closs (2021) found evidence of a decrease in leverage of aggressive firms of US non-financial listed firms while conservative firms recorded an increase in leverage due to the COVID-19 pandemic using fixed effects regression; however, the changes in the leverage of the sample firms between the pre-COVID period and the COVID-19 period were not statistically significant. Azhari, Mahmud, & Shaharuddin, 2022 considered the level of capital structure and its contributing factors of publicly listed firms in Malaysia before and after the COVID-19 pandemic; they observed a minimal decrease in short-term debt and total debt during the COVID-19 crisis compared to the long-term debt which rather increased marginally.

Notably, the global effect of the COVID-19 pandemic on economies around the globe had resulted in the contraction of the Ghanaian economy by 3.2% and 1% in the second and third quarters of the year 2020, highlighting the recession in Ghana after 38 years (World Bank, 2021). Nonetheless, some measures were instituted by the Government of Ghana in conjunction with the Bank of Ghana to institute measures to reduce the adverse impact of the COVID-19 on the businesses and the economy; this included reduction in the policy rate by 1.5% to decrease the lending rate, reduction in primary reserve requirement from 10% to 8% to improve liquidity for banks to support the firms though not exhaustive

(Institute of Economic Affairs, 2020).

During a pandemic, business units are likely to reduce their debt due to greater uncertainty associated with the settlements (Harque & Varghese, 2021). Undoubtedly, the lockdown in Greater Accra and Ashanti Region representing the two major business locations in Ghana in the year 2020 was necessary to manage the crisis associated with the pandemic. This could have contributed to the decrease in real GDP growth of 0.4%, nominal growth in credit to the private sector of 10.6% in December 2020 relative to the 18% in the preceding year as well as higher government expenditure during the pandemic (Bank of Ghana, 2020). Further, Ghana's economy which has been reliant on export-oriented policies due to trade liberalization makes it susceptible to economic shocks from other countries (Otoo & Asafu-Adjaye, 2009). Periods of weakening in economic growth may harmfully affect the available prospect for investment by firms and render the demand for external financing to be low due to the likelihood of default, hence a decline in the level of debt of firms as supported by the trade-off theory. Creditors and lenders may be protective of providing debt to firms due to moral hazards and adverse selection which underpins the agency theory and pecking order theory.

***H1:** There is a significant relationship between the COVID-19 Crisis and the capital structure of non-financial listed firms in Ghana.*

2.2.2. COVID-19 Crisis, Profitability, and Capital Structure

Understanding capital structure decisions have been linked to the level of profitability of a firm. Firms with higher profitability are expected to have higher retained earnings, all other things being equal. Following the intuition from pecking order theory, a firm with higher profitability is likely to opt for cheaper sources of funds by plowing back profit, before considering any form of external financing which constitutes debt. In this regard, authors such as Enos, Yensu, and Obeng (2020), observed a significant negative relationship between profitability and leverage ratio of non-financial listed firms in Ghana using the system GMM from the period 2006 to 2016. Others include Köksal and Orman (2014) in their study of Turkish Firms. Interestingly, trade-off theory also justifies why profitability remains a useful determinant for explaining capital structure decisions. Thus, firms with higher profitability, are less likely to default creating an opportunity for firms to access debt financing and support the agency theory and the tax-bankruptcy theory under the trade-off theories of capital structure. Oppong-Boakye et al., (2013) empirically justify the significant positive relationship between profitability and capital structure in their study in line with the trade-off theories. However, during the crisis period, the uncertainty among economic units is expected to rise which may force firms to utilize their retained earnings in the absence of a cheaper source of finance from lenders (Enos et al., 2020). Given this, we hypothesize that:

***H2:** The COVID-19 Crisis significantly moderates the relationship between profitability and capital structure of non-financial listed firms in Ghana.*

2.2.3. COVID-19, Liquidity and Capital Structure

The availability of liquid assets serves a useful role in the sustainability of a firm's operation. The ease with which firms convert liquid assets into cash can contribute to the financing decisions of a business. Morellec (2001) opines that a high level of a firm's liquid assets which is partly dependent on the composition of the liquid assets could reduce the credit spread and enhance the leverage of the firm, which is however not the case with unsecured lending; this supports the trade-off theory and indicates a positive relationship between liquidity and capital structure of firms. It could also be argued that a high level of liquid assets serves as an opportunity for firms to transform these current assets into cash thereby depending on retained earnings as a cost-effective source of funds. This is consistent with the pecking order theory and the finding of Ghasemi and Razak (2016) who recorded a significant negative relationship between the current ratio and capital structure of 300 listed firms in Malaysia from the period 2005 to 2013 using the Pooled OLS regression. Also, Proença et al. (2014) observed a significant negative relationship between liquidity and total debt ratio but a positive relationship between liquidity and long-term debt ratio of Portuguese SME firms, while Enos et al., (2020) recorded a significant negative relationship between the current ratio and total debt ratio of Ghanaian listed firms.

The capital structure decisions of business units may be influenced by the nature of the crisis within an economy. During the period of the COVID-19 pandemic, the lockdown measure was accompanied by weakening cash flow of firms, and restrictions on loan conditions according to the Ghana Statistical Service (2020). Such occurrence may influence the behavior of firms towards capital structure decisions given their level of liquidity, either positively or negatively.

***HB:** COVID-19 pandemic significantly moderates the relationship between the liquidity and capital structure of non-financial listed firms in Ghana.*

3. Methodology

3.1. Research Design

The study employs both the descriptive research design and the causal research design to achieve the objectives of the study. The descriptive research design justifies and illustrates the characteristics of the selected firms used within the observational time frame. The descriptive research design includes the use of descriptive statistics, correlational analysis, and a test of means to assess the variables for the sampled firm without manipulation of the variables in the study. The causal research design is useful in the determination of the degree of direction and effect of the relationship between the COVID-19 Crisis period and the capital structure adopting the panel data design.

3.2. Description of Data

Secondary data forms the core aspect of the data used for this study. The secondary data are firm-specific variables computed as financial ratios and obtained

from the audited financial statement of the sampled listed firms on the website of the Ghana Stock Exchange (GSE), Annual Reports Ghana, and the websites of the sampled Ghanaian listed companies. For the nature of our study, these firm-specific variables are capital structure ratios which represent the dependent variable, and the profitability, tangibility, growth opportunities, liquidity, and firm size which also illustrate the independent variables. The secondary quantitative data used for the study are annual data which spans the year 2017 to 2022.

3.3. Sampling Procedure and Selection

The judgment sampling was adopted in choosing the non-financial listed firms on the Ghana Bourse. The basis for using the judgment sampling is explained below: First, listed firms are selected since they have a wide variety of debt and equity finance options to select from relative to other institutions (Myers, 2001). Also, the information obtained from listed firms sounds plausible due to the disclosure requirements resulting from corporate governance measures enforced by the regulatory standards (Enos et al., 2020). We also eliminate financial firms from our sample since the nature of their capital structure is bound by specific industry and regulatory standards different from the other firms (Gyapong et al., 2016). Further, firms with no financial statements for the year 2022 representing the COVID-19 period were not considered for our study due to mitigating the effect of missing data on the results of our study. In the quest of the researchers to reduce noise in the data arising out of heterogeneity of the firms, balanced panel data was used. The above reasons accounted for the sampling of twelve (12) listed firms on the Ghana Stock Exchange at the time of the study.

3.4. Measurement of Variables and Data Source

See **Table 1**.

Table 1. Variables description and measurement.

Code	Capital Structure variables	Definition	Data source
TL	Total Leverage	Total Liabilities divided by total assets	Ghana Stock Exchange Database/Annual Report Ghana
STL	Short term Leverage	Short-term liabilities divided by total assets	Ghana Stock Exchange Database/Annual Report Ghana
LTL	Long term Leverage	Long-term liabilities divided by total assets	Ghana Stock Exchange Database/Annual Report Ghana
	Independent Variables/Control Variables	Definition	Data source
Dcrisis	COVID-19 crisis	A dummy variable equal to "1" for the presence of a COVID-19 crisis in the year 2020, otherwise "0"	
PROF	Profitability	Earnings before interest and tax divided by Total asset	Ghana Stock Exchange Database/Annual Report Ghana
LIQ	Liquidity	The ratio of current assets to current liabilities	Ghana Stock Exchange Database/Annual Report Ghana

3.5. Econometric Model

The study used a panel dataset comprising annual data for each sampled firm across the period of the year 2017 to 2022. Hence this study considers a short panel since the number of cross-sectional or individual units N (14) is more than the number of periods N (6) (Anokye & Peterson, 2017).

We specify the general panel data model as:

$$Y_{it} = \alpha_i + \beta_t + cX_{it} + \varepsilon_{it} \quad (1)$$

where, Y_{it} signifies capital structure in company i at time t ; X_{it} depicts the vector of independent variables incorporated in the model which are observed for each firm " i " at a time " t ". These variables are, the COVID-19 crisis, profitability and liquidity. α_i , represents firm fixed effect while β_t represents year fixed effects; C represents the parameter estimates of the independent variables; ε_{it} is the random error term.

More explicitly, to meet objective 1, we express Equation (1) similar to the study of Mohammed (2021) by including firm-specific control variables functionally as:

$$LEV_{it} = \alpha_i + \beta_t + B_1dcrisis_{it} + B_2PROF_{it} + B_3LIQ_{it} + \varepsilon_{it} \quad (2)$$

where LEV_{it} is the total leverage ratio for the firm i at a time t ; $dcrisis$ is the COVID-19 crisis period; $PROF$ is profitability; LIQ is liquidity; β_t is year fixed effects; the $B_1 \dots B_6$ are the parameters to be estimated and ε_{it} is the error term.

To achieve objective two, which looks at the moderating role of the COVID-19 crisis period on the firm-specific determinants of the capital structure of non-financial listed firms, hence accounting and controlling for time-varying changes on the noticeable determinants of capital structure we functionally express Equation (1), similar to the studies of Iqbal and Kume (2014) as:

$$LEV_{it} = \alpha_i + \beta_t + B_1dcrisis_{it} + B_2PROF_{it} + B_3LIQ_{it} + B_4dcrisis * PROF_{it} + B_5dcrisis * LIQ_{it} + \varepsilon_{it} \quad (3)$$

where $dcrisis * PROF$ and $dcrisis * LIQ$, are the interaction variable between the COVID-19 crisis, profitability and liquidity respectively. All other variables are as defined in Equation (2) above.

4. Results and Discussions

The analysis of the data and discussion of the results is the focus of this section. The analysis provided preliminary data analysis as well as discussion of the study results.

4.1. Preliminary and Diagnostic Analysis of Data

Table 2 provides a summary statistic of all the variables used in the study on the number of observations, the mean, standard deviations, and minimum and maximum values. It is evident from the table that, the total observation for each of the variables used is 72, resulting from the product of the number of sample firm units and the number of years for the study period.

Table 2. Descriptive statistics of the variables.

Variable	Observation	Mean	Std. Dev.	Minimum	Maximum
TD	72	0.5534	0.3155	0.0080	1.3692
STD	72	0.4719	0.3155	0.0080	1.3692
LTD	72	0.0815	0.1215	-0.0441	0.5383
PROF	72	0.0956	0.2608	-0.4429	1.5694
CR	72	4.4217	15.6210	0.0839	125.1917

Researchers' computation (2024).

The results indicate a higher composition of the short-term debt within the total debt of sample firms as indicated by the mean value of 0.4719 and 0.5534 respectively. The long-term debt rather reports the least mean value of 0.0815 among the leverage ratios, suggesting that the non-financial listed firms on the Ghana bourse employ more short-term liabilities as a component of their total liabilities. It can therefore be inferred from the mean value of the total leverage ratio in **Table 2** that equity ($1 - 0.5531 = 0.4753$) as a source of finance is relatively lower than the total liabilities employed by the sample firms, constituting about 47.53% of the total assets of the non-financial listed firms.

Profitability is found to have a mean value of 0.0956 indicating that the sample firms averagely generate 9.56% earnings from the total assets used in operating the business before the payment of interest and tax. The minimum value of -0.4429 for profitability means that some firms recorded a loss during the period under review. Averagely, the size of the firms in terms of sales is 17.48, whereas the liquidity of firms measured by the current ratio suggests that the firms can use their current assets to cover about 4 times the amount of current liabilities; however, the higher standard deviation of 15.6210 implies a higher variance in the current ratio of the sample firms further supported by the minimum and maximum values of 0.0839 and 125.1917 for the current ratio.

4.1.1. Pairwise Correlation Matrix and Multicollinearity

The correlation matrix in **Table 3** identifies the relationship that exists among all the variables used in the study and their significance. The relationship between the independent variables and the dependent variable could also be useful in confirming or highlighting the effect of the independent variables on the dependent variables.

Despite the use of the total debt ratio as the dependent variable and a proxy for capital structure in this study, the pairwise correlation matrix in **Table 3** illustrates a relationship among the total leverage, short-term leverage, and long-term debt. It is observed that there exists a statistically significant strong positive correlation between short-term debt and total debt with a correlation coefficient of 0.9231 at a 1% significance level. This corroborates the rationale for the high composition of the short-term leverage within the total leverage of the sample firms. There is a weak positive relationship between long-term debt and total

Table 3. Pairwise correlation matrix of the variables.

	TD	STD	LTD	PROF	CR
TD	1				
STD	0.9231** (0.000)	1			
LTD	0.0542 (0.651)	-0.334** (0.004)	1		
PROF	-0.011 (0.927)	0.0207 (0.827)	-0.0807 (0.500)	1	
CR	-0.3058** (0.009)	-0.3318** (0.004)	0.1119 (0.349)	-0.085 (0.478)	1

Notes: TD is the total debt ratio; STD is the short-term debt ratio; LTD is the long-term debt ratio; PROF is the earnings before interest and tax ratio and CR is the current ratio which measures the liquidity of the firm p-values are in parenthesis; ** represents 1% level of significance; * represents 5% level of significance.

debt (coefficient = 0.0542) which is statistically insignificant but an inverse statistically significant relationship between long-term debt and short-term debt (coefficient = 0.0034). Profitability is seen to have a weak negative relationship with total debt ratio and long-term debt ratio but a positive relationship with short-term debt ratio; these relationships are however not statistically significant. Current ratio has a weak negative relationship with total debt (coefficient = -0.3058) and short-term debt ratio (coefficient = -0.3318) at 1% significance level but a positive relationship with long-term debt though not statistically significant. It could be inferred from **Table 3** that, there is no strong correlation among the variables (i.e. TD, PROF, CR) included in the regression model indicating that multicollinearity is not a cause for concern since no correlation exceeds 0.8 (Enos & Gyapong, 2017). Further checks on the issue of multicollinearity for this study are done using the variance inflation factor (VIF). The presence of multicollinearity in the regression model is not alarming since no independent variable has a VIF of more than 10 (O'Brien, 2007).

4.1.2. Regression Analysis and Discussion of the Results

This sub-section provides the results of the regression analysis necessary to meet the objectives one and two set for this study. The results of the fixed-effects regression estimates illustrated as Model 1 and Model 2 in Table 4.3 employed the firm fixed effects to control for all unobserved variables the change across the sample firms but could remain the same over time, whereas the time fixed effects are included in our estimation to control factors that are persistent across entities but change over time.

Concerning **Table 4**, Model 1 results shows the COVID-19 crisis dummy has a positive relationship (coefficient = 0.0789) with the total debt ratio of non-financial listed firms, this is however not statistically significant. Thus, it could be inferred

from Model 1, that the COVID-19 crisis dummy does not affect the capital structure of non-financial listed firms in Ghana. We therefore, fail to accept the alternative hypothesis (H1) that, COVID-19 has a significant relationship and effect on the capital structure of non-financial listed firms in Ghana. This could mean that the mitigation measures employed by the government of Ghana through the Central Bank and Ministry of Finance and Economic Planning such as the reduction in the policy rate, and primary reserve requirements neutralized the major possible shocks expected from the COVID-19 pandemic on the choice of financing of the firms.

Table 4. Regression results on the COVID-19 crisis and capital structure of Non-financial listed firms in Ghana.

Variables	Model 1	Model 2
	Coef. (Robust Std. Err.)	Coef. (Robust Std. Err.)
<i>Dependent Variable: Total Debt (TD)</i>		
Constant	1.1888 (0.0789)	2.1003 (0.5101)
<i>Independent Variable</i>		
COVID-19 Crisis Dummy (dcrisis)	0.0360 (0.0580)	– –
<i>Control Variables</i>		
PROF	–0.0775** (0.0329)	–0.0491 (0.0583)
CR	–0.0015 (0.0013)	–0.0019* (0.0011)
<i>Interaction terms</i>		
PROF * dcrisis	– –	–0.2999 (0.2907)
FSS*dcrisis	– –	–0.0435 (0.0277)
CR*dcrisis	– –	0.0055 (0.0036)
No. of Observation	72	72
No. of Groups	12	12
R-square	0.7981	0.8525
Adjusted R-square	0.7346	0.7673
F Statistic	506.63***	15.28***

Notes: The cluster-robust standard errors are reported in parenthesis; ***, **, * significance at 1%, 5%, and 10% respectively; TD is the total debt ratio; PROF is the profitability; LIQ is the liquidity ratio.

The firm-specific variables included in Model 1 as control variables reveal profitability (coefficient = -0.0775) and firm size (coefficient = -0.0475) to have a statistically significant negative relationship with total debt ratio at the 5% and 1% level of statistically significant respectively. The negative relationship between profitability and capital structure supports previous studies such as [Köksal and Orman \(2014\)](#) as well as [Enos et al., \(2020\)](#) and reinforces the reasoning of the pecking order theory. The negative relationship between firm size and total debt ratio suggests that an increase in the size of the firm in terms of sales volume reduces the firm's tendency for more total debt, consistent with the findings of [Enos et al., \(2020\)](#). Tangibility exhibits a positive relationship (coefficient = 0.2084) with total-debt ratio but statistically significant at 10%; the positive relationship is in support of the argument that high collateral increases the opportunity of firms to employ more debt from lenders in support of the trade-off theory of capital structure and the studies of [Lemma and Negash, \(2013\)](#) and [Abor \(2007\)](#). The growth opportunities of the firm and liquidity measured by the current ratio are found not to be statistically significant as shown in Model 1.

The estimated regression results depicted in Model 2 of Table 4.3 is useful in achieving the objective of ascertaining the moderating role of the COVID-19 crisis on the firm-specific determinants of capital structure. Interestingly, the COVID-19 crisis significantly moderates a positive relationship between tangibility and total debt ratio at the 1% level of statistical significance with a correlation coefficient of 0.4487 . This supports the hypothesis (H5) stated in our study above. Thus, during the COVID-19 pandemic period, a unit increase in the tangibility of non-financial listed firms would result in the firm's preference for an increment of their debt by 0.4487 . A possible reason may be that in the wake of a global pandemic lender are cautious of the possibility of high default risk due to uncertainty in the economy and the possible moral hazard by firms, and so would rather prefer to secure their lending with solid collateral, following the intuition of the agency cost theory under the trade-off theory. Our findings contradict the results of [Mohd-Azhari et al., \(2022\)](#) who reported a negative relationship between tangibility and the total debt ratio of publicly traded Malaysian firms during the COVID-19 pandemic; this finding is also not consistent with the findings of [Enos et al., \(2020\)](#).

Other firm-specific determinants such as profitability and liquidity were not significant determinants of the total debt ratio of the non-financial listed firms in Ghana during the COVID-19 crisis. The study therefore fails to accept the alternative hypothesis (i.e. H2 and H3) that COVID-19 significantly moderates the capital structure of the non-financial listed firms in Ghana. This is not in line with the study of [Mohamed \(2021\)](#) although his study was focused on banks.

5. Conclusion and Recommendation

The study concluded that there is statistically significant negative effect between accounts receivables and inventory conversion period on firms' profitability. The

study's finding is consistent with the work by Soukhakian and Khodakarami (2019) and Phuong and Hung, (2020), indicates that there is adverse effect of number of days accounts receivables and number of days inventories on firms profitability. However, the study results contradict with the work by Kasahun (2020), which indicates that there is direct effect of accounts receivables and inventory period on firms' profitability. Based on the results, the implication is that the manufacturing firms with higher return on asset had smaller number of day's inventory. Hence, the firms are efficient in ensuring that their raw materials were properly converted into finished products which also led to marketing of their products. The implication is that the inventory is sold out within short period which led to increase in sales as well as improved firms return on asset. The study shows that it is important for firms that deem to have higher return on asset in order to reduce the number of day's inventory to 48 or lower.

The study also observed that firms with higher return on asset tend to have smaller days of accounts receivables. The study also concluded that manufacturing firms needs to have good credit policies which tend to serve as innovative incentives to ensure that debtors makes good of heir indebtedness in short period. The implication is the firms are able to have more liquid to settle their trade creditors which tend to lead to more order of inventories. The firms are able to attain certain level of goodwill from their creditors which tend to lead to constant supply of inventory to serve their firms customers satisfactory. This resultant effect is that there are repeat purchases which improve firms' profitability.

The study also revealed that the number of days account receivables had average score of 44.024 which was lower than inventory conversion period of 48.152. The implication is that the manufacturing firms in Ghana are able to convert trade debtors into cash within one and half months. This signified that an improve in return on asset tend to translate into maximization of shareholders wealth irrespective of whether pay-out ratio is high or not. Thus, the changes that occur in the firms pay-out ratios are considered not relevant on the assumption that WCM tends to affect shareholders wealth at point where the return on asset is high with the assurance that there are prompt payment form debtors. Therefore, shareholders will be paid either divided which can therefore be plough back as retained earning which affects capital gains that directly affect firm wealth. Based on this, the study concluded that WCM tends to impact on firms profitability and shareholders wealth. Therefore, the study recommends that the manufacturing firms in Ghana should reduce number of days accounts receivables to 44 days or lower with the motivation of improving return on asset.

6. Limitation and Suggestion for Further Research

The study is limited because not all variables were considered for the study. Therefore, it is important for future studies to include variables such as firm tangibility, size of then firm and growth opportunities. The study also suggests

that future studies should make comparative studies using neighbouring countries firms of Ghana. This will help provide holistic view on the subject matter across the African continent.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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