Investigating the Effect of Corporate Social Responsibility and Executive Compensation on the Cost of Equity in the Presence of COVID-19 Pandemic

Applied on Egyptian Listed Firms[1]

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ABSTRACT

A business must be responsible to itself as well as its shareholders before it can be socially conscious. CSR-focused businesses frequently develop their operations to a level where they can support the community. As a result, multinational businesses frequently employ CSR as a strategy. After all, a company has a greater need to establish the bar for moral conduct among its peers, rivals, and industry the more well-known and prosperous it becomes. Consequently, the main goal of this research project to search how executive compensation tied to the accomplishment of SD objectives and CSR affect the equity cost. Additionally, this study looks at how COVID 19 affects the price of stock. Using the control factors of firm size, leverage, and polluting sector. The reports of non-financial institutions of Egyptian companies listed in the stock market in compliance with the EGX 100 between 2011 and 2020 are the primary source of secondary data. Based on the results of the analysis of the normality and multicollinearity testing to the data under study, the OLS method could not be used. Therefore, the GLS method is the suitable method to be adopted in this research. After data collection, this research uses GLS analysis and Hausman test, in order to measure the fixed effect versus the random effect. The necessary information was gathered using secondary data obtained from financial reports of non-financial institutions. The findings proved that CSR and executive compensation have direct positive significant effect on cost of equity.

Keyword: *Corporate Social Responsibility, Cost of Equity, COVID-19, Executive Compensation, Sustainability.*

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1. INTRODUCTION

Cost of equity represents one of the core ideas in finance. In fact, this factor is taken into consideration while choosing an investment and determining the company's worth in relation to clearly specified goals. Because of this, evaluating it requires focus and knowledge of the various factors that may have a significant or minor influence on the cost of equity. Consequently, a wide range of theories and methods have been developed in the subject of finance, each of them contributes to an effort to offer explanations and hypotheses to help understand the cost of financing idea. Obviously, every single one of these strategies has benefits and drawbacks, making it difficult to determine which is the best option (Chouaibi et al., 2021).

Moreover, there are two approaches to calculating the cost of equity as follows: the traditional technique and the current approach. The first type is based on previous data, which is known as ex-post measurement. The second type of measurement, known as an ex-ante measurement, is calculated in advance and is based on expected information to aid the shareholder in estimating the cost of equity, also known as the implicit expense of equity, using anticipated data rather than actual data (Breuer et al., 2018).

Among the variables that can influence the cost of equity is the corporate social responsibility (CSR) sector. CSR refers to any strategies employed by firms to guarantee that they uphold the three basic tenets of sustainable development: economic success, positive social impact, and environmental preservation (Haseeb et al., 2019). Previous studies have mentioned that CSR has a major function in affecting the cost of equity, such as; Chen and Zhang (2021); Breuer et al. (2022); Yang and Yulianto (2022); Prasad et al. (2022). While these investigations have evaluated the associations between CSR and equity costs not all of the studies succeeded to prove a significant link between them. In this regard, Pham (2019) assured that previous studies have demonstrated that there is some uncertainty regarding the associations between CSR and equity cost.

Within the same context, studies also indicated that the connection between executive compensation regarding SD and the equity cost is still a new field of study that have not yet reach a generalization (Breuer et al., 2018; Dahiya and

Singh, 2021). Although some studies had examined this relation; Chen et al. (2013) proved a very substantial correlation between CEO pay and the ex-ante cost of equity. However, Wang and Deng (2021) proved that the equity costs of the companies were proved to be particularly reduced through executive compensation.

From the above two points, the current paper put its focus on investigating the influence of CSR in addition to executive compensation regarding the achievements of sustainable development purposes on cost of equity.

It is also important to refer to the global health crises that have faced the world recently "Covid-19". The global spread of corona virus had affected both public and private sectors ((Rhee et al., 2021). As a result, COVID-19 amplifies business risks, raising the cost of funding organizations. In this way, the cost of stock will rise because shareholders want a higher return rate (Goodell, 2020). Recently studies start to explore the link of Covid-19 on cost of equity, such as; (Rizvi et al., 2022) proved that during the pandemic all industries have faced a significant fall in valuation as a result of probable sales declines and raising in equity expenses. Arianpoor and Tajdar (2022) showed that the equity capital costs during COVID-19 had fell for leveraged enterprises. Gompers et al. (2022) assured of a serious effect on cost of equity caused by Corona. As different results had been noticed in previous studies, the current study seeks to explore the role of Covid-19 on cost of equity.

In addition to the gap mentioned above another gap is noted, which is that previous studies had examined their relationships in other countries than Egypt accordingly the current study targets Egypt as a case study. Therefore, this paper aims to evaluate the influence of CSR, executive compensation and COVID 19 on cost of equity among Egyptian firms listed in the stock market.

Accordingly, this paper introduces eight sections, starting with the introduction of the paper, then the literature review, followed by the methodology in section three. Section four represents the results and findings, then the research discussion in section five, while the research conclusion is in section six. Section seven presents the research recommendations. Ending with section eight that shows the limitations in addition to suggestions for future research.

2. LITERATURE REVIEW

In this section, some of prior literature related to the research variables will be discussed.

Corporate Social Responsibility and Cost of Equity

El Ghoul et al. (2011) looked at US businesses as part of their inquiry into the associations between CSR and equity cost. The conclusion from a sample of observations of 12,915 firm-year showed that CSR quality is raising firms' responsibility. Additionally, by investing in the improvement of behavioral employee relationships, environmental management, and product strategies, the cost of equity can be significantly reduced. Furthermore, there is two businesses that grew the cost of equity which are the "Liquor" industries and including the nuclear and tobacco industries.

In a worldwide context covering 31 countries, Dhaliwal et al. (2014) looked into the benefits of CSR. Countries were categorized into groups that were more and less stakeholder-oriented based on elements such as CSR rules, the labor protection's legal status, public awareness of and attitudes towards CSR concerns, and others. According to the research, there is a connection between CSR and equity costs, with the association being stronger in nations that value their stakeholder groups. The research also discovered information demonstrating the synergy between CSR in addition to financial transparency in lowering the cost of equity financing.

Hajiha and Sarfaraz (2015) looked into the role of CSR and equity capital expenses. 65 companies were chosen as the study's population after the features of each company listed on the Tehran Stock Exchange were assessed. Equity capital costs and social responsibility were shown to have a substantial inverse relation. As a result, management increased the transparency of social performance, which decreased the costs and rate of return for investors (equity capital cost).

CSR and its relationship to China's equity capital price were examined by (Xu et al., 2015). The results showed that increasing CSR towards investors has the biggest impact on lowering the costs of enterprises' equity financing, and that

CSR benefited more from lower cost of capital in recessions than it does in boom times. The paper claims that CSR for significant stakeholders may be advantageous for Chinese businesses.

In a global environment, the moderating effect of culture was examined by (Matthiesen and Salzmann, 2017) to test CSR and its connection to the cost of equity. An international company-level data

was collected of a sample of 42 nations. The findings show that as a corporation engages in more CSR activities, its cost of equity drops. The study also found that countries with lower institutional collective action, a humanitarian orientation, and higher levels of institutional assertiveness have a stronger association between CSR and equity cost.

Li and Liu (2018) examined the equity cost in connection to the caliber of CSR. The study gathered data from Chinese listed firms including the period 2008 to 2014. It was discovered that the standard of the CSR disclosure was inversely connected with the costs of equity. Among businesses in ecologically sensitive industries, this negative association emerged as being more pronounced. It was further established that state-owned businesses were more significantly affected by the CSR and its negative link to equity cost after taking the ownership of the listed companies into account.

Ahmed et al. (2019) adopted a sample of UK listed enterprises to investigate the associations between corporate activities (whether social or environmental) and the cost of equity. The sample of the study consisted of 236 companies. It was discovered that businesses with greater corporate social and environmental activities levels had reduced equity capital costs. This conclusion established the important part that corporate social and environmental activities played in assisting users in coming to wise decisions. Additionally, it claimed that companies with socially responsible business practices were more valuable and less risky.

Hmaittane et al. (2019) aimed to determine whether CSR affected equity cost. 2,006 US firm-year observations were considered as the study sample from the period of 1991 to 2012 in different industry sectors. Participation in CSR across all industry sectors, and even within each of these sectors separately, dramatically reduced the implied cost of equity.

Jiménez and Grima (2020) purposed to test the associations between CSR and equity cost through gathering previous literature. This report provided a comprehensive evaluation of the literature that included 22 publications evaluating the associations between sustainability and the equity cost. The evaluation of the literature gave special consideration to the numerous geographic regions where studies have evaluated the connection between the cost of equity and sustainability and offered novel notions for additional study in this sector.

Yi et al. (2020) looked at how a company's CSR performance in China affects its equity expenses. The findings showed that social responsibility initiatives by businesses to fight poverty had a positive influence on COE. The unfavorable link also developed mostly as a result of China's listed corporations being required to report data on reducing poverty. This study discovered that institutional investors' shareholdings partially mediated this decrease effect and that businesses' efforts to address poverty helped them increase their financial performance and company value.

Dahiya and Singh (2021) sought to explore the connection between Indian manufacturing enterprises' COE and CSR. The investigation included 68 Indian listed-companies through the years 2013 to 2018. The findings have assured that CSR disclosure inside the Indian companies was positively correlated with the COE.

Furthermore, Garzón-Jiménez and Zorio-Grima (2021) conducted an empirical investigation into the relationship between carbon emissions, disclosures of environment, assurance of CSR, and COE, which was calculated using an Ex-Ante proxy model. A sample of 929 companies from 30 emerging nations was selected and panel data were gathered from 2014 to 2019. The findings suggested that capital providers penalised highly polluting companies since they had greater COE than enterprises with lower carbon emissions. Contrarily, studies indicated that companies with stronger environmental disclosures and those whose corporate social responsibility reports were externally assured decreased their COE. The study, which included a multi-country sample and broadened the body of research on carbon emissions and their relationship to enterprises' COE from an emerging market viewpoint, found that higher polluters were

punished in terms of COE. Additionally, the study supported the negative correlation between COE and environmental, social, and governance disclosure scores in this context.

According to Wang et al. (2021), in East Asian markets, CSR was believed to be negatively connected with the price of equity. Using a sample of 1261 enterprises, it was blamed for the positive associations between CSR and the equity cost. The final analysis showed that the research context affected the impact of CSR and emphasized the necessity of improving investor protection and reducing agency disputes in order to advance CSR.

The implications of operating risk as a mediating factor on the capital of cost of equity by listed enterprises' CSR performance were explored by Chen and Zhang (2021). The study used the causal stages technique with 7241 Chinese companies as a sample through 2013-2018. The cost of equity capital was considerably inversely connected with CSR success. Operating risk was significantly inversely connected with CSR performance. Operating risk also served as a mediating factor between CSR and equity cost, and its influence was different for long-term versus short-term risks.

The association between CSR, cost of equity, and shareholders' time orientation was examined by (Breuer et al., 2022). The findings demonstrated that diligent institutional investors keep an eye on the CSR policies of the enterprises they invest in, which has the effect of lowering these companies' cost of equity. Additional investigations revealed that this effect was reduced in the presence of robust national institutions, negating the need for vigilant institutional investors to monitor the situation. Our findings supported the notion that, provided proper control mechanisms were in place, CSR might be advantageous by reducing the equity cost.

Yang and Yulianto (2022) evaluated CSR and its enhancement on cost of equity. Data was collected through the period from 2008 to 2019. This study showed that CSR activity considerably decreased the equity cost. Investors believed that socially responsible businesses could lower firm risks and improved financial performance because social performance specifically reduced the cost of equity more than environmental performance. Results also showed that compared to

pharmaceutical companies, chemical companies had lower equity financing costs.

The effects of mandatory CSR on policy and on debt and equity costs were examined by (Prasad et al., 2022). For 512 Indian nonfinancial firms, data was gathered. According to the findings, (1) higher CSR performance enhanced the equity costs while lowered the debts, and (2) mandatory CSR regulations moderated their associations by lowering the debt cost, while boosting the equity. In line with signaling theory, mandated CSR spending implied intentionality, a reduction in discretionary CSR spending power.

Based on the previous literature that was previously dealt with, the first hypothesis for this research was developed, which was represented in the following:

H_1: There is a significant effect of CSR on Cost of Equity

Executive Compensation Based on the Achievements of Sustainable Objectives and Cost of Equity

The relationship between executive compensation and equity cost was examined by (Chen et al., 2012). The CEO compensation slice's assessment of executive salary showed a significant correlation with the estimated cost of equity, even after other variables were taken into consideration. The variation in the valuation effect attributed to CEO compensation may be explained by a difference in equity costs of 43%. Further investigation revealed that the association for CEO succession planning was more beneficial and important when agency issues with free cash flows were more serious. According to the findings, high succession risk and entrenchment of the CEO were both correlated with substantial CEO compensation.

Chen et al. (2013) evaluated the change of executive pay disparity on equity cost. The study collected data from the ExecuComp database between 1993 and 2007 in order to compute the CEO pay disparity. Since ExecuComp's coverage for 1992 was lacking, those observations were left out. The results showed a strong and favorable association between the difference in executive compensation and the ex-ante cost of equity.

The aim of Lui et al. (2016) was to investigate how firm risk is affected by disruptive IT advancements and how it affects a company's need for equity investment. The study used long-term radio frequency identification (RFID) data from 146 American-listed companies. It was shown that the adoption of RFID greatly lowered the stock capital costs. Performance suffered the most in the companies whose CEOs were subjected to more coercive pressure and CEO incentive-based compensation. Managers used the data to create plans that benefited from ground-breaking IT innovations.

In the food and beverage field, Raimo et al. (2020) looked at the role played by disclosure of ESG on the equity cost. A panel of 1,316 unbalanced observations for the years 2010 to 2019 was used to sample 171 publicly traded firms with headquarters in developed North America, Western Europe, and Asia Pacific. The findings showed a significant inverse relationship between equity capital costs and ESG disclosure. The results supported the theory that greater ESG disclosure is associated with better firm access to financial resources.

Wang and Deng (2021) studied the improvement of executive compensation on equity cost among Chinese companies through a period of 2005-2018. The analysis shows that the executive incentive plan changes had a positive governance influence on the equity cost. A firm's equity costs were particularly reduced through executive compensation. The study found that the positive effects of executive incentive innovation on institutions may be diminished by state ownership rights to property.

Sanoran (2022) distinguished between the change occurred by executive compensation on the cost of equity regarding wealth alignment, involvement, time horizon, and equity incentive. This sample consisted of 11,649 firm-year data from the U.S. listed companies between 1998 and 2014. The findings supported all hypotheses, with the equity cost significantly declining for salaries and stock options while significantly increasing for bonus plans, long-term performance plans, and shareholdings.

Sanoran (2022) looked at how SOX had affected the connection between executive compensation and equity capital costs. From 1998 to 2014, data were gathered from US publicly traded companies. The results showed that shareholdings and incentives were associated with a lower equity cost, however

stock options were not. Additionally, the findings demonstrated that SOX had an adverse impact on the link between executive bonuses, stock options, and equity capital costs.

Based on the previous literature that was previously dealt with, the second hypothesis was developed:

H_2: There is a significant effect of Executive Compensation on Cost of Equity

Covid-19 and Cost of Equity

Carletti et al. (2020)'s major goal was to determine how much the COVID-19 pandemic lockdown harmed Italian companies' equity by causing them to suffer losses. The population comprised of all active, more than 10-employee Italian non-financial enterprises with assets of at least 2 million Euros in 2018. These companies were all listed in Bureau van Dijk ORBIS database. The findings showed a significant influence of COVID19 on equity cost, where small enterprises were more affected by the lockdown.

COVID-19 in the US had various effects on the cross-section of equities returns, according to research by (Bretscher et al., 2020). By the end of 2019, the research got public company ticker symbols from Compustat. Between December 31, 2019, and March 20, 2020, the analysis used these tickers to gather daily closing prices from Bloomberg. According to the data, businesses having their headquarters in an impacted county saw daily returns that are on average 27 bps less than those of businesses with headquarters in non-COVID-19 areas during the 10-day post-event window.

Studying the consequences of COVID-19 on the microstructure of US equity markets was the goal of (Baig et al., 2021). Our final dataset, collected from S&P 500 index, was analyzed using regression models. The findings revealed a link between increased market volatility and market illiquidity as well as a rise in coronavirus-related confirmed cases and fatalities. Lockdowns and restrictions negatively impacted liquidity, and low spirits threatened market stability.

Shaikh (2021) investigated COVID-19 outbreak and its role on the global equity markets. Data were gathered from 12 equity markets through the period January 2018 till March 2020. The negative slopes estimated for all aspects of pandemic

breakouts seemed to be statistically significant and suggested that the stock market had become more unpredictable as a result of illness outbreak across all nations. The key conclusions from the statistical evidence were that the equity market performance had declined as a result of the pandemic's expansion since the WHO declared it to be an international health emergency. According to empirical findings, the amount of new cases and deaths of COVID-19 reported every day has upset investor mood around the world and caused the market to have an unheard-of negative return.

Challita and Rasheed (2021) look at how the semiconductor sector was affected by the initial COVID-19 attack and subsequent lockdowns. The study was based on CAPM model-based variables of return on equity investment, combined with behavioural finance and EMH theories. The SOX index represented the semiconductor industry, and the S&P 500 index represented the general markets. To determine how the market will behave under a shock, daily time series of these index movements were mapped between January 1, 2018, and November 29, 2021. The conclusion was that lockdowns had an impact on equity markets, but there were other factors that also had an impact on the industry.

Mishra and Mishra (2022) examined how the unanticipated COVID-19 outbreak changed equity market performance and the degree to which these markets were incorporated into the BRICS bloc. The primary causes of the pandemic's weakening of equity market in the BRICS were interest real rates, inflation, exchange rates, and indicators of composite leading over the long term, as well as performance of trading and composite leading indicators over the near term.

Bhattacharjee and De (2022) looked at how the dynamics of the changing policy responses during the COVID-19 affected the Indian equity market. The Markov-switching model was utilised to assess the association using high-frequency daily data. The results indicated that the policy response has a positive influence on market sentiment when the market is insecure. Additionally, the data demonstrated that both the high-fear and low-fear market mood states predicted by the model were cyclical, showing increased volatility and potential speculative activity over the ongoing pandemic in the Indian equity market.

Rizvi et al. (2022) evaluated if COVID-19 may lower the value of non-financial firms inside ten EU members in order to provide policymakers with a solid platform for developing successful governmental policies. The research examined a sample of 5342 publicly traded non-financial enterprises between 2010 and 2019. Using in-sample data, a random effect panel was used to evaluate the data. The COVID-19 stress scenarios were next provided, which covered cases in which sales were lower than expected and equity expenses rose or fell. The results revealed a significant fall in valuation across all industries as a result of probable sales declines and an increase in equity expenses. On rare occasions, common businesses in particular industries could lose 60% of their core value in one year. Whether residual income or cash flow were utilized to appraise the asset value, the outcomes were the same.

When the COVID-19 epidemic caused the equity markets to experience highs and lows, Ashraf et al. (2022) looked at how Islamic equity investments performed. From May 1, 2018, through April 30, 2021, a number of worldwide, American, European, and Asian Islamic equities indexes (IEIs) were used, along with daily data. The findings showed that on a nominal and risk-adjusted basis, IEIs demonstrated considerable excess returns during COVID-19. The analysis indicated that IEIs did provide protection or hedging during major market drops, but only for those who followed the market-value-of-equity (MVE) method for Shariah screening. Investors need to be aware that the IEIs' hedging benefit was only perceptible at times of high market volatility.

After the COVID-19 epidemic, Arianpoor and Tajdar (2022) made the decision to look at the connections between business risk, capital structure, equity cost, and environmental and social sustainability on the Iranian companies. From 2014 to 2020, data for 190 businesses was gathered for study. During the COVID-19 outbreak, businesses with lower overall leverage shown lower risk than those with higher overall leverage. In overleveraged companies, systematic risk-taking during the COVID-19 has a detrimental influence on societal sustainability. Environmental sustainability is notably harmed by the use of total and systematic risk in overleveraged firms during the pandemic. Additionally, during COVID-19, equity capital costs for leveraged enterprises fell.

Gompers et al. (2022) tested the relationship between private equity and covid-19 pandemic. The pandemic, according to private equity managers has a fairly unfavorable impact on 40% and a very negative impact on 10% of their portfolio firms. All of the existing portfolio firms' operations, governance, and finance are actively managed by the private equity managers—both investment and operating partners. In those businesses that have been more badly impacted by the Covid-19, these activities are undertaken more vigorously. They anticipate a reduction in the performance of their current funds as a result of the pandemic.

Understanding the moderation of earnings management (EM) on the connection between CSR and economic success during Corona Virus in the MENA area was the goal of (Aqabna et al., 2023). The 661 firm-year data that made up the final sample covered the years 2007 through 2021. The correlations and the reliability of the results were evaluated. The findings demonstrated that the ranks of ESG had impacts on return on assets, before and after accounting for COVID-19. Data revealed that CSR only has a marginally beneficial influence on financial success within EM. However, the findings showed that the return on equity (ROE) was not significantly impacted by ESG concerns.

Based on the previous literature that was previously dealt with, the second hypothesis for this research was developed, which was represented in the following:

H_3: There is a significant effect of Covid-19 on Cost of Equity

Role of Firm Size, Leverage and Polluting Sector on Cost of Equity

Chouaibi et al. (2021) evaluated the connection between executive compensation, covid19, CSR and equity costs through number of control variables; firm size, ethical behavior, polluting sector, and market to book ratio. In the French context, the study concentrated on social responsible businesses that are included in the ESG index. 407 French companies that were included in the ESG index for a period of six years, made up the original sample. Only non-financial firms were included in the empirical investigation. The final sample consisted of 154 French companies. The empirical findings demonstrated that equity cost was negatively connected with CEO compensation depending on the accomplishment of goals of SD. As a result, executive compensation was a weak

incentive for the executive to uphold ethical behavior and improve CSR procedures. The empirical findings also demonstrated a favorable relationship between COVID-19 and equity cost. The cost of financing businesses would consequently rise as a result of the financial market accounting for a new kind of risk. Due to the risk, shareholders would seek a higher rate of return.

Ke (2021) investigated COVID-19 pandemic and its link with equity cost. Moreover, some control variables were used in this study, which were; market to book ratio, firm leverage, and forecast of the long-term earnings growth. Secondary data were collected about companies at USA. The results showed that COVID-19 had a dramatically adverse influence on capital costs.

CSR in addition to the cost of equity and their relation were examined by (Thuy et al., 2022). The size of a company, leverage ratio, tangible, profitability, revenue growth and age were applied as control variables. The study sample was assembled from various databases. After eliminating businesses from the banking and insurance sectors from the investigation's initial list of all Vietnam-listed companies, 350 businesses were discovered to be either missing annual reports or to still be in the process of preparing them. From 2014 to 2019, a total of 1340 firm-year observations make up the final sample. The negative influence of CSR on equity cost was significantly exacerbated by state ownership. The study shed light on how state ownership and stock market crash risk impact the value of CSR to enterprises' equity cost and how ignoring these factors may be the root of other studies' discrepant findings.

Ulynnuha et al. (2022) discussed the associations between CSR performance and equity costs, utilizing capital structure as a moderator. Two control variables were used, which were; firm size and return on assets. The sample for this study included 202 non-financial Indonesian throughout a three-year period. Based on the conclusions of the investigation, CSR performance had a detrimental effect on Indonesia's equity costs. Contrarily, the moderation test showed that the capital structure has no impact on the link between CSR and the cost of equity.

Chouaibi and Zouari (2022) investigated the link between CSR initiatives and the equity cost through a mediator; real earnings management (REM). Four control variables were applied in this research; polluting sector, firm size,

country ethics and corporate tax paid. The results showed that CSR practices and equity relation were mediated by REM inside the European businesses according to a sample of 540 firms.

3. METHODOLOGY

Secondary data analysis uses secondary sources as part of an archival or documentary research strategy to reexamine data that has already been obtained for another study's goal. In order to evaluate the relationship, the researcher focuses on Egyptian firms listed on the stock exchange. The financial reports of non-financial institutions of Egyptian companies listed in the stock market in compliance with the EGX 100 between 2011 and 2020 are the primary source of the secondary data under study. The data was analyzed using the multicollinearity, normality test, to find out the optimal method of analysis. Then a descriptive analysis was done to provide a detailed analysis of the research variables in terms of mean and standard deviation for each variable. Finally, the data was analyzed using correlation analysis, then GLS analysis was used to test the research hypotheses. Also, the Hausman test was used to measure the fixed effect versus the random effect. The study's major objective is to assess the effect of CSR, executive compensation, COVID 19 on cost of equity, using company size, leverage, and polluting industry as control variables to these relationships Figure 1 presents the research framework.

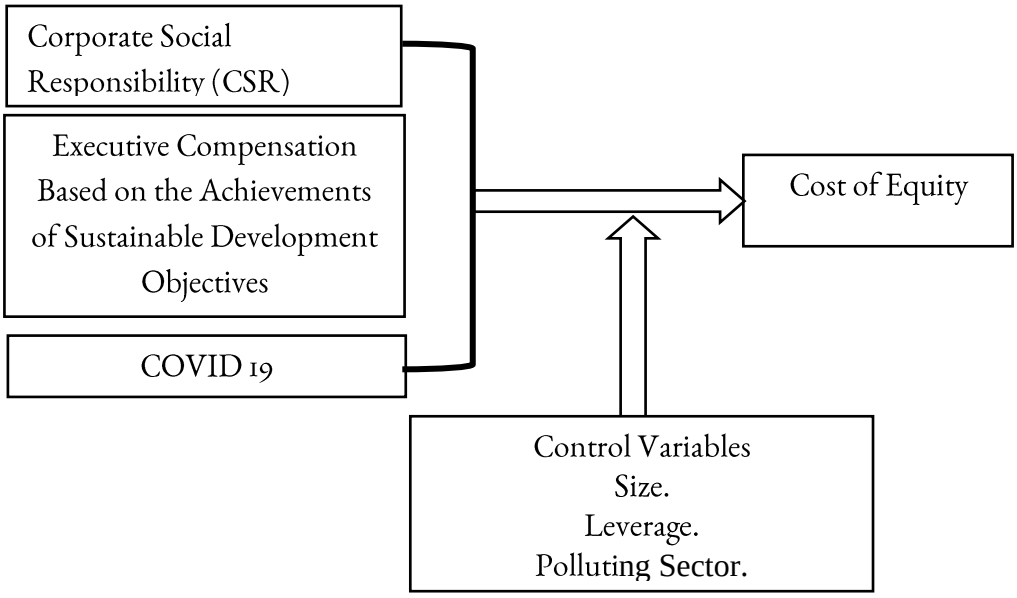

Figure 1. Paper Framework

The research variables are illustrated in Table number 1, as follows:

Table 1: Research Variables Measurement

Variable	Classification	Computation	Reference
Cost of Equity	Dependent Variable	Square root of the ratio between the difference of earnings per share for one-year and two-year ahead, respectively, and stock market price of firm's shares by the end of year	Reverte (2012)
CSR	Independent Variable	a total score for the four factors—social, economic, environmental, and governance—together	Yi et al. (2020)
Executive Compensation	Independent Variable	Using a value of 1 for each year that the corporation reported including sustainability goals in executive compensation and a value of 0 for all other years	Abdelmotaal and Abdel-Kader (2016)
COVID-19	Independent Variable	Using a value of 1 if the period of investigation is 2020, and 0 for other years	Ke (2021)
Firm Size	Control Variable	Natural log of total assets	Ohidoa et al. (2016)
Leverage	Control Variable	The Ratio of Total Debt regarding Total Assets	Ohidoa et al. (2016)
Polluting Sector	Control Variable	Using a value of 1 if the enterprise is considered as a polluting industry, and 0 for other years	Zheng and Shi (2017)

After presenting the research variables and the way of measuring each of them, the duration and the sample is mentioned. The study uses secondary and panel data from reports of non-financial entities in Egypt from 2011 to 2020. This period is chosen due to various reasons, it starts from 2011, the year of 25 January revolution that took place in Egypt and the financial problems that appeared as a result of the revolution, passing to year 2014 when the Central Bank of Egypt announced the floating of the Egyptian pound against the dollar, which caused a decrement in the currency value estimated by around 53%. Ending with year 2020, in which the consequences of Covid-19 started to appear on the financial situation. Finally, it is important to refer that the collection of data had stopped at year 2020, due to the availability of data.

About the population and sample, the population consisted of the most active 100 companies in the Egyptian stock market (EGX 100), while the sample includes only the non-financial companies with a total of 80 companies, some of the companies are omitted owing to missing data and the final sample comprises 73 companies. The following table shows the companies and the sectors that they belong to, where the companies are classified under 15 sectors.

Table 2: The Final Sample of the Study

Sector Name	Number of Companies
Basic Resources	9
Building Materials	6
Contracting & Construction Engineering	4
Education Services	1
Energy & Support Services	2
Food, Beverages and Tobacco	8
Health Care & Pharmaceuticals	4
Industrial Goods , Services and Automobiles	2
IT , Media & Communication Services	6
Paper & Packaging	1
Real Estate	17
Shipping & Transportation Services	4
Textile & Durables	5
Trade & Distributors	1
Travel & Leisure	3
Total	73

Looking for the data analysis techniques, as the data are panel data, the statistical packages of SPSS and EViews had been used to find out the research finding using varieties of the statistical techniques. The Generalized Least Squares (GLS) method was conducted, as the data was not normally distributed. In addition to that, the Hausman test had been used to select the suitable method of fixed versus random models.

4. RESULTS AND FINDINGS

This section is presented to introduce the research findings and results for the data collected from reports of non-financial entities in Egypt from 2011 to 2020.

The following sections describe the analysis techniques findings for each year separately and then for the whole data under study.

Testing Multicollinearity

When two or more variables in a model have a significant correlation with one another, multicollinearity arises. Multicollinearity is measured by variance inflation factor (VIF), the research variables' VIF were <5. This implies that there is no problem of multicollinearity.

Table 3: VIF values for Research Variables

Variables	VIF
CSR	1.091
Executive Compensation	1.106
COVID-19	1.013
Firm Size	1.119
Leverage	1.127
Polluting Sector	1.042

After it was found that there is no multicollinearity problem between the search variables, normality will be tested to see if the data is distributed normally or not.

Normality Testing for the Research Variables

The researcher could employ parametric analysis, such as Ordinary Least Squares Regression, if the data are regularly distributed. Formal test of exact normality assumption uses Kolmogorov-Smirnov test and Shapiro-Wilk test, where if the P-value >0.05, the analyzed data is considered to be distributed normally. The result of analysis shows that data are not exactly normally distributed.

Table 4: Formal Normality Testing for the Research Variables

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
CSR	.065	496	.000	.958	496	.000
Executive Compensation	.137	496	.000	.803	496	.000
COVID-19	.519	496	.000	.400	496	.000
Firm Size	.046	496	.013	.990	496	.002
Leverage	.388	496	.000	.219	496	.000
Polluting Sector	.353	496	.000	.636	496	.000

a. Lilliefors Significance Correction

As the data set under study did not show an exact normal distribution, the informal test of normality is used. The informal testing of normality demonstrated that data are not generally distributed because the values of skewness and kurtosis are all not at the ±1 acceptable level.

Table 5: Informal Normality Testing for the Research Variables

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
CSR	527	.759	.106	1.331	.212
Executive Compensation	531	1.935	.106	4.485	.212
COVID-19	533	2.118	.106	2.495	.211
Firm Size	531	.045	.106	-.104	.212
Leverage	531	10.915	.106	141.122	.212
Polluting Sector	533	-.056	.106	-2.004	.211

The above results illustrated that the data are not generally normally distributed, therefore the OLS method could not be used. Accordingly, the GLS method is suitable to be adopted in this research. Then a descriptive analysis was done to provide a detailed analysis of the research variables in terms of mean and standard deviation for each variable.

Descriptive Analysis for the Research Variables

Descriptive statistics represents a statistical approach that summarizes samples and the procedures employed for evaluating the data to provide a clear knowledge of the features of a certain data collection. The descriptive analysis for the research variables is shown in Table 5.

Table 6: Descriptive Analysis for the Research Variables

	N	Min.	Max.	Mean	Std. Deviation
CSR	527	.00048	3.66993	.87282	.55286
Executive Compensation	531	.00101	3.22478	.63368	.56903
COVID-19	533	0	1	.14	.344
Firm Size	531	7.30556	10.9211	9.3242	.66222
Leverage	531	0	7.91786	.14506	.5035
Polluting Sector	533	0	1	.51	.500

After reaching an evaluation of the research data, the research hypotheses will be tested in the next subsection using correlation analysis, GLS analysis and Hausman test to measure the difference between fixed effect and random effect.

Testing the Research Hypotheses

This section shows the conclusions driven from the hypotheses analysis. Table 6 shows the obtained correlation matrix, where it refers to:

- A positive significant relationship of CSR, Executive Compensation and COVID-19 and Cost of Equity, as P-values are less than 0.05 (= 0.000, 0.000 and 0.001 respectively) and the correlation coefficients are 0.319, 0.320 and 0.153.

- Firm Size appeared to have a positive significant relationship with Cost of Equity, where P-value is 0.006 with coefficient =0.116.
- Leverage and Polluting Sector have insignificant relationship with Cost of Equity, as P-values are 0.341 and 0.281.

Table 7: Correlation Matrix for the Research Variables

			1.	2.	3.	4.	5.	6.	7.
Spearman's rho	1. CSR	Coefficient	1.000						
		Sig. (2-tailed)	.						
		N	527						
	2. Executive Compensation	Coefficient	.222**	1.000					
		Sig. (2-tailed)	.000	.					
		N	527	531					
	3. COVID-19	Coefficient	.043	.032	1.000				
		Sig. (2-tailed)	.330	.466	.				
		N	527	531	533				
	4. Firm Size	Coefficient	.090*	.112**	.060	1.000			
		Sig. (2-tailed)	.040	.010	.167	.			
		N	525	529	531	531			
	5. Leverage	Coefficient	.088*	.094*	.017	.027	1.000		
		Sig. (2-tailed)	.044	.030	.690	.529	.		
		N	525	529	531	531	531		
	6. Polluting Sector	Coefficient	.092*	.158**	-.006	-.006	.233**	1.000	
		Sig. (2-tailed)	.034	.000	.895	.896	.000	.	
		N	527	531	533	531	531	533	
	7. Cost of Equity	Coefficient	.319**	.320**	.153**	.116**	.043	.048	1.000
		Sig. (2-tailed)	.000	.000	.001	.009	.341	.281	.
		N	498	502	504	502	502	504	504

**. Correlation is sig. at the 0.01 level (2-tailed).

*. Correlation is sig. at the 0.05 level (2-tailed).

The relationship between the variables and their direction was established through correlation analysis, but the degree of the independent variable's influence over the dependent variable was not yet tested. Accordingly, the GLS test will be used to estimate the unknown parameters in a linear regression model. From Table 7 the GLS simple regression conclusions for the Research Variables on Cost of Equity is shown:

- CSR, Executive Compensation and COVID-19 all have significant positive influences on Cost of Equity, where P-values are 0.0167, 0.0014 and 0.0178

(P-value < 0.05) with coefficients of 0.070091, 0.04281 and 0.108625 (Coefficients > 0).

- Moreover, Firm Size and leverage have insignificant impacts on Cost of Equity, as P-values are 0.4448 and 0.4699.
- Polluting Sector has significant and positive impact on Cost of Equity, where P-value is 0.0311 with coefficient of 0.068157.

Also, the R Square is 0.072599, this refers to the variation concerning the Cost of Equity that can be clarified by 7.3 % in this model. The following is an estimate of the regression equation:

Cost of Equity = -0.172644 + 0.070091*CSR + 0.094281*Executive Compensation + 0.108625*COVID-19 + 0.018814*Firm Size - 0.022816*Leverage + 0.068157*Polluting Sector

Table 8: GLS Pooled Regression

Dependent Variable: Cost of Equity

Variable	Coeff.	Std. Error	t-Statistic	Prob.
C	-0.172644	0.228014	-0.757162	0.4493
CSR	0.070091	0.029176	2.402376	0.0167
Executive Compensation	0.094281	0.029342	3.213147	0.0014
COVID-19	0.108625	0.045702	2.376837	0.0178
Firm Size	0.018814	0.024601	0.764782	0.4448
Leverage	-0.022816	0.031549	-0.723190	0.4699
Polluting Sector	0.068157	0.031518	2.162489	0.0311
R-squared	0.072599			
Adj. R-squared	0.061220			
F-statistic	6.380010			
Prob(F-statistic)	0.000002			

It could be concluded from the above results that there is a significant effect of CSR, Executive compensation, COVID-19 and Polluting sector on Cost of Equity. After showing the results using the pooled regression, the Hausman test was used to illustrate the random versus fixed regression models.

It is possible to see that the Hausman test's P-value is measured as 0.0008, which shows that the fixed effect—rather than the random one—has the role of significance on the data. When using the fixed effect, CSR, Executive Compensation, COVID-19, and Firm Size are seen to show a significant influence on the cost of equity because the corresponding P-values are less than 0.05.

Table 9: Hausman Test for Fixed versus Random Effect

Variable	Fixed Effect		Random Effect		Hausman Test
	Coefficient	Prob.	Coefficient	Prob.	
C	2.859787	0.0011	-0.005633	0.9852	0.0008
CSR	0.089150	0.0027	0.084719	0.0026	
Executive Compensation	0.156066	0.0000	0.122568	0.0000	
COVID 19	0.140297	0.0015	0.106878	0.0112	
Firm Size	-0.309057	0.0011	0.001926	0.9530	
Leverage	-0.033546	0.5310	-0.019421	0.5915	
Polluting Sector	N/A	N/A	N/A	N/A	

5. RESEARCH DISCUSSION

Three main hypotheses are developed to achieve the study's aim, where secondary data are collected to test these hypotheses and the current section represents a discussion of the results, moreover it shows the effect of the control variables.

CSR is proved to have a positive significant effect on cost of equity, as the participation of the companies in CSR helps in improving the cost of equity. This finding is consistent with El Ghoul et al. (2011); Dhaliwal et al. (2014);

Hajiha and Sarfaraz (2015); Jiménez and Grima (2020); Yi et al. (2020); Dahiya and Singh (2021); Wang et al., (2021); and Prasad et al. (2022). These studies are consistent with the current study in the concluded results, but they have many points of differences, for example; Jiménez and Grima (2020), although this study proved the significant association between the two variables, the way of collecting data is significantly different from the current study. As the study of Jiménez and Grima (2020) depends on collecting data from previous literature, while the current study depends on data collected from Egyptian companies. Another example is the study of Prasad et al. (2022), it is noticed that this study is similar to the current study in collecting secondary data from non-financial companies, but the difference is in the sample, as Prasad et al. (2022) depend on Indian companies, while the current study depends on Egyptian companies. On the other hand, the result is inconsistent with Xu et al. (2015); Matthiesen and Salzmann (2017); Li and Liu (2018); Ahmed et al. (2019); Hmaittane et al. (2019); Garzón-Jiménez and Zorio-Grima (2021); Chen and Zhang (2021); Breuer et al. (2022); and Yang and Yulianto (2022).

It has also been demonstrated that CEO compensation has a broadly positive impact on the cost of equity. This outcome was anticipated because CEO remuneration helps to increase the equity cost. The result of this hypothesis is similar to Chen et al. (2012); Chen et al. (2013); Lui et al. (2016); Sanoran (2022); and Sanoran (2022). The results of these prior studies are similar to the current one but the difference is in the population and sample of each study, for example Lui et al (2016) had collected the data from 146 American-listed companies, while the current study targeted 80 Egyptian listed non-financial companies. In contrary the concluded results are inconsistent with Raimo et al. (2020); and Wang and Deng (2021).

Furthermore, Covid-19 has been demonstrated to have a considerable positive affect on the cost of equity. The results of this hypothesis are consistent with Carletti et al. (2020); Bretscher et al., (2020); Baig et al. (2021); Shaikh (2021); Challita and Rasheed (2021); Mishra and Mishra (2022); Bhattacharjee and De (2022); Rizvi et al. (2022); Ashraf et al. (2022); Arianpoor and Tajdar (2022); and Gompers et al. (2022). The results of all these studies are similar to the current study, but there are other differences related to data collection. In the study of

Bretscher et al., (2020), the cost of equity was collected from Bloomberg, while it is collected in the current study through companies' financial statements listed in the Egyptian stock market. Also the study of Gompers et al. (2022) had collected primary data through collecting surveys from companies' managers, while the current study depends on secondary data that are collected from Egyptian listed firms. Although, the result is inconsistent with Aqabna et al. (2023).

Finally, according to the analysis of the control variables, only the polluting sector is proved to have a significant role between the research variables, while firm size and leverage have insignificant role. These results are inconsistent with prior studies Chouaibi et al. (2021); Ke (2021); Thuy et al. (2022); Ulynnuha et al. (2022); Chouaibi and Zouari (2022)- as the results were different from each other.

6. RESEARCH CONCLUSION

Since the current study aims to test the influence of CSR, executive compensation and Covid-19 on cost of equity through three control variables that can play significant role between the research variables, which are; firm size, leverage and polluting sector, panel data are collected from Egyptian non-financial listed companies from 2011 till 2020. From the analysis, it is concluded that all the independent variables have significant positive influences on cost of equity. Looking for the control variables, it could be observed that only polluting sector has a considerable influence on equity cost, while both of firm size and leverage have insignificant influence on it.

7. RESEARCH RECOMMENDATIONS

This paper provides some recommendations to decision makers and current research. As for recommendations for decision makers, the first suggestion is to focus more on CSR as a novel strategy for developing a company's performance and reputation in society. Thus, CSR has to become a main component of the company vision, mission and strategy.

At the same time, decision-makers must thoroughly research, assess, and consider the significance of executive compensation determined by the

accomplishment of sustainable development goals and how to improve these compensations.

Finally, it is suggested that decision makers have to always work on developing new advanced plans that make them able to deal with any sudden crisis and to train their employees to be more creative and innovative in order to make them ready to face any problem occurred inside the work environment.

As for the recommendation for current research is to put more focus on the dependent variable which is cost of equity and tries to investigate more independent variables that may affect the equity cost. Moreover, tries to investigate more control variables as well as mediators that could have serious effect on the relationships.

8. LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

There are certain limitations found in the current study and prevent the results' generalization. These limitations include in the beginning the studied variables, Specific independent, dependent, and control variables were used in the research. As a result, the researcher recommends that future studies involve more variables that could impact the cost of equity.

Another limitation is regarding the study's population and sample; this study targeted the most active 100 Egyptian firms listed in the stock market. Thus, the researcher suggests making this research on a larger sample in order to reach generalization. Moreover, the researcher suggests making more studies that have comparative features, in which collect data from Egypt and other countries in order to be able to notice the difference. Moreover, it is suggested to make comparative studies between developed and developing countries.

Third limitation is regarding the timing, as the collected data include a limited duration of time, which is from 2011 to 2020, the study suggests including a longer period of time in future research that can include the global financial crisis of 2007-2008 and how it disturbs the Egyptian companies' performance as well as the period after Covid-19 and the floating of the Egyptian currency to also identify its influence on performance and cost of equity.

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دراسة تأثير المسؤولية الاجتماعية للشركات وتعويضات المسؤولين التنفيذيين على تكلفة حقوق الملكية في ظل جائحة كوفيد-19 المطبقة على الشركات المصرية المقيدة

د. دينا سيد فضالي

ملخص البحث باللغة العربية

يجب أن تكون الشركة مسؤولة تجاه نفسها وكذلك تجاه مساهميها قبل أن تكون واعية اجتماعيا. تقوم الشركات التي تركز على المسؤولية الاجتماعية للشركات في كثير من الأحيان بتطوير عملياتها إلى مستوى يمكنهم فيه دعم المجتمع. نتيجة لذلك، كثيرا ما تستخدم الشركات متعددة الجنسيات المسؤولية الاجتماعية للشركات كاستراتيجية. بعد كل شيء، كلما وضعت الشركة معيارا للسلوك الأخلاقي بين أقرانها ومنافسيها والصناعة، كلما أصبحت أكثر شهرة وازدهارا. وبالتالي، فإن الهدف الرئيسي من هذا البحث هو دراسة كيفية تأثير تعويض التنفيذيين المرتبط بإنجاز أهداف التنمية المستدامة والمسؤولية الاجتماعية للشركات على تكلفة حقوق الملكية. بالإضافة إلى ذلك، تبحث هذه الدراسة في كيفية تأثير COVID 19 على سعر الأسهم باستخدام عوامل التحكم الخاصة بحجم الشركة والرافعة المالية والقطاع الملوث. تعد التقارير المالية للمؤسسات غير المالية للشركات المصرية المدرجة في البورصة المطابقة لبورصة EGX 100 بين عامي 2011 و 2020 المصدر الأساسي للبيانات الثانوية. يستخدم هذا البحث تحليل GLS واختبار Hausman لقياس الأثر الثابت مقابل التأثير العشوائي. أثبتت النتائج أن المسؤولية الاجتماعية للشركات وتعويضات التنفيذيين لها تأثير مباشر إيجابي كبير على تكلفة حقوق الملكية.

الكلمات الدالة: المسؤولية الاجتماعية للشركات، تكلفة حقوق الملكية، COVID-19، التعويض التنفيذي، الاستدامة.

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