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The implications of the pandemic for the corporate governance, remuneration and sustainability performance of South African listed companies

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Abstract

The study examined the implications of the recent pandemic on the corporate governance, remuneration and corporate sustainability performance of South African listed companies. Data from 42 companies was analyzed using the panel fully modified ordinary least squares (FMOLS) and dynamic ordinary least squares (DOLS) methods from 2010-2021. Findings revealed that the pandemic negatively impacted the selected companies. This study revealed that the pandemic had a good impact on some companies and not just bad ones as claimed by previous researchers. Results from COVID -19- related expenses, debt-to-equity ratios and staff costs revealed a negative but significant result in the estimated model. Other variables such as current ratios, net profit margins and board diversity revealed a positive and significant relationship with all the dependent variables. Hence, a very severe implication of the pandemic on the performance of companies is confirmed through COVID -19related expenses, staff costs and directors' remuneration. These have a very strong negative impact on the future performance, survival, and sustainability of the selected companies. Lastly, a strong relationship between corporate governance and corporate sustainability performance was confirmed as shown by ROA, board size, directors' remunerations and board diversity. This study provides insight for stakeholders such as governments, directors and policymakers to develop both preventive and proactive policies to protect and guide companies from future similar pandemics. To avert and prevent future negative implications on companies, this study recommends a well- structured scheme for all of the company's staff, cash reserves and IT governance.

Keywords: Agency theory and stakeholder theory, Company performance, Corporate governance, Corporate sustainability, COVID -19, Directors' remuneration, IT-governance and cash reserve, Pandemic, Risk management.

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1. Introduction

The recent pandemic crisis has a profound influence on every aspect of daily life upsurge in changes to how companies are managed and governed. Although the COVID -19 pandemic experiences have come and are abating, their impacts still live on. But if care is not taken, more havoc may emerge that may lead to more corporate distress and failures around the world [1, 2]. Pandemic effects on companies must be thoroughly examined so that corrective and proactive measures can be implemented to protect against and avert future similar pandemics and other risks associated with the company's operations and governance [3]. Over the last few decades, corporate governance as a branch of financial management and as a pillar of company's performance and sustainability has faced several challenges [4]. There have been many crises in the past that had a detrimental effect on the world economy. For instance, the global accounting scandals of Enron and WorldCom companies that shook the world and later led to the enactment of the Sarbanes-Oxley Act, 2002, were followed by the global financial crises of 2008 that led to a global financial meltdown and later led to a global recession [5, 6]. Countries 'codes of corporate governance have been passing through a series of review processes. The COVID-19 pandemic erupted worldwide. Thus, the world economy was trying to get over this situation.

This has been a major issue and subject of discussion among researchers and other stakeholders for the past two years in the world literature, especially regarding its major implications on lives, business performance, corporate governance, and operations. However, it is important to emphasize that those past crises, other than the COVID-19 pandemic, stemmed from accounting fraud, corporate misconduct, poor management, poor governance, greed and poor enforcement of corporate governance codes, poor regulations, risk taking and other economic issues. On the other hand, the COVID-19 pandemic stemmed from nature, poor health conditions, attitudes of governments, rifts among world economic leaders, carelessness, slow decision-making by world organizations etc., which affected every aspect of lives, such as health, the economy, companies' performance, operations and management [1, 7]. For the purpose of risk management and decision making in the future, it is crucial to understand how companies tackled the pandemic and its effects. This and some other areas are covered by this study. In terms of determining the level of performance of corporate governance during the pandemic, scholars such as Kumar and Rao [6] found not much improvement between the 2008 crisis and the COVID -19 pandemic crisis because both crises revealed large gaps and challenges that led to corporate distress and all these need to be closed and considered for future corrections by corporate managers. Zattoni and Pugliese [8] stated that the pandemic generated structural changes in companies' corporate governance to enable companies to respond to or prevent the crisis or even prevent future recurrences. The only difference between older crises and this pandemic is that while others required codes of corporate governance reviews, the solution to the COVID -19 pandemic may not attract major codes of corporate governance reviews or affect corporate governance mechanism changes as compared to earlier crises before the COVID - 19 pandemic. However, the major implication for corporate governance codes should be in terms of implications on risk management and information technology (IT) governance as well as how companies can be more effective in accommodating potential risks [8]. Imagine the unprecedented risks and challenges of running businesses globally during the pandemic because of restrictions imposed by various governments in different countries [9]. Certain IT governance standards with risk factor mechanisms should be made compulsory as one of the main contents of corporate governance codes for implementation by every company around the world in case of any possible future shock.

Considering the implications of the COVID -19 pandemic on corporate governance, the implications for company sustainability and remuneration need to be examined. There is no doubt about the fact that the pandemic has not only threatened annual profit and survival but also challenged corporate sustainability. Recently, corporate sustainability has gained popularity in the field of accounting and attracted the attention of all stakeholders. Stakeholders now want total transparency, accountability and sustainability by mandating firms to disclose all material issues that can help stakeholders understand and interpret financial statements easily [10]. The impact of COVID -19 on corporate sustainability is vast. As a result, the current pandemic environment described by Kumar and Rao [6] necessitates a review of whether corporate governance can sustain and handle future situations. Grove, et al. [11] stated that corporate management and corporate governance systems must accept their failure in handling the COVID 19 crisis. Gelter and Puaschunder [12] also highlighted the failure of governance during the crisis. Additionally, Grove, et al. [11] highlighted and blamed company directors for the failure of remuneration committees to pay their workers' salaries during the crisis that led to millions of workers losing their jobs. Finally, failure of companies to have cash reserves that could cater for their unforeseen circumstances during the pandemic was so bad [8]. For instance, studies revealed that many firms have failed, many are struggling to survive and some are on the edge of going into distress with bankruptcy proceedings Jebran and Chen [13]. Musa, et al. [14] stated that the impact of COVID -19 will be felt for many years to come because it has caused many organizations worldwide to fold up and many others to be unable to operate at full capacity. In this regard, the role of remuneration committees as one of the corporate governance mechanisms was lacking. For instance, the risk could have been mitigated if there had been mandatory cash reserves and a well-structured insurance scheme funded by certain percentage of companies' annual profits to cater for emerging future crises.

This study is very important because the corporate sector is the major source of income for any country which are controlled and preserved by good corporate governance. Corporate governance ensures effective communications with the stakeholders, effectiveness and efficiency, well managed risks, goal achievement and compliance through transparency and accountability [6]. In addition, for companies that want to be resilient and sustainable, Sivaprasad and Mathew [15] state that IT governance and other sustainable good governance such as good management of staff through remunerations and other welfare programs must be held. There are many reasons for ensuring good corporate governance in companies. For instance, improving the value of companies' shareholders and this will ultimately increase shareholders' wealth. Apart from performance evaluation, it is also for ensuring sustainability performance. This means ensuring that good corporate governance is always imperative for companies. Moreover, ensuring good governance will not only improve value for shareholders alone but also protect nations' economies as well as accommodate other stakeholders. For a company to be sustainable, transparent, accountable, effective and efficient, good corporate governance must be in place [6, 16]. Many researchers have written on the impact of the pandemic on companies' performance [17, 18] but very few studies have focused on how companies operated or survived in the odd period. There have been reactions from different sectors and stakeholders wanting to know the extent of the pandemic impact on companies' operations and practices and how quick recovery can be achieved. Several authors have revealed that the pandemic increased both systematic and unsystematic risk, thereby threatening the survival of many companies around the world. This study focuses on the implications of this famous pandemic on corporate governance practices and how it has posed a threat to corporate sustainability. Corporate governance is the way in which companies are managed. There is no doubt that the COVID-19 pandemic triggered sudden changes in the way companies were managed and governed during this period. For instance, one of the major implications of the pandemic is the general fall in purchase power parity and the continuous rise of inflation all over the world which has suddenly affected the rising prices of commodities. Companies' managements found it difficult to adjust to these sudden changes and developments, thereby affecting growing companies and creating gaps between companies and their stakeholders. Many studies have revealed that the pandemic impacted every aspect of daily life which includes corporate governance [17, 18]. Present research studies have dwelt extensively on corporate governance and company performance and there seems to be consensus that corporate governance improves company performance [17, 19, 20]. However, a few scholars suggested the need to re-examine corporate governance and firm performance amidst the COVID -19 pandemic, and a few studies in this regard revealed that the pandemic had a serious impact on company performance [17, 18, 21]. Hence, the need for more studies to examine the COVID-19 pandemic and company performance is inevitable. To provide answers to the above, there has been an upsurge in the series of reactions from scholars on the impact of the COVID- 19 pandemic on company performance in the world literature, relating the pandemic to different parts of businesses that can affect the performance of companies [1, 2, 22].

The COVID-19 pandemic has been the focus of several research and different responses from scholars relating it to different backgrounds have produced contradicting results. For instance, Grove, et al. [11] and Gelter and Puaschunder [12] revealed that corporate governance failed during the pandemic while Kumar and Rao [6] stated that many corporate managements tried because the pandemic came unexpectedly which made things worse. Koutoupis, et al. [7] revealed an inconclusive result and suggested more empirical studies for more clarification. Generally, studies in this area dwell more on corporate governance and company performance which have been thoroughly dealt with before COVID -19 eras and there has been a consensus among scholars that corporate governance improves the performance of companies. However, the pandemic's era suggested the need to re-examine the implications of the pandemic for corporate governance and firm performance. A few studies have been conducted related to the COVID-19 pandemic and company performance [2, 18]. These studies revealed that the COVID 19 pandemic negatively impacted company performance. Attention is being shifted to the COVID -19 pandemic to corporate governance and sustainability. Generally, there have been limited studies on how the COVID-19 pandemic has influenced corporate governance, firm performance and corporate sustainability [2, 18]. According to the authors' opinion and the depth of their research findings, this study is the first to examine and combine the COVID 19 pandemic with corporate governance, performance, sustainability and remuneration in a single study. To solve the above problem, this study examines the impacts of the COVID-19 pandemic on corporate governance, sustainability performance and directors' remuneration. Other parts of this study are arranged as follows: concept development, review of theoretical foundation and literature review, model specifications, analysis and interpretations, study implication and conclusion.

2. Concepts, Theories and Literature Review

The recent pandemic has greatly challenged the governance of corporate organizations around the world leading many companies to suddenly struggle with liquidity and solvency problems. Several companies are presently struggling to survive while many go through bankruptcy proceedings. Musa, et al. [14] stated that the pandemic impact will continue to be felt for many years to come if methods of governance are not changed. The impact has led to the complete failure of many organizations and even those that are working are operating below their capacity level. Furthermore, many surviving companies' workers are also experiencing salary reduction. The remuneration of directors and other highest management teams is also being reduced which has affected the morale of many workers, especially directors and sent the wrong signals to stakeholders. The worst aspect of it is that many companies that could not go for salary reductions laid off many of their workers to reduce total remunerations which are a bad signal for survival. This is one of the signals to stakeholders that the pandemic has negative implications for many companies and has led to many struggling to survive. It is also a sign that the long-term sustainability of many companies is threatened around the world. Therefore, the study sees good corporate governance as a critical component of achieving rapid recovery and sustainability [8]. Corporate governance improves performance and makes companies environmentally, socially and economically competitive. Corporate governance for the purpose of this study simply means the total management of an organization by their directors. Cadbury [23] defines corporate governance as the way companies are managed and controlled by directors. This study also views corporate governance as a means for companies to achieve corporate sustainability [24]. This leads to the theoretical review.

The need to separate control from ownership brought about the emergence of corporate governance and the agency theory arises because of this separation of governance from shareholders [25]. In the process of governance, agency costs arise on behalf of the shareholders some of which may be against the wishes of shareholders. This study is multi-theoretical, based within a framework that combines Trueman theory, agency theory and stakeholder theory to hypothesize the implications of COVID-19 for corporate governance, sustainability, remuneration and performance [26, 27]. There is no doubt that companies' ability to perform, create value, sustain value and operate was substantially impaired during the pandemic. Trueman's theory suggests that managers should demonstrate high levels of intellectual capability, innovation and skills at all levels to increase performance and sustain the future of their companies by providing appropriate information to all stakeholders. This is to inform all stakeholders about management's strength to manage risks and sustain value and performance for foreseeable future generations [28]. The agency theory posits and discusses agency costs and conflicts of interest that may arise through corporate governance between shareholders and the board of directors [26, 27]. The current study adopts this theory because it is believed that well- managed and well -controlled agency costs in a prudent manner speak more to good governance and improve company performance. On the other hand, costs experienced to hire external auditors and extra costs on directors' remuneration to make their total packages attractive form parts of the agency costs that can either positively or negatively impact corporate performance if there is no good governance in place. The last theory is the stakeholders' theory which opines that companies should be socially, environmentally and economically responsible to all stakeholders of the company for good governance, accountability, transparency and sustainability performance to be attained and for companies' value to be maximized. The combination of these three theories would help with a quick recovery from the shock of the COVID -19 pandemic.

2.1. Prior Studies on the COVID -19 Pandemic, Corporate Governance, Sustainability Performance and Directors' Remuneration

Several authors have related the COVID-19 pandemic to different topics within financial management and other accounting-related subjects. Those related to this study are reviewed as follows: Patel and Patel [21] studied the implications of the COVID-19 pandemic for corporate governance, practical issues and relief measures and results revealed that the pandemic had a negative impact on both human and corporate governance globally. Zattoni and Pugliese [8] analyzed the impact of COVID-19 on five key areas of corporate governance, namely corporate purpose, executive compensation, ownership structure, the board of directors and accountability and their findings revealed that the pandemic affected them all but the quality of corporate governance helped to re-direct the situation. Koutoupis, et al. [7] reviewed related literature on corporate governance, environmental and social governance and corporate social responsibility during the pandemic, revealing that most previous studies on corporate governance during the pandemic are theoretically based due to insufficient accounting data yielding an inconclusive result and suggested further empirically based studies on corporate governance and the pandemic for better clarification. In addition, Kaur, et al. [29] examined the new boardroom challenges posed by the pandemic outbreak, such as virtual boardrooms, IT governance, threats to continuity and sustainability and dynamic and systematic risk management revealing that the introduction of virtual board meetings, quick responses and board effectiveness from companies' managers helped to sustain companies during the pandemic. Jin, et al. [30] empirically examined corporate governance structure and performance in the tourism industry during the pandemic and revealed that the pandemic had a greater impact on the performance of tourism companies than other industries. Kumar and Rao [6] found that the pandemic highlighted many of the organization's flaws which require immediate action to prevent worse future effects. They also offered suggestions for how to enhance corporate governance. Furthermore, Ng [3] studied the impact of corporate governance on firm performance by incorporating the pandemic factors into business operations. He revealed that directors' remuneration is significantly related to company performance while board size and liquidity are not. The researcher suggested that more corporate governance variables should be employed in future studies for more robust findings. Caratas, et al. [17] studied corporate governance during the COVID-19 pandemic. By studying the various challenges companies faced during the pandemic and the market reaction to the pandemic findings, it became clear that the pandemic greatly affected company governance during this period. Le and Nguyen [31] evaluated the negative impact of the pandemic on small and medium enterprises (SMEs) by examining the role of corporate governance in SMEs and revealed that corporate governance principles moderated the link between COVID -19 and companies. Khan and Ullah [4] predicted possible financial distress and corporate defaults in Pakistan as a post COVID 19 review and found an increase in the degree of financial distress upon which they based their prediction as well as a likely increase in the number of corporate failures due to poor governance. Sivaprasad and Mathew [15] investigated the COVID -19 pandemic's impact on corporate governance in the United Kingdom (UK) and their findings revealed that many firms lag in IT-related risk control as an alternative to governance during the pandemic. The authors suggested that firms should address the adequacy of IT governance as a matter of urgency which can cater for potential future risks that nature may bring. Rababah, et al. [32] analyzed the effect of the COVID-19 pandemic on the financial performance of companies in China and findings revealed that SMEs are mostly affected by the pandemic. Additionally, Atayah, et al. [33] investigated the relationship between the COVID-19 pandemic and the financial performance of logistics companies from G-20 countries. Their results revealed a negative impact on the financial performance of six companies out of the selected companies during the pandemic while 14 firms revealed a significantly higher financial performance during the pandemic especially pharmaceutical, medical and technological companies. Achim, et al. [34] analyzed various key changes in companies' operations to evaluate the level of business performance in response to the COVID -19 pandemic and found that companies in some sectors experienced increases in net profit while others experienced significant decreases in net profit and accounting indicators. Moreover, Alsamhi, et al. [35] examined the impact of the pandemic on the financial performance of all Indian listed companies and results revealed a significant difference between net sales, earnings per share, net income and net profit before and after the pandemic in the hospitality, tourism, and consumer sectors. Pourmansouri, et al. [16] investigated the connection between major shareholders' behavior and the performance of companies' corporate governance in which they revealed that ownership concentration was harmful to corporate governance practices both during and before the COVID-19 pandemic. Khatib and Nour [1] studied the effect of the COVID-19 pandemic on corporate governance attributes and firm performance and revealed that the pandemic affected many aspects of company performance, corporate governance, liquidity and leverage and that the difference between the prior and the post-pandemic is not significant. Board diversity revealed a significant positive impact on performance during the pandemic while the board size was positively insignificant during the crisis. Farwis, et al. [18] studied the impact of corporate governance on firm performance during the pandemic, revealing that the pandemic negatively impacted corporate governance and that the performances of companies were greatly affected during this period. Additionally, Jebran and Chen [13] examined the COVID-19 crisis and responses from companies' managements as a future lesson for companies and potential directors for better governance and revealed that corporate governance mechanisms sustain companies in times of crisis. Bose, et al. [36] examined the impact of the pandemic on firm value and corporate sustainability performance revealed that companies domiciled in countries where COVID-19 was more prevalent experienced greater declines in firm value than firms domiciled in countries where COVID-19 was less prevalent implying that the COVID-19 pandemic endangered and threatened the survival of those companies. Golubeva [37] explored firm-specific characteristics and corporate finance impacts on the performance of companies during the pandemic, revealing that company size, the sector a company belongs to, government assistance etc. helped them to survive during the pandemic. Le and Nguyen [31] examined the role played by corporate governance on SME businesses during the pandemic, the result showed that SMEs were more negatively affected than listed companies with corporate governance as a moderating factor during this period. Elmarzouky, et al. [38] investigated the relationship between COVID-19-related information and high levels of performance disclosure with the moderating effect of corporate governance using gender diversity, board independence, board size. Findings revealed a significant relationship between disclosure and firm performance and that both board independence and gender diversity moderate the relationship between them. Musa, et al. [14] determined whether companies with strong corporate governance were more resilient during the pandemic or not and revealed that companies with higher levels of corporate governance would have their financial variables deteriorate more than companies with low levels of compliance. Hu and Zhang [39] assessed the impact of the pandemic on company performance, revealing that the performance of firms deteriorated during the pandemic and that the impact was less pronounced in countries with better healthcare facilities and institutions.

2.2. Discussion of Gaps from the Literature

This study is unique and timely because of the recent pandemic and its impact on corporate organizations through their modes of governance. Prior studies in this area have only covered the COVID-19 pandemic and company performance with very few studies related to corporate governance in the world literature [18, 33, 40]. To the best of the researchers' knowledge and the extent of their research findings, there is no known study that has covered more variables in a single study, as this study does as suggested by Ng [3]. This study ensures that the choice of variables covers the entire key accounting ratios which prior studies lacked for better and more robust research findings. The gap that is yet to be well covered as discovered in the literature is the extent of the pandemic's impact on corporate governance during the pandemic and what implication it has on companies after the pandemic. The extent of the impact of the pandemic on companies generates questions from stakeholders about the companies' performance level, going concern or sustainability level, liquidity level, solvency level and profitability level both during and after the pandemic. Limited related extant empirical studies on COVID-19 pandemic were also discovered on corporate governance, directors' remuneration and corporate sustainability performance. These and other related points are the gaps that this study covers and adds to the existing literature, as a part of contribution to the body of knowledge. Lastly, this study can be a source of information for policymakers, decision-making, investors, managers, governments, company directors, managements and other stakeholders for future decisions.

3. Data Source and Methodology

3.1. Data Source

This study assesses the impact of the COVID-19 pandemic on corporate governance, remuneration and the sustainability of selected JSE-listed companies from 2010 to 2021. The dependent variables employed were return on assets (ROA) as a proxy for corporate sustainability, total directors' remuneration as a measure of remuneration (DREM), and board size (BOS) as a proxy for corporate governance. The explanatory variables included in the study were: COVID-19-related expenses (COV), net profit margin (NPM), current ratio (CR), debt-to-equity (DTE), costs related to other employees in the selected companies as a proxy for staff cost (STFC) and the percentage of female directors to male directors as a proxy for board diversity (BDV). Data on all the variables used in this investigation was extracted from the published annual reports of companies listed on the Johannesburg Stock Exchange (JSE). Table 1 explains the descriptive statistics and correlation matrix. The statistics show that total directors' remuneration has the highest average while return on assets is the lowest among the dependent variables. COVID -19 expenses and board diversity were the highest and lowest respectively, among the explanatory variables. The standard deviation reflects the existence of wide variations among the variables, particularly the total remuneration and COVID-19 expenses variables, which reflect the highest variability amongst the variables. The lower panel shows the results of the correlation analysis of the variables. The analysis reveals that almost all the explanatory variables are negatively correlated with the dependent variables except for the current ratio and net profit margin. The correlation analysis reveals no sign of multi-collinearity among the variables since the coefficient values of the variables are insignificantly low.

Table 1.
Summary of descriptive statistics and correlation matrix.

Variables	**ROA**	**TDR**	**BOS**	**COV**	**CR**	**DTE**	**STFC**	**NPM**	**BDV**
Mean	9.876	8847.386	13.489	4220.090	1.255	3.107	109.051	12.499	0.243
Min	33.560	255.000	6.000	42.4782	1.100	1.460	41.000	7.150	0.250
Max	92.890	163.680	26.000	353.380	4.980	8.660	187.000	30.431	0.570
Std.dev	13.760	185.020	3.567	66.772	0.737	7.380	28.279	29.589	0.104
Obs.	480	480	480	480	480	480	480	480	480
Correlation matrix									
ROA	1.000								
TDR	-0.089	1.000							
BDV	-0.159	0.328	1.000						
COV	-0.130	0.025	-0.019	1.000					
CR	0.296	-0.102	-0.053	-0.027	1.000				
DREM	-0.152	0.193	0.150	-0.052	-0.197	1.000			
STFC	-0.058	-0.107	0.068	0.850	-0.041	0.188	1.000		
NPM	0.260	-0.306	-0.057	-0.126	-0.473	-0.385	0.359	1.000	
BOS	0.082	-0.392	-0.313	0.361	0.136	0.645	0.229	0. 069	1.000

3.2. Methodology

The model for this study is specified as follows:

$$CSG_{it} = \alpha_i + \beta_1 COV_{it} + \beta_2 X_{it} + \rho Time_{it} + \varepsilon_{it} \qquad (1)$$
$$i = 1, \dots, N, \qquad t = 1, \dots, T$$

In , $i = 1, \dots, N$signifies the cross-section of the chosen firms, $t = 2010, \dots, 2021$ is the time period, α_i represents the firm-specific drift parameter, CSG_{it} is the corporate sustainability and governance measures comprising returns on assets, total directors' remuneration and board size; COV_{it} represents COVID-19-related expenses; X_{it} represents the other control variables, β_i and ρ are the model parameters, and ε_{it} is the error term. To examine the effect of the COVID-19 pandemic on corporate governance, remuneration and the sustainability of selected JSE-listed companies, the study uses the fully modified ordinary least square (FMOLS) and dynamic ordinary least square (DOLS) techniques. The FMOLS method developed by Phillips and Hansen [41] is employed as a technique capable of correcting for auto-regression and endogeneity problems as well as errors emerging from sample bias [42]. This non-parametric method also enables the achievement of asymptotic efficiency by considering the serial correlation effect and also tests for endogeneity that might arise from the existence of co-integrating associations. Thus, the panel FMOLS is specified as follows:

$$\hat{\beta}_{FMOLS} = \frac{1}{N}\sum_{i=1}^{N}\left(\sum_{i=1}^{T}\left(x_{i,t} - \bar{x}_i\right)^2\right)^{-1}\left(\sum_{i=1}^{T}\left(x_{i,t} - \bar{x}_i\right)y_{i,t}^{*} - T\hat{\gamma}_i\right) \qquad (2)$$

Where $x_{i,t}$ and $y_{i,t}$ are expected to be series cointegrated with slope β_i to justify individual specific impacts. $\hat{\gamma}_i$ stops the serial correlation term owing to the heterogeneity variations and $y_{i,t}^{*}$ is the transformed variable $y_{i,t}$ to obviate the endogeneity issue.

Furthermore, this study employs the panel DOLS approach, a parametric technique developed by Stock and Watson [43]. This technique incorporates explanatory variables as leads and lags of their initial difference terms to show that the error term is orthogonalized. This technique also solves small sample bias, endogeneity and autocorrelation issues [43]. The panel DOLS is specified as:

$$y_{it} = \alpha_i + x'_{it}\beta + \sum_{j=-p}^{p} c_{ij}\Delta x_{it-j} + \varepsilon_{it} \qquad (3)$$

In this equation, y_{it} denotes the response variable integrated of order one for the whole cross-section, α_i signifies the firm-specific impacts, x_{it} is the independent variable integrated of one, β stands for the cointegration vector c_{ij} represents the lagged first difference explanatory variables coefficient and ε_{it} denotes the white nose term.

4. Empirical Results

To eliminate false results from the empirical analysis, Levin-Lin and Chu (LLC) and Im-Pesaran-Shin (IPS) unit root tests are conducted on all variables prior to the empirical analysis. According to Table 2, the unit root tests indicate that all variables under consideration are nonstationary at the level but become stationary at the first difference. As a result, all variables appear to be integrated in order one that is, in I (1). Researchers then use Pedroni [44][1] and Kao [45] panel co-integration tests to measure whether the variables are cointegrated in the long run. Table 3 illustrates the results of the Kao panel co-integration test based on different measures of company sustainability and governance. The findings show that the Automatic Document Feeder (ADF) t-statistic is rejected for all the indicators at a significance level of 1%.

[1]Due to space conservation, the results of the [44] test are not presented in this paper but are available upon request by the authors.

Table 2.
Panel unit root tests.

Variables	LLC	IPS	LLC	IPS
	Level		First difference	
ROA	-1.63	-1.969	-5.189***	-5.205***
TDR	-1.297	-1.3	-5.770***	-5.971***
BOS	-0.805	-1.064	-4.282***	-4.588***
COV	-1.154	-1.325	-4.669***	-5.385***
CR	-2.264	-2.519	-7.196***	-7.224***
DREM	-1.465	-1.642	-5.696***	-5.935***
STFC	-0.469	-0.848	-4.759***	-4.786***
NPM	-1.927	-2.1	-6.274***	-6.831***
BDV	-0.974	-1.078	-5.660***	-5.706***

Note: *** indicate significance at 10%. All the variables ROA denotes return on asset, DREM denotes directors' remunerations, BOS indicates board size, COV represents Covid-19 expenses, CR denotes current ratios, TRE denotes total directors' remunerations, STFC represents staff costs and BDV denotes board diversity are expressed in log form.

Table 3.
Kao residual panel cointegration results.

Dependent variable	t-statistics	Prob.
ROA	-5.440***	0.000
DREM	-3.867***	0.016
NPM	-4.592***	0.000

Note: *** indicate significance at 10% respectively. ROA denotes return on asset, DREM denotes directors' remunerations and NPM represents net profit margin.

Next, the study investigates the effects of all explanatory variables on company sustainability, governance and total remuneration using FMOLS and DOLS techniques. The tables present the results of the FMOLS and DOLS where company sustainability, corporate governance and total remuneration are the dependent variables. The results show that the coefficients of the current ratio are statistically significant and positive in all estimated models. The finding suggests that an increase in the liquidity ratio increases the firms' ability to meet their operational needs and consequently, improves the corporate sustainability and governance of the selected firms. This finding aligns with the results of Hidajat [46] and Ponette-González, et al. [47] who reported similar findings in their investigations. Similarly, the results indicate that the net profit margin exerts a significant positive impact on corporate sustainability and governance indicators. This implies that an increase in the net profit margin of the selected firms enhances their corporate performance and thus increases the sustainability and governance of the selected firms in the country. Conversely, the coefficient of debt to equity is negative and statistically significant in all models. This finding suggests that an increase in the debt-to-equity ratio of listed firms diminishes their financial capability and ultimately reduces the sustainability and governance of the selected firms. This finding supports that of Zeitun and Tian [48], who reported similar findings.

Table 4.
Panel FMOLS.

Dependent variable	ROA	DREM	BOS
C	0.906(0.335)	0.224(0.482)	0.166(0.047)**
CR	0.488(0.000)***	0.751(0.009)***	0.287(0.016)***
NPM	0.241(0.000)***	0.774(0.053)**	0.336(0.019)***
DTE	-0.329(0.000)***	-0.375(0.000)***	-0.107(0.000)***
STFC	-0.470(0.039)**	-0.227(0.000)***	-0.329(0.039)**
BDV	0.169(0.002)***	-0.136(0.046)**	-0.238(0.064)*
COV	-0.950(0.000)***	-0.163(0.005)***	-0.153(0.017)***
R^2	0.940	0.958	0.942
Adj.R^2	0.929	0.945	0.928
DOLS	ROA	DREM	BOS
C	0.546(0.131)	-0.820(0.538)	0.172(0.219)
CR	0.453(0.015)***	0.199(0.038)**	0.178(0.026)**
NPM	0.192(0.045)**	0.353(0.028)**	0.407(0.001)***
DTE	-0.405(0.000)***	-0.238(0.000)***	-0.959(0.004)***
STFC	-0.506(0.040)**	-0.215(0.038)**	-0.413(0.034)**
BDV	0.724(0.037)**	0.618(0.002)***	0.662(0.029)**
COV	-0.112(0.000)***	-0.160(0.044)**	-0.394(0.008)***
R^2	0.954	0.972	0.939
Adj.R^2	0.941	0.958	0.966

Note: ***, **, and * indicate significance at 1%, 5%, and 10% respectively.

Similarly, the coefficients of staff costs are negative and significant for all models. This result implies that an increase in costs related to employees in the selected companies reduces the profitability and remuneration of directors in the selected firms. This finding indicates that the wages of the staff in the selected firms have been rising over time and thus negatively affect the sustainability and governance of the firms in the country. Furthermore, board gender diversity was positively and significantly associated with corporate sustainability and governance indicators. This finding suggests that an increase in the inclusion of female directors in the affairs of selected firms improves their corporate sustainability and governance. This result is consistent with the findings of Joecks, et al. [49] and Liu, et al. [50] who extended the Critical Mass theory to examine board gender diversity and firm performance and confirmed that the presence of 30% or more females in the boardroom leads to an improvement in firm performance. Turning to the focal variable, the results show that the estimated coefficient of COVID-19 related expenses is negatively and statistically significant in all estimated models. This finding suggests that an increase in COVID-19-related expenses at the selected firms reduces their performance and thus negatively affects their corporate sustainability and hinders good governance performance. This evidence is not surprising, as COVID-19-related expenses have been rising over time, coupled with the emergence of severe acute respiratory syndrome (SARS)-COVID-19, a virus discovered in the country that almost paralyzed the business activities of the country. This finding is similar to the results reported by Zattoni and Pugliese [8] and Bose, et al. [36] who described comparative results.

5. Study Implication

The study examined the implications of the recent pandemic for corporate governance, directors' remuneration and the sustainability performance of companies. The central findings revealed that the COVID19 pandemic negatively impacted the selected companies while it benefiting some companies belonging to the health, telecommunications and food industries as revealed by the findings which are similar to those of Honko, et al. [51] and Hategan, et al. [52]. For instance, the results revealed that the estimated coefficient of COVID-19 related expenses is negative but significant in all estimated models. By implication, this suggests that an increase in COVID-19 related expenses of the selected companies hindered companies' governance during the pandemic period, thereby reducing the performances of those companies and thus negatively affecting their corporate sustainability and hindering the achievement of good governance performance. This evidence is not surprising as COVID-19 related expenses have been rising over time coupled with the emergence of SAR COVID, a virus discovered in the country that almost paralyzed the business activities of the country. This finding is comparable to the results of Patel, et al. [9], Zattoni and Pugliese [8] and Bose, et al. [36] who reported similar results. Other variables such as the current ratio are statistically significant and positive in all estimated models. By implication, this suggests that liquidity and solvency ratios as represented by the current ratio indicate a firm's ability to meet its operational needs and obligations as and when they become due. This was greatly hampered because the pandemic dictated a different business environment which influenced directors and other top managers' normal way of governance. Hence, this finding supports the pre-Covid-19 reports of Hidajat [46] and Ponette-González, et al. [47] that an increase in the liquidity ratios increases the ability of firms to meet their operational needs helps performance and the attainment of good corporate governance and consequently improves corporate sustainability in the long-run. This implies that when companies experience reductions in liquidity, it signals danger to the survival of such company. This suggests that many companies were adversely affected due to a paucity of funds to run the activities of business and the new business environment dictated by the pandemic, especially during the year 2020 when the pandemic was at its peak. Similarly, the result on profitability ratios as represented by the net profit margin revealed a significant and positive impact on corporate sustainability and corporate governance indicators. This implies that an increase in returns or profit of the selected firms enhances corporate performance, opens room for diversification and investment opportunities and increases companies' value and shareholders' value maximization through companies' dividend policies which could be 100% ploughing back profit for investing purposes or a certain percentage for dividends and the remaining part for investment. Thus, either investing or dividend purposes increases company value improves the image of companies (goodwill), sustains and signals the company performance to stakeholders and improves the quality of governance in place. This implies that reductions in profit during the pandemic would have negatively impacted many companies and this could be linked with recent increases in corporate distresses and failures around the world. Moreover, this could also imply that because many companies experienced losses through reductions in sales revenue, production stoppage and low liquidity during the pandemic, negatively affected profitability is the reason for the increase in corporate distress during the period. This established the importance of profit to the sustainability performance of a company and as a sign of good governance. On the other hand, the coefficient of the debt-to-equity ratio revealed a negative and significant result in all models. By implication, many companies' capital structures were changed during the pandemic because many companies' debt structures increased compared to pre-pandemic periods. This made many companies vulnerable to solvency risks and default risks, thereby increasing corporate distresses and leverage ratios by incurring more debts to survive. Therefore, the findings suggest that an increase in the debt-to-equity ratios of listed firms during this period diminished their financial strength, destroyed value, increased the sustainability risk and undermined all efforts of companies' boards of directors in terms of their stewardship to their shareholders and corporate performances [53, 54]. Similarly, the coefficient of staff costs is negative but significant for all models. By implication, staff costs and other remuneration costs are very important to the survival and performance of any company. Consequently, the costs of maintaining employees during the pandemic affected the sustainability performance of many companies. This implies that many companies' boards of directors ordered worker layoffs and reductions in salaries to sustain and survive their companies [53]. This implies that many companies did not have good and strong remunerations structures that are supported by good insurance schemes and other forms of cash reserves in place before the pandemic.

6. Conclusion

The study empirically explored the implications of the COVID-19 pandemic for corporate governance performance, directors' remuneration and the sustainability of companies. The need to offer solutions to poor economic situations around the world serves as a motivation for this study. This is because corporate sectors dictate nations' economies, and it is an important instrument that can help global economic recovery from the shock of the pandemic. Hence, this forms the basis and motivation for this study. This was empirically achieved and findings revealed that the COVID-19 related expenses of the selected companies hindered companies' governance during the pandemic period and thereby reduced the performance of those companies which negatively affected the selected companies' corporate sustainability and hindered the achievement of good corporate governance performance. Further findings revealed that the pandemic negatively impacted the selected companies leaving many vulnerable to different risks while some companies in the health, telecommunications and food sectors enjoyed the good parts of the pandemic. The pandemic awakens many nations' leaders to prioritize the health sector in all their budgeting decisions. This is to ensure new hospitals are constructed, more facilities are provided for the existing public hospitals and that private hospitals are strictly regulated to government standards. This means that the pandemic also has its good side in its impact on some companies and not all its implications are bad as previous researchers revealed. The above findings are substantiated by the results from COVID -19-related expenses, debt-to-equity ratio and staff costs that revealed a negative but significant result in the estimated model. Other variables such as the current ratio, net profit margin and board diversity revealed a positive and significant relationship with all the dependent variables. Hence, a very severe implication of the pandemic on performance and the sustainability of companies is confirmed through COVID-19-related expenses, staff costs and directors' remuneration which have a very strong negative impact on the future performance, survival and sustainability of the selected companies. Lastly, a strong relationship between corporate governance and corporate sustainability performance was confirmed as shown by ROA, board size, directors' remuneration and board diversity. This study is an insight for stakeholders such as managers, shareholders, the government, investors and policymakers, bankers, lending institutions international institutions and others in their various decision-making endeavors. The study recommends a well-structured insurance-based remuneration scheme for all companies' staff, cash reserves and IT governance to avert and prevent future negative implication on companies. A cross-country based investigation with large sample sizes or different statistical methods can be adopted for further studies to ascertain whether the same results can be achieved.

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