
Covid-19 Pandemic and Capital Structure: Evidence from West Africa

Patrick Kofi Yankey¹, Maurice Agor Adiga² & Bassey Emmanuel Ude³

¹School of Business and Legal Studies, Regent University College of Science & Technology, Ghana.

^{2&3}Department of Accounting, Taraba State University, Nigeria

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ABSTRACT: *The question of whether the Covid-19 pandemic is a predictor of firms' capital structure has remained unanswered following limited empirical studies. The financial structure of every business is its lifeblood which is the most important decision-making at any stage of the business's operation. This study investigated the effect of covid-19 on the capital structure of non-financial firms listed on the Ghana stock exchange (GSE). The study focused on long-term debt, short-term debt and total debt ratios as a measure of capital structure. The study adopted the ex-post facto research design, the population consisted of 23 listed non-financial firms out of which 21 were sampled. Data was sourced from audited annual financial reports of the selected companies. Panel regression and ANOVA were used to analyze the data. The findings of the study revealed that covid-19 pandemic showed an insignificant effect on capital structure measured as long-term debt. This implies that the pandemic did not cause significant volatility to the long-term debt of non-financial firms in Ghana within the period of the study. Furthermore, the covid-19 pandemic showed no significant effect on short-term debt. This indicates that short-term borrowings for non-financial firms listed on GSE were not significantly affected by the covid-19 pandemic. The findings of the study further revealed that the covid-19 pandemic does not have a significant effect on the total debt of listed non-financial companies in Ghana. The study recommends that the capital structure policy of non-financial firms listed on the Ghana Stock Exchange should be maintained. This is because the study revealed that the severity of the covid-19 pandemic on business operations did not significantly affect the capital structure of the firms as measured by long-term debt, short-term and total debt.*

KEYWORDS: Covid 19, pandemic, capital structure, Ghana, West Africa

INTRODUCTION

The question of whether the Covid-19 epidemic is a predictor of corporate capital structure has remained unanswered following empirical studies. The financial structure of every business is its lifeblood which is the most important decision-making at any stage of the business's operation.

The decision is critical not only to maximize earnings for the organizational stakeholders but also to ensure the company's survival and continuity. As a result of the uncertainty and public panic induced by COVID-19, worldwide financial markets have plunged. The novel coronavirus (Covid-19) has highlighted weaknesses in the corporate sector and introduced new challenges. Policymakers face the difficult task of staying afloat while also intervening in the economic and financial systems to avoid a complete economic shutdown. Corporate organizations are working to adapt to the shifting business paradigm while also attempting to overcome operational and financial issues. Despite this flexibility from the public and private sectors, Covid-19 is placing pressure on the companies' solvency and finance options.

The dawn of the covid-19 global pandemic was a threat to many nations of which Ghana was no exception. The pandemic has caused a situation of fear due to which economic stagnation has created in different business activities. But firms still need some cash flows which they could use to pay fixed costs etc. For this cash flow, firms will use an alternative i.e., short-term or long-term financing. Because of this specific situation, companies' capital structure would be changed or not. There was a need to investigate this change.

The majority of failed businesses are the result of poor financial decisions. Even though capital structure is strongly linked to business failure, the link is inconclusive. The general management problem is that managers' lack of understanding of the relationship between capital structure practice and financial hardship causes them to make erroneous financing decisions that could put their organizations in financial problems. Managers in the West African region make poor financial decisions as a result of a lack of understanding of the relationship between capital structure practices and financial distress (Opoku-Asante 2021). In light of the above, the study examined how the Covid-19 pandemic has affected the financing decision of listed firms in Ghana. Furthermore, the study investigated how firm characteristics influenced the effect of the pandemic on capital structure firms in different industries.

The paper introduced the Modigliani-Miller (M&M) theorem, which revolutionized the way people thought about capital structure and paved the way for the development of modern capital structure theories. According to Modigliani and Miller (1958), a firm's total value is independent of its capital structure, and its cost of equity is proportional to its leverage level. Modigliani and Miller continued to work on the idea, eventually publishing an update in 1963 that included taxes, bankruptcy expenses, and asymmetric information. Modigliani and Miller (Modigliani & Miller 1963).

The study was guided by the following hypotheses:

- i. Covid-19 pandemic has no significant effect on non-financial firms' long-term debt ratio
- ii. Covid-19 pandemic has no significant effect on non-financial firms' short-term debt ratio

- iii. Covid-19 pandemic has no significant effect on non-financial firms' total debt ratio
- iv. Capital structure does not differ significantly with sectors in Ghana

LITERATURE REVIEW

The impact of the COVID-19 economic crisis on the speed of adjustment toward the target leverage ratio was investigated by Vo, Mazur, and Thai (2022), an international look at the situation. The research examined firm-level data from Compustat Global Fundamentals Quarterly for 37,190 publicly traded companies from 81 countries across five continents for which comprehensive data was available. Firms domiciled in countries where COVID-19 produces more severe harm modify their target leverage faster than firms domiciled in countries where COVID-19 causes less severe damage, according to the findings. This research differs from the current one in that it examines data from a global viewpoint with a focus on leverage measurement. Because the study did not include public entities in Ghana, the findings may not apply to Ghana's economy. How bank capital structure decision-making varies in recessions: Covid-19 evidence from Pakistan was examined by Mohammad (2021). To check the response of bank leverage to the crisis, an independent t-test was used. The effect of the shock was investigated using a fixed effect estimate and a different general method of moments (GMM). An imbalanced quarterly data collection of all commercial banks in Pakistan was used from 2016q1 to 2020q3. The analysis reveals that, because of capital's pro-cyclicality, banks were able to avoid a capital decline during the Covid-19 crisis and enhance their capital positions. During this time, bank-specific criteria such as profitability, size, and competition played a smaller impact in defining capital structure. Evidence demonstrates that the central bank's policy rate intervention influenced capital structure decisions during the Covid-19 period. Macroeconomic shocks have a major impact on bank capital structure decision-making, according to the study, which goes beyond bank-specific considerations. The study concentrated on financial institutions in Pakistan specifically public commercial banks. Quarterly data were analyzed while the present study uses annual data of non-financial firms in Ghana.

During the Covid-19 epidemic, Blanck and Blanck (2021) investigated the Determinants of Airlines' Capital Structure. The quantitative research employs a deductive approach and statistical regression models to discover that the dependent variable capital structure has a significant correlation with the independent variables profitability, size, and collateral value of assets, but no correlation with the variable interest rate. The findings show that during the Covid-19 epidemic, profitability and collateral value of assets have a negative correlation to capital structure, while size has a positive link. The study concentrated on the airline business, which is classified as a service industry.

Oktaria and Alexandro (2020) looked at the impact of capital structure, investment opportunity set, and profitability on the value of manufacturing firms before and during the pandemic covid-

19. Secondary data was used in this study as a type of quantitative data. Multiple linear analysis statistics were utilized in this study with the help of the SPSS program for data analysis. The outcomes of this study show that the capital structure has no impact on the company's value, the Investment Opportunity set has no impact on the company's value, and profitability has no impact on the company's value.

Gajdka and Szymaski (2021) investigated the capital structure of Warsaw stock exchange businesses and the impact of the covid-19 epidemic on their risk. A panel data regression model was used in this investigation. The sample consisted of 123 companies from the Refinitiv database that were included in the WSE indexes WIG20, mWIG40, and sWIG80 as of March 2020. The COVID-19 pandemic impacted the risk of both overleveraged and underleveraged businesses. It had a smaller impact on total risk among the underleveraged companies. In the aftermath of the pandemic, systematic risk did not alter considerably, but idiosyncratic risk increased statistically significantly only in the case of overleveraged enterprises.

Iftikhar (2021) investigated the impact of COVID-19 on the capital structure of Pakistan's publicly traded companies. For the period 2014-2020, an empirical analysis is conducted on a sample of 12 sectors. The results are examined using panel data analysis and least square dummy variable analysis. Short-term debt-to-asset ratio and long-term debt-to-asset ratio were the procedures for capital structure, as well as firm-specific characteristics such as size, profitability, tangibility, asset utilization, and growth opportunity. The results of panel data analysis demonstrate that COVID-19 has no direct effect on business financing, but firm-specific variables such as size, profitability, and tangibility, all showed substantial effects during COVID-19. Growth potential and asset usage, on the other hand, have little impact on capital structure. The sectorial effect is used in the least square dummy variable analysis, which yields improved results. The auto, cement, paper, and technology industries all had a large impact on the short-term debt-to-asset ratio during COVID-19, but the chemical, fertilizers, sugar, oil & gas, textile, pharma, and power industries had little effect. On any industry's long-term debt, no meaningful results were identified. COVID has had a substantial impact on debt in the cement and technology industries. COVID has a negligible impact on the capital structure in other industries.

The socio-economic impact of COVID-19 on Ghana's economy: difficulties and potential were investigated by Aduhene and Osei-Assibey (2021). The study investigated the socio-economic impact of the coronavirus on Ghana's economy by combining discourse analysis with data from secondary sources to examine the pandemic's impact from a Ghanaian perspective. The findings of the discourse analysis revealed that the coronavirus pandemic has harmed Ghana's inhabitants' socioeconomic position. While an estimated 42,000 people lost their jobs in Ghana during the first two months of the pandemic, the country's tourist attraction sector alone lost \$171 million in the last three months as a result of the country's partial lockdown and closure of tourism and hospitality centres. According to the study, Ghana's healthcare system has been overwhelmed by the increasing number of cases in the country, to the point where makeshift structures such as isolation and treatment centres have been used during the pandemic. According to the report, Ghana can

turn the obstacles provided by the COVID-19 epidemic into prospects and opportunities by investing heavily in the health sector and providing support for small and medium-sized businesses, which employ a large number of Ghanaians.

In response to COVID-19, Huang and Ye (2021) investigated rethinking capital structure decisions and corporate social responsibility. From January 2016 to May 2020, data for stock returns from the Center for Research in Security Prices (CRSP) and accounting records in Compustat. Financial and regulated utility firms with SIC between 6000–6999 and 4900–4999 were excluded from the analysis. Firms with excessive debt over the ideal level experienced significant business risk during the pandemic, according to the study, and the effect is more common among firms with poor CSR performance. Firms with debt levels below the optimal, on the other hand, are self-protected regardless of their CSR initiatives.

The relationship between capital structure practices and financial distress in West Africa was investigated by Opoku-Asante (2021). The research was conducted using a quantitative correlational design. The sample was stratified and included all public non-financial enterprises in Ghana and Nigeria. The study used data from 85 publicly available financial filings from 85 different companies. There were 425 firm-years in total that were studied. The analytical tools used to answer the research question were regression and correlation. The findings revealed that West African businesses adhere to the pecking order idea. Increases in debt lead to improvements in the financial health of businesses. The financial health of the company deteriorates when the leverage ratio and asset tangibility rise. Governments should build capital markets to assist businesses in obtaining loan and equity financing promptly to improve their financial health.

The influence of the COVID-19 recession on the capital structure of publicly traded U.S. corporations was investigated by Haque and Varghese (2021). The sample is made up of publicly-held active enterprises with accounting data in the US Compustat Quarterly Database through 2020Q4. According to the findings, leverage (Net Debt/Asset) fell by 5.3 percentage points from the pre-shock norm of 19.6%, but debt maturity grew considerably. This de-leveraging effect is larger for enterprises with significant rollover risk, while firms with the most vulnerable businesses to social distancing did not lower leverage. Firms that did not de-lever became over-leveraged, according to the model's inferred optimal leverage. Default probability deteriorates the greatest in large, over-leveraged enterprises and those that were stressed before COVID, according to the study. Additional stress tests suggest that if cash flows decrease by 20%, the value of these companies will be less than one standard deviation away from default.

The conceptual framework below represents the study's variable direction, by previous research and the study's model. The control variables, as well as the independent and dependent variables.

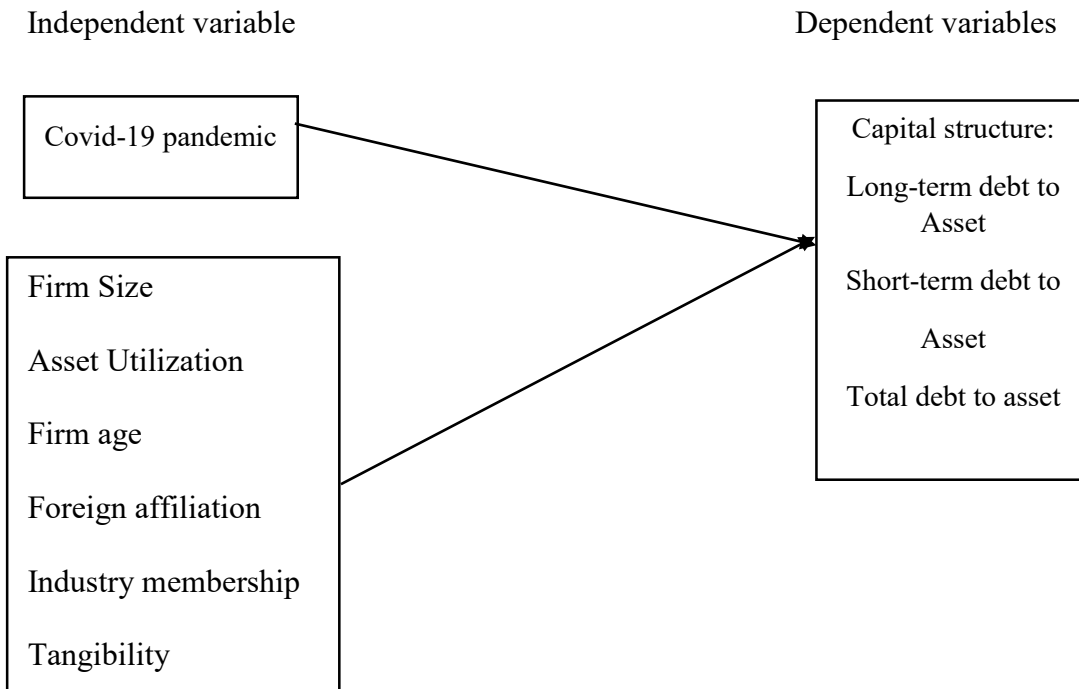


Figure 1: Conceptual framework

METHODOLOGY

The ex-post facto research design was used in this investigation. Data was sourced from the companies' published financial statements accounts for 2019 and 2020. More so, the Ghana Stock Exchange Factbook of 2021 was used as the basis for ascertaining the number of listed non-financial firms in Ghana. Even though there was covid in 2021 which was supposed to be part of the study's research data collection, financial statements for the listed companies were not ready at the time of the research.

The study population covered non-financial enterprises listed on the Ghana Stock Exchange (GSE) as of 31st December 2021. On the Ghana stock exchange (GSE), there are 37 companies listed. The study centred on non-financial firms with a total of 23 listed companies spread across manufacturing to service sectors.

The non-financial companies were chosen because they form the larger proportion of all the listed companies, representing over 65 per cent of the market capitalization of the GSE as of 2020 year-end. The activities of these companies influence the practice of other companies and can have a greater impact on the capital market and the economy as a whole. Data from 6 industry groupings were included in the study, and these are agriculture, oil & gas, mining & quarrying, food and beverages, and industrial & consumer goods and services.

Furthermore, to allow for industry comparison, the non-financial firms were grouped into 6 sectors in line with GSE companies' activities grouping. That is oil and gas, natural resources (mining & quarrying), services, agriculture, industrial goods and consumer goods.

The sample size included a total of 21 non-financial listed firms on the Ghana stock exchange. Out of the 23 non-financial listed firms, AngloGold Ashanti Limited appeared twice on GSE and further has a consolidated financial statement and therefore was captured once. Dannex Ayston has incomplete data since it was merged in 2019 and did not have published 2019 financial statements and therefore was excluded from the study.

Due to the key assumptions of homoscedasticity and no serial correlation in Pooled Ordinary Least Square (OLS), the Generalized Least Square (GLS) Random Effects models' regression was selected.

Table 1: Variables definition

Variable	Definition	Measurement
Long-term debt-to-asset ratio	Dependent	$LTD = \text{Long-term debt} / \text{total assets}$
Short-term debt to-asset ratio	Dependent	$STD = \text{Short-term debt} / \text{total assets}$
Total debt to asset ratio	Dependent	$TD = \text{Total debt} / \text{total asset}$
Firm Size	Control	$FS = \text{Log}(\text{Total assets})$
Tangibility	Control	$\text{Tangibility} = \text{Fixed asset} / \text{total assets}$

Profitability	Control	Profitability = Net income / total assets
Asset Utilization	Control	Asset utilization = Sales / total assets
Firm age	Control	Firm age Measured by computing the true age of the firm from the date of incorporation should influence better innovations
Foreign affiliation	Control	It is measured as a dummy variable representing 1 for a firm with foreign affiliation and 0 for no foreign affiliation
Industry membership	Control	Assigned figures according to industry grouping

The equations are represented as below:

$$LTDR_{it} = \beta_{0it} + \beta_1 Covid19_{it} + \beta_2 FS_{it} + \beta_3 Tangibility_{it} + \beta_4 Prof_{it} + \beta_5 AU_{it} + \beta_6 FA_{it} + \beta_7 FAL_{it} + \beta_8 IM_{it} + \mu_{it} \dots \dots \dots Model 1$$

$$STDR_{it} = \beta_{0it} + \beta_1 Covid19_{it} + \beta_2 FS_{it} + \beta_3 Tangibility_{it} + \beta_4 Prof_{it} + \beta_5 AU_{it} + \beta_6 FA_{it} + \beta_7 FAL_{it} + \beta_8 IM_{it} + \mu_{it} \dots \dots \dots Model 2$$

$$TDR_{it} = \beta_{0it} + \beta_1 Covid19_{it} + \beta_2 FS_{it} + \beta_3 Tangibility_{it} + \beta_4 Prof_{it} + \beta_5 AU_{it} + \beta_6 FA_{it} + \beta_7 FAL_{it} + \beta_8 IM_{it} + \mu_{it} \dots \dots \dots Model 3$$

Data Analysis

Table 2: Descriptive statistics

Variable	Mean	Std.Dev.	Min	Max
LTDR	.2012	.3078	-.7034	1.0098
STDR	.3964	.3669	-.6722	1.3691
TDR	.6188	.5076	-1.0320	1.4245
COVID-19	.5	.5030	0	1
FAL	.1927	.3968	0	1
IM	3.7619	1.9482	1	6
FS	13.3043	2.8800	7.6771	18.8323
TANG	.6259	.2219	.0006	.9295
PROF	.0009	.1301	-.3277	.3231
AU	.7569	.7322	-.1657	3.2356
FA	35.5	18.0847	8	70

Source: Stata 14 results

From the result of the descriptive statistics in Table 4.1, the long-term debt ratio (LTDR) has a mean value of .2012, indicating that non-financial firms listed on GSE have an average of 20.12% of long-term debts to total assets. Moreover, the minimum and maximum values range from -.7034 to 1.0098 and the standard deviation is .3078. This portrays that there is wide variation between the sampled companies' long-term debt since the value of the standard deviation is higher than the mean value.

The result for short-term debt showed a mean value of .3964, explaining that non-financial companies in Ghana have an average of 39.64% short-term debt to total assets for the period studied. The minimum and maximum values showed -.6722 and 1.3691 respectively. The standard deviation of .3669 is less than the mean value, this depicts less variation among non-financial companies.

The total debt ratio revealed a mean value of .6188 which indicates that non-financial companies in Ghana have an average of 61.88% debt-to-asset ratio. The minimum and maximum values showed -1.0320 and 1.4245 respectively. The standard deviation showed .5076 which is less than the mean and explains that there is a wide difference between the firms.

Furthermore, the descriptive results for covid-19 pandemic showed a mean score of .50, a minimum value of 0 and a maximum of 1. The standard deviation .5030 is higher than the mean indicating a wide difference among the sampled companies.

The result for foreign affiliation showed a mean value of .1927, a minimum value of 0 and a maximum of 1. The standard deviation of .3968 is higher than this indicates that a wide difference between the sampled companies.

Industry membership results showed a mean value of 3.7619, a standard deviation of 1.9482, a minimum value of 1 and a maximum value of 6. This indicates that there is no wide difference in the industry membership of the companies.

The firm size showed a mean value of 13.3043 and a standard deviation of 2.8800. The minimum and maximum values are 7.6771 and 18.8323 respectively. The standard deviation is less than the mean value indicating that no wide variation in the firm size of listed non-financial companies in Ghana.

The result for the tangibility of listed non-financial companies showed a mean value of .6259 and a standard deviation of .2219 implying no wide variation in the firm's tangibility. The minimum and maximum values showed .0006 and .9295 respectively. The mean value for profitability showed a value of .0009 and a standard deviation of .1301. This indicates a wide difference in the profitability of non-financial firms listed on the GSE. The minimum and maximum showed -.3277 and .3231 respectively.

The result for asset utilization of non-financial companies showed a mean value of .7569 and a standard deviation of .7322. the minimum is -.1657 and the maximum is 3.2356. This means there is no wide difference in asset utilization of the companies. The result for firm age showed a mean of 35.5 and a standard deviation of 18.0847 indicating that there is no wide difference in the ages of the companies. The minimum and maximum values showed 8 and 70 respectively.

Regression Result

Hypothesis 1

HO₁: Covid-19 pandemic has no significant effect on non-financial firms' long-term debt ratio

Table 3: Regression result for long-term debt

LTDR	Coef.	Std. Err.	P> z
Covid19	.02553	.02879	0.375
FS	-.0225	.03135	0.472
TANG	-.0546	.1592	0.731
PROF	.0112	.2854	0.968
AU	.0157	.0338	0.642
FA	.0013	.0048	0.779
FAL	-.2832	.2034	0.164
IM	.0073	.0443	0.868
_cons	.4957	.4220	0.240
R-Squared	0.1333		
Prob>chi2	0.8950		

Source: Stata 14 results

From the regression result in Table 4.5, the R² value for long-term debt (LTDR) is 0.1333, indicating that the independent variables in this study accounted for 13.13% of the variations in

long-term debt of non-financial companies listed on the Ghana stock exchange. The result for the predictor variable shows that covid-19 pandemic has a coefficient value of .02553 and a p-value of $0.375 > 0.05$. This result indicates that covid-19 pandemic has no significant effect on the long-term debt of non-financial companies listed on GSE. The implication is that for the time covered, covid-19 pandemic did not significantly influence long-term debt (LTDR) as a component of the capital structure of non-financial firms in Ghana.

Control variables show similar results. Firm size (FS) has a coefficient value of $-.0225$ and a p-value of $0.472 > 0.05$. The values indicate that firm size has no significant effect on the long-term debt of the firms. Tangibility further revealed an insignificant effect on long-term debt with a coefficient of $-.0546$ and a p-value of $0.731 > 0.05$. Profitability (PROF) showed a coefficient value of $.0112$ and a p-value of $0.968 > 0.05$ which indicates that it has no significant effect on long-term debt. Asset utilization results revealed a coefficient of $.0157$ and a p-value of 0.642 . This means that asset utilization has no significant effect on the long-term debt of non-financial companies within the period studied. Firm age further revealed similar results, the coefficient $.0013$ and p-value $.779 > 0.05$ indicate that how long non-financial firms have existed did not significantly affect their long-term debt decision during the period covered in the study. Also, foreign affiliation showed an insignificant effect on the long-term debt of the firms. The coefficient value of $-.2832$ and the p-value of 0.164 affirms no significant effect. Industry membership similarly showed a coefficient value of $.0073$ and a p-value of 0.868 . This explains that the individual sectors the firms belonged to have no significant effect on long-term debt decisions within the period covered. Therefore, the null hypothesis is accepted that covid-19 has no significant effect on the long-term debt of listed non-financial companies in Ghana.

Hypothesis 2

HO₂: Covid-19 pandemic has no significant effect on non-financial firms' short-term debt ratio

Table 4: Regression result on short-term debt

STDR	Coef.	Std. Err.	P> z
Covid19	-.0403	.0499	0.419
FS	.0353	.0306	0.248
TANG	.2292	.2412	0.342
PROF	-.0892	.4194	0.832
AU	.0501	.0575	0.383
FA	.0043	.0047	0.362
FAL	-.2090	.1949	0.284
IM	.0724	.0426	0.089
_cons	-.6199	.4386	0.158
R-Squared	0.3854		
Prob>chi2	0.1726		

Source: Stata 13 results

From the regression result in Table 4.6, the R^2 value for short-term debt (STDR) is 0.3854, indicating that the independent variables in this study accounted for 38.54% of the variations in short-term debt of non-financial companies listed on the Ghana stock exchange.

The result for the predictor variable shows that covid-19 pandemic has a coefficient value of -.0403 and a p-value of $0.419 > 0.05$. This result indicates that covid-19 pandemic has no significant effect on the short-term debt of non-financial companies listed on GSE. The implication is that for the time covered, covid-19 pandemic did not significantly influence short-term debt (STDR) as a component of the capital structure of non-financial firms in Ghana.

Control variables show similar results. Firm size (FS) has a coefficient value of .0353 and a p-value of $0.248 > 0.05$. The values indicate that firm size has no significant effect on the short-term debt of the firms. Tangibility further revealed an insignificant effect on short-term debt with a coefficient of -.2292 and a p-value of $0.342 > 0.05$. Profitability (PROF) showed a coefficient value of -.0892 and a p-value of $0.832 > 0.05$ which indicates that it has no significant effect on short-term debt. Asset utilization results revealed a coefficient of .0501 and a p-value of 0.383. This means that asset utilization has no significant effect on the short-term debt of non-financial companies within the period studied. Firm age further revealed similar results, the coefficient .0043 and p-value $.362 > 0.05$ indicate that how long non-financial firms have existed did not significantly affect their short-term debt decision during the period covered in the study. Also, foreign affiliation showed an insignificant effect on the short-term debt of the firms. The coefficient value of -.2090 and the p-value of 0.284 affirms no significant effect. Industry membership similarly showed a coefficient value of .0724 and a p-value of 0.089 which is significant at a 10 per cent level of significance, it shows no effect because there is no statistically significant ($p > 0.05$). This explains that the individual sectors the firms belonged to have no significant effect on short-term debt decisions within the period covered. Therefore, the null hypothesis is accepted that covid-19 has no significant effect on the short-term debt of listed non-financial companies in Ghana.

Hypothesis 3

HO₃: Covid-19 pandemic has no significant effect on non-financial firms' total debt ratio

Table 4.7: Regression result on total debt

TDR	Coef.	Std. Err.	P> z
Covid19	.0130	.0321	0.685
FS	.0118	.0444	.790
TANG	.2329	.1822	0.210
PROF	-.2469	.3289	.453
AU	.0604	.0377	.109
FA	.0071	.0070	.315
FAL	-.5187	.2953	.079
IM	.06772	.0642	.292
_cons	-.1450	.5928	0.807
R-Squared	0.3284		
Prob>chi2	0.3013		

Source: Stata 13 results

From the regression result in Table 4.7, the R^2 value for total debt (TD) is 0.3284, indicating that the independent variables in this study accounted for 32.84% of the variations in total debt of non-financial companies listed on the Ghana stock exchange.

The result for the predictor variable shows that covid-19 pandemic has a coefficient value of .0130 and a p-value of 0.685 > 0.05. This result indicates that covid-19 pandemic has no significant effect on the total debt of non-financial companies listed on GSE. The implication is that for the time covered, covid-19 pandemic did not significantly influence total debt (TDR) as a component of the capital structure of non-financial firms in Ghana.

Control variables show similar results. Firm size (FS) has a coefficient value of .0118 and a p-value of 0.790 > 0.05. The values indicate that firm size has no significant effect on the total debt of the firms. Tangibility further revealed an insignificant effect on total debt with a coefficient of .2329 and a p-value of 0.210 > 0.05. Profitability (PROF) showed a coefficient value of -.2469 and a p-value of 0.453 > 0.05 which indicates that it has no significant effect on total debt. Asset utilization (AU) result revealed a coefficient of .0604 and a p-value of 0.109. This means that asset utilization has no significant effect on the total debt of non-financial companies within the period studied. Firm age further revealed similar results, the coefficient .0071 and p-value .315 > 0.05 indicate that how long non-financial firms have existed did not significantly affect their total debt decision during the period covered in the study. Also, foreign affiliation showed a significant effect on the total debt of the firms at a 10% significance level. The coefficient value -.5187 and the p-value of 0.079 which is above the 5% significance level affirms no significant effect. Industry membership similarly showed a coefficient value of .0677 and a p-value of 0.292 which shows no effect because there is no statistically significant ($p > 0.05$). This explains that the individual sectors the firms belonged to have no significant effect on total debt decisions within the period

covered. Therefore, the null hypothesis is accepted that covid-19 has no significant effect on the total debt of listed non-financial companies in Ghana.

Hypothesis 4

HO₄: Capital structure does not differ significantly with sectors in Ghana

Table 4.8: ANOVA result for capital structure index at different level of firm industry membership during the covid-19 pandemic

H4		Sum of squares	Df	Mean square	F	Sig.	Partial eta squared
TDR	Between groups	2.108	5	.422	1.805	.138	.210
	Within groups	7.943	34	.234			
Firms differ significantly in the level of TDR on account of industry membership during the covid-19 pandemic Decision: not supported							
LTDR	Between groups	1.559	5	.320	5.183	.001	.425
	Within groups	2.098	34	.062			
Firms differ significantly in the level of LTDR on account of industry membership during the covid-19 pandemic Decision: Supported							
STDR	Between groups	1.102	5	.220	1.795	.139	.217
	Within groups	4.418	36	.123			
Firms differ significantly in the level of STDR on account of industry membership during the covid-19 pandemic Decision: not supported							

Source: Stata results

For H₄, the result of the inferential statistics in Table 4.8 shows the level of capital structure at different categories of firm industry membership. The result showed for total debt is not supported because there is no statistically significant ($F=1.805$, $p > 0.05$) difference in total debt for all firm industry membership at different sectors. This is evident by the closeness in mean scores for all the variables, which shows that their values are not significantly different from each other. The partial eta squared value indicates that 21.0 per cent of the variability in the level of total debt is accounted for by industry membership

The result for long-term debt shows a statistically significant ($F = 5.183$, $p < 0.01$) difference in long-term debt at the different categories of firm industry membership. The evidence to support

this is that all the mean scores for firm industry membership vary significantly from each other. The scores range from -1.0320 to 1.4245. The partial eta squared represents the R^2 value indicating that 42.5 per cent of the variability in long-term debt is accounted for by firm industry membership. Similar studies have corroborated this finding (Omar, 2014; Bhattacharyya, 2014; Iredele 2020). This can be true because, concerning firm industry membership, the sample for this study consists of the service, which has a wide range of firms and is more visible. Hence, the need for greater variation.

Contrarily, the capital structure represented by short-term debt showed not supported because there is no statistically significant ($F = 1.795$ $p > 0.05$) difference in short-term debt for all firm industry membership at different sectors. This is evident by the closeness in mean scores for all the variables, which shows that their values are not significantly different from each other. The partial eta squared value indicates that 21.7 per cent of the variability in the level of short-term debt is accounted for by industry membership.

DISCUSSION OF FINDINGS

The findings of the study based on the result from the regression analysis and comparative analysis showed the mixed effects of the predictor variables on the capital structure of listed non-financial companies in Ghana. The covid-19 pandemic showed an insignificant effect on capital structure measured as long-term debt. The implication is that the pandemic did not cause significant volatility to the long-term debt of non-financial firms in Ghana within the period of the study. This may be a result of the firms using more equity funds in financing the business operations since the covid has both health implications and financial implications on the global economy. Though the coefficient value showed positive .02553, which explains that as covid-19 increases, long-term debt increases by 2.5%. Similarly, the control variables (firm size, tangibility, profitability, asset utilization, firm age, foreign affiliation and industry membership) showed insignificant effects on long-term debt. This explains that changes in the variables do not determine the variability in long-term debt significantly. The above confirmed that of Iftikhar (2021), who investigated the impact of COVID-19 on the capital structure of Pakistan's publicly traded companies. The results of panel data analysis demonstrated that COVID-19 has no direct effect on business financing. This implies that capital structure requires not much attention during global crises such as the covid.

Furthermore, covid-19 pandemic has shown no significant effect on short-term debt showing the $p > 0.05$. This indicates that short-term borrowings for non-financial firms listed on GSE were not significantly affected by the covid-19 pandemic. Though the coefficient revealed a negative -.0403, this shows that the increase in covid-19 caused a decrease in short-term debt. Changes in short-term debt were not determined by covid-19. This may be because business operations within the period were not normal for the firms. The control variables show similar results, firm size, tangibility, profitability, asset utilization, firm age, and foreign affiliation showed an insignificant effect on short-term debt. Contrarily, industry membership is significant at a 10% level of significance but insignificant at a 5% level of significance. The above is said to be true when it is

compared to Dmirgu-kint et al. (2015) that showed that the 2008 - 2010 global financial crisis showed an insignificant effect on firms' capital structure.

The findings of the study further revealed that covid-19 pandemic does not have a significant effect on the total debt of listed non-financial companies in Ghana. This is proved by the $p\text{-value} > 0.05$. The coefficient showed a positive value of .0130 which explains that an increase in covid-19 per unit will cause a 1.30% increase in the total debt of the firms. This effect is not statistically significant. The finding implies that as covid-19 became severe, the borrowings of non-financial firms in Ghana did not significantly increase. This effect may be caused by the level of firm operations and activities during the period covered. Firms' inability to operate normally might reduce firm borrowing to fund operations which are below normal during the period. Oktaria and Alexandro (2020) looked at the impact of capital structure, investment opportunity set, and profitability on the value of manufacturing firms before and during the pandemic covid-19. The outcomes of this study show that the capital structure has no impact on the company's value, the Investment Opportunity Set has no impact on the company's value, and profitability has no impact on the company's value. It is therefore important for policymakers and companies' decision-makers not to bother much with capital structure strategies during a global pandemic or crisis.

The comparative findings showed that long-term debt differ significantly during the period among the industries that form the non-financial sector of the Ghana economy. This implies that the 6-industry group had differing capital structures as measured by long-term debt during the period. Total debt and short-term debt showed no statistically significant difference among the seven-industry grouping for non-financial firms listed in GSE. The above is said to be true when compared to Blanck and Blanck (2021). During the Covid-19 pandemic, Blanck and Blanck investigated the determinants of Airlines' Capital Structure and their findings firmed the above findings of the current study. The above findings from the research will inform decision-makers that in times of financial and health crisis, capital structure is not always significantly affected so it does not require much attention.

Recommendations

- i. The capital structure policy of non-financial firms listed on the Ghana Stock Exchange should be maintained. This is because the study revealed that the severity of the covid-19 pandemic on business operations did not significantly affect the capital structure of the firms as measured by long-term debt.
- ii. Similarly, the short-term debt policy adopted by managers of non-financial firms should be continued. This is due to the fact the covid-19 pandemic did not significantly affect short-term borrowings.
- iii. In the same vein, the total debt policy of the firms should not be reviewed by the managers as a result of the covid-19 pandemic. This is because the covid-19 pandemic did not significantly affect the total borrowings of the firms in Ghana especially non-financial listed firms on the Ghana Stock Exchange.

- iv. The researcher recommends that government interventions especially fiscal policy and monetary policy interventions during the peak of the covid should be commended and maintained anytime there is a similar crisis to help firms' financial decisions withstand the crisis as seen on the covid 19.

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