



# **Green Finance: A comparative Study of ESG Indices and MSCI Indices. A Global and an Egyptian Context**

**By**

**Dr. Nancy Ali Youssef Abdel Rahman**

**Lecturer at the College of Management and Technology, Arab Academy for Science, Technology and Maritime Transport**

**Tel: :(+203) 5622366. E-mail: nancyyoussef@aast.edu**

 <https://orcid.org/0000-0002-6890-7659>

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**Abstract:**

Sustainable investment’—includes a variety of asset classes selected while caring for the causes of environmental, social, and governance (ESG). It is an investment strategy that seeks to combine social and environmental benefits with financial returns, thus linking investor’s social, ethical, and economic concerns under certain conditions, these indices also help to attract foreign capital, seeking international participation in the local capital markets. The purpose of this paper is to study whether the sustainable investment alternatives offer better financial returns than the conventional indices from both developed and emerging markets. In this paper, we investigate the effect of ESG on Indices’ and Firms’ performance using Morgan Stanley Capital International (MSCI) Indices as a global reference and Egypt’s indices as a national reference. We also study the effect of ESG index on the Egyptian Firms’ performance using the Structural Equation Model, to investigate the interrelationships between ESG Index, and Performance simultaneously. The results suggest that, after controlling for firm size and leverage, firms with higher ESG scores experience greater levels of profitability. A number of policy and managerial implications are explored based on these findings. This study adds to our further understanding of the relationship between ESG activities and firm performance in emerging markets.

**Keywords:** Sustainability indices, Socially Responsible Investment, Index returns, Financial Markets, MSCI.

**JEL Classification:** G11; G15; G19

## **1- Introduction**

The need for organizations to proactively assess the impact of their environmental, social and governance (ESG) practices has increased dramatically since the dawn of the new millennium (Huang, 2021). Indeed, sustainability issues have become a central theme for many corporations (Lokuwaduge and Heenetigala, 2017), and firms are developing plans to actively contend with pollution, water use, and climate change issues. In addition, these entities are expected to tackle concerns pertaining to worker rights, supply chain partner activities, and the overall community impact of their operations. This has led to the promulgation of a myriad of rules, regulations, and initiatives concerning sustainability, which has compelled organizations to formally monitor and address these responsibilities (Carroll, 2009).

As such, over the last two decades there has been an ongoing emphasis on the ESG practices of firms, and thus extending corporations' goal of simply maximizing shareholder wealth to fulfilling various stakeholders' expectations (Gillan et al., 2010). Although these concerns have originated mostly in a developed economy setting, the pressures emanating from globalization, coupled with a weak institutional environment, requires firms based in emerging markets to comprehensively address these challenges (Forcadell and Aracil, 2019). As such, this article examines how these multifaceted demands and expectations are addressed in emerging markets and seeks to uncover whether firm performance is associated with ESG practices.

Sustainability indices differ from the conventional market indices and also assist analysts and investors in monitoring the firm's sustainability performance, as only those companies that out-perform their peers in an in-depth analysis of economic, environmental, and social criteria are included in sustainability index categorizing as the industry sustainability leaders. The sustainable and the conventional indices are also compared by evaluating the performance of the companies included in each of these indices based on their respective financial ratio analysis and overall business performance (Martinez-Ferrero and Frias, 2020).

Previous studies of ESG and its association with the financial performance of firms has provided contradictory results. Huang (2021) attributes these divergent findings mainly to the use of different ESG definitions, thus suggesting that the same construct is not being captured in these studies. In addition, the inclusion of different moderating variables also may lead to disparate results (Carroll and Shabana, 2010). Moreover, most of the research is focused on developed countries and these findings may be relevant only in such market environments. When one considers that emerging markets are predicted to be the main accelerator of future global economic growth (Shakil et al., 2019) the dearth of research in this setting needs to be addressed. According to Zhao et al. (2018) investors consider ESG activities when analyzing emerging markets in order to better understand the culturally specific and politically volatile nature of these countries.

As argued in this article, companies operating in emerging markets face a different set of challenges on environmental, social and governance issues

(Odell and Ali, 2016) and firms that actively develop and implement sustainability policies will benefit financially in the long run. As such, the vast majority of studies on ESG and firm performance have occurred in a developed market setting. However, this article is an addition to the growing base of research that looks at these issues in an emerging market context (Duque-Grisales and Aguilera-Caracuel, 2019) to uncover whether the findings in developed markets will hold in settings associated with weak institutional development.

The New York-based American financial institution; Morgan Stanley Capital International (MSCI) offers a wide range of financial products, including ESG-related products, and provides services in several areas of the financial market (MSCI, n.d.). The purpose of this study is to determine whether investing in MSCI ESG Universal indices in developed markets can outperform the MSCI ESG Universal indices in emerging markets.

Meanwhile, the MSCI ESG Universal indices are a cutting-edge approach to indexing as they are made to cater for the interests of asset owners who want to increase their exposure to ESG while keeping a wide and varied universe to invest in as they increase exposure to those companies that exhibit both a higher MSCI ESG Rating and a positive ESG movement while sustaining a broad and diversified investment portfolio. The MSCI ESG Universal Indexes are the newest of several MSCI indices and tools created to assist institutional investors around the world in incorporating ESG into their investment decision-making processes (MSCI, n.d.). Therefore, the first question of this

study will focus on the above ESG indices and it will study All Country World Index (ACWI), and Emerging Markets (EM) index.

Meanwhile, as the existing literature focuses primarily on the emerging markets as a whole, this paper takes Egypt as a pioneer in the emerging markets given the fact that Egypt launched its ESG index, partnering with S&P Dow Jones Indices, back in 2010 with first value date in 2007. SP/EGX ESG index includes the performance of the 30 companies with the highest ESG scores as each company in the parent index is given a score, and then the top 30 companies are being selected to be added to the SP/EGX ESG index with an annual rebalancing. According to S&P/EGX ESG Index Methodology (2023), the total composite ESG score of each company in the benchmark index is the summation of its qualitative ESG score and its quantitative ESG score.

Hence, this study aims to analyze the effect of ESG on the financial performance as the second question of this paper will help to determine whether SP/EGX ESG index can outperform the benchmark index (EGX EWI 100 index). Not only it will cover data since the study period, but it will also study the effect during the bull and the bear markets. In addition, the third question will thoroughly analyze the ESG effect on the individual companies' performance in Egypt from 2018 till 2022 using structural equation model. This paper is organized as follows—the present study, the second section reviews the literature, the third section elaborates the research methodology and the empirical analysis, and the forth section concludes.

## **2. Literature Review and Hypothesis Development**

A copious amount of research has been conducted investigating the relationship between ESG and corporate performance. In a met analysis conducted by Huang (2021), in line with theoretical arguments, a modest but positive and significant relationship between ESG and firm performance emerges. Similarly, in Carroll and Shabana's (2010) review of the field, despite some inconsistencies, an overall positive relationship between corporate social performance and firm performance is found. Numerous studies have provided results that support theoretical arguments that associate ESG practices with superior firm performance. Brogi and Lagasio (2019) uncover that profitability in the banking sector is linked with a significant and positive relationship with ESG and environmental awareness. Similarly, Yu et al., (2018), using an international sample, found that as companies disclose more ESG data their financial performance metric measures, such as Tobin's Q, improve.

On the other hand, in a study conducted by Halbritter and Dorfleitner (2015) covering US firms over a three decade period, significant performance differences between firms that engage in high and low ESG activities did not surface. Similar results have been found by Miralles-Quirós et al., (2019) who study the impact of ESG activities on the stock prices of banks in developed markets. They uncover that environmental and governance activities are positively related, while social performance activities are negatively related to stock market value.

## **2.1 ESG in Emerging Markets**

Institutional theory (DiMaggio and Powell, 1983) focuses greatly on how organizations build and maintain legitimacy by adopting widely endorsed structures and activities, known as isomorphism. The growing use of ESG practices in emerging markets may represent such behavior. An organization is perceived to be legitimate by outside audiences if it develops and retains institutionalized structures. Without legitimacy an organization will suffer from credibility problems, leading to complications in the acquisition of resources, which will subsequently reduce the organization's survival prospects (Kostova and Zaheer, 1999). As such, Yoon et al. (2018) found the effect of CSR practices to be positively associated with a firm's stock market performance in Korea, a finding which the authors maintain has substantial policy and welfare implications in markets where governments play a major role in promoting CSR. Indeed, it has been shown that investment strategies in emerging markets experience higher performance when ESG dimensions are taken into consideration (Pollard et al., 2018).

Accordingly, this study aims to address the role that ESG plays in emerging markets and seeks to uncover associations with company performance. Indeed, both Carroll & Shabana's (2010) review of the field and Huang's (2021) meta-analysis point to a weak, but positive, association between ESG and firm performance, and we expect this finding to also surface in emerging markets due to their institutional framework (Su et al., 2016).



## **2.2 ESG Indices and MSCI Indices**

There is immense research on the U.S.' Sustainability Indices (Antonakakis et al. 2016), Europe's Sustainability Index (Stolowy and Paugam 2018), and Australian markets (Lokuwaduge and Heenetigala, 2017). However, not much of the literature is available on the economies of developing countries. Alshehhi et al. (2018) comment on the literature trends relating to the relationship between corporate sustainability and corporate financial performance, and opine that the number of similar publications from the developing countries lags behind those of the developed countries, indicating the need for more research in the economies of the developing economies. This paper incorporates this field of study.

An extensive survey of the literature reveals that, although there are papers that evaluate sustainable indices, namely the Dow Jones Sustainability Index (Antonakakis et al. 2016), FTSE4Good-IBEX (Charlo et al., 2017), and the IPC sustainability (IPCS) index (la Torre et al., 2016), corporate environmental sustainability reporting (CESR) index; no studies have evaluated the relationship between the Thomson Reuters Sustainable Indices and their conventional alternatives namely the MSCI stock market indices worldwide. This raises the need for an understanding about the dynamics between the sustainable and the conventional indices. Hence, the novelty of this paper lies in the fact that it examines the financial returns between these afore-mentioned sustainable indices and the conventional market indices, thereby addressing an important gap in the literature.

### **2.3 ESG and Indices' Financial Performance**

Even though multiple research papers show the negative and the positive relationships between ESG and Financial Performance, some proved that there is no significant difference between ESG investment and traditional investment. For example, in "Are Environmental Social Governance Equity Indices a Better Choice for Investors? An Asian Perspective" the possibility of Environmental, Social, and Governance (ESG) stock indices as alternatives for investment from an Asian viewpoint was examined and this paper was published in "Business Ethics: A European Review." in 2016. The primary purpose of this study is to determine whether equity indices with an emphasis on ESG factors—environmental, social, and governance considerations—offer better financial performance than conventional market indices, particularly in the Asian context. The authors conduct a comprehensive quantitative study that covers a wide range of Asian nations and their different stock markets to accomplish their research goal. The research covers an extensive period from 2002 to 2014, enabling a thorough analysis of how ESG equity indices performed in comparison to their traditional equivalents. The authors evaluate performance using a variety of financial criteria, including risk-adjusted returns. Results show that ESG equity indexes in the Asian countries do not have any significant difference from their benchmark indices.

Similarly, in order to compare the financial performance of Environmental, Social, and Governance (ESG) indices and MSCI indices, the research study "Can Sustainable Investment Yield Better Financial Returns: A Comparative Study of ESG Indices and MSCI Indices" was done. The key objective of the

study is to test if ESG indices, which consider ESG factors when choosing their member companies, outperform traditional MSCI indices in terms of financial performance. All benchmark indices' daily closing prices for a period of five years between January 2013 and December 2017 have been examined in the study using auto-regressive conditional heteroskedasticity (ARCH)-GARCH. Granger Causality has also been performed to study the link between the markets in scope. According to the study results, there is no significant difference in performance between conventional traditional indices and ESG indices (Jain, et al. 2019). This shows that investing sustainably can be a solid alternative to investing conventionally and that investors can gain greater understanding about their investment choices by taking into account both types of indices. According to the study, investors should consider both indexes in order to diversify their risk and hedge their positions.

## **2.4 ESG and Firms' Financial Performance**

Bahadori, et al. (2021) in “Environmental, social, and governance factors in emerging markets: The impact on firm performance” investigate how Environmental, Social, and Governance (ESG) components affect the performance of businesses that operate in emerging markets. The primary objective is to investigate if businesses that focus on ESG factors in these developing economies experience different financial outcomes. The paper examines the relationship between ESG metrics and key performance indicators of businesses in emerging regions through a thorough investigation using a sample of 600 companies in 24 markets. This sample covers the period from 2014 to 2018. It evaluates the effects of financial metrics, including

profitability, stock returns, and market valuation on social responsibility, environmental sustainability, and effective governance practices. The primary results of the study provide an understanding of the relationship between emerging market firm performance and ESG performance. According to the paper, there is a positive relationship between high ESG performance and positive financial outcomes. This suggests that businesses that include ESG factors in their strategy typically enjoy better stock returns, higher profitability, and perhaps even higher market valuation in developing countries.

However, these results are in contrast with Bannier, et al. (2019) found in “Doing safe by doing good: ESG investing and corporate social responsibility in the U.S. and Europe”. This research paper investigates the financial performance of investing, adopting environmental, social, and governance (ESG) standards in the United States and Europe. The study's main goal is to find out whether businesses with an emphasis on ESG and CSR have lower financial risk and better financial performance. The companies listed on stock exchanges in the two regions between 2003 and 2017 make up the authors' sample. They discover that a portfolio that is long in companies with the highest ESG scores and short in those with the lowest scores produces a significantly negative abnormal return after accounting for firm size, leverage, and other variables. To attract investors, companies with lower ESG scores have to offer a proportional risk premium. This is because of concerns raised by investors about the possible hazards related to investing in companies with poor ESG performance.

Based on the studies discussed above and theoretical arguments, we have developed the following hypotheses:

H1: There is a significant difference in mean returns of MSCI ESG Universal index and the MSCI ESG Emerging index.

H2: There is a significant difference between the mean return of EGX100\_EWIReturn index in the bull and the bear market.

H3: There is a significant positive relationship between SP/EGX ESG index and firm financial performance in the Egyptian Stock market.

H4: There is a significant negative relationship between Covid19 and SP/EGX ESG index.

### **3. Methodology and Empirical Model**

The objective of this study is to investigate whether a company's CSR related activities, as measured by ESG scores, are associated with financial performance in emerging markets. This article comparatively analyzes the financial returns of the global indices, namely the MSCI All Country World Equity index (MSCI ACWI), and the MSCI Emerging Markets index (MSCI EM). Based on the variables that we selected, panel data regressions are employed on the empirical model. We have three empirical models as discussed below:

#### **Model (A): (MSCI ESG Universal in Developed and Emerging Markets)**

To evaluate and compare the performance of MSCI ESG Universal index and the MSCI ESG emerging index. Daily closing prices of all the MSCI indices are taken for the five-year period from the 1 January 2018 to 31 December

2022, on the lines of the period selection in extant literature, which uses five year data.

Then, descriptive statistics have been calculated and the comparison has been done among all MSCI Indices. To test the statistical significance between the means and the medians of each pair, paired t-test has been conducted. The following table provides the descriptive statistics of MSCI ESG Universal index and the MSCI ESG emerging index.

**Table 1: Descriptive statistics of MSCI ESG Universal index and the MSCI ESG emerging index**

Variable	Obs	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
PriceEM	1305	1107.17	137.601	758.2	1444.93	.3555228	2.362876
ReturnEM	1304	0.01237	0.16154	-0.3531	0.74594	.8226942	4.788356
PriceACWI	1305	585.02	87.669	384.04	758.49	.4589936	1.970788
RetunACWI	1304	0.00019	0.01083	-0.0951	0.08392	-.870917	17.11635

The paired t-test has been conducted on each pair with respect to the developed and emerging markets to test the null hypotheses below:

H0: There is no difference between the means of the paired samples (MSCI ESG Universal index and the MSCI ESG emerging index Returns).

During the study period, ACWI index mean return is lower than the mean return of its EM index. However, after conducting the paired t-test, we find that the p-value is greater than 0.05, hence, the null hypothesis is not rejected. This means that there is no significant difference between the mean return of the ACWI and EM index.

Even though, the mean of EM index is higher than the mean of ACWI index, the paired T-test shows no significance in the difference of the mean returns of the pair's indices. Therefore, H1 is rejected. The reason can be that the data for this study covers 5 years, which can be considered as a small sample to provide a difference in the mean returns as shown in Table (2).

**Table 2: The paired t-test**

Variable	Obs	Mean	Std.Err.	Std.Dev.	[95% Conf.Interval]	
ReturnEM	1304	0.0123661	0.0044736	0.16154	0.00359	0.0211423
RetunACWI	1304	0.0001861	0.0003	0.01083	-0.0004	0.0007745
diff	1304	0.0121801	0.0044872	0.16204	0.00338	0.020983

$\text{mean}(\text{diff}) = \text{mean}(\text{ReturnEM} - \text{RetunACWI})$

$t = 2.7144$

$H_0: \text{mean}(\text{diff}) = 0$

degrees of freedom = 1303

$H_a: \text{mean}(\text{diff}) < 0$

$\Pr(T < t) = 0.9966$

### **Model (B): (ESG Indices Financial Performance)**

To compare the performance of SP/EGX ESG index against its benchmark Index and, to evaluate SP/EGX ESG index and EGX100 index during the bull and bear markets. This analysis is applied on the daily returns of two indices in Egypt; EGX EWI 100 (being the benchmark index) and SP/EGX ESG index. Daily data of the two indices has been collected from the 1 January 2018 to 31 December 2022, and the daily returns have been calculated for the

study period. All data has been collected from the Egyptian Stock Exchange (EGX) official website.

Then, descriptive statistics have been calculated and the comparison has been done among SP/EGX ESG EGX100 indices. To test the statistical significance between the means and the medians of each pair, paired t-test has been conducted. The following table provides the descriptive statistics of SP/EGX ESG EGX100 indices.

**Table 3: Descriptive statistics of SP/EGX ESG EGX100 indices**

Variable	Obs	Mean	Std.Dev.	Min	Max	Skewness	Kurtosis
EGX_SPReturn	1216	0.000143	0.01374	-0.08016	0.071052	-0.71349	7.319036
EGX100_EWIReturn	1216	0.000445	0.014517	-0.07891	0.04686	-1.06517	6.976118

During the study period, SP/EGX ESG index mean return is lower than the mean return of its benchmark index; however, after conducting the paired t-test, the p-value is greater than 0.05, hence, the null hypothesis is not rejected. This means that there is no significant difference between the mean return of the benchmark index and SP/EGX ESG index as shown in Table (4). The reason can be that the data for this study covers the 5 years, which can be considered as a small sample to provide a difference in the mean returns

**Table 4: The paired t-test**

Variable	Obs	Mean	Std.Err.	Std.Dev.	[95% Conf. Interval]	
EGX_SPReturn	1216	0.0001433	0.000394	0.0137395	-0.0006298	0.000916
EGX100_EWIReturn	1216	0.0004445	0.0004163	0.0145166	-0.0003722	0.001261
diff	1216	-0.0003013	0.0002733	0.0095287	-0.0008374	0.000235



$\text{mean}(\text{diff}) = \text{mean}(\text{EGX\_SPReturn} - \text{EGX100\_EWIReturn})$

$t = -1.1025$

$H_0: \text{mean}(\text{diff}) = 0$

degrees of freedom = 1215

$H_a: \text{mean}(\text{diff}) < 0$

$\Pr(T < t) = 0.1352$

To test the statistical significance between the means and the medians of this pair, Mann-Whitney U has been conducted. In addition, the daily returns have been divided into two groups based on the year market performance (bull market and bear market). Then, the Mann-Whitney U test have been computed to check the significance. A dummy variable has been calculated, given a value of 1 in the bull market and a value of zero in the bear market.

For the SP/EGX ESG index, after conducting the Mann-Whitney U test, the p-value is greater than 0.05, hence, the null hypothesis is not rejected. This means that there is no significant difference between the mean return of SP/EGX ESG index in the bull and the bear market as shown in Table (5).

**Table 5: Mann-Whitney U test: EGX\_SPReturn, by (Market)**

Market	obs	rank sum	expected
0	732	452841	445422
1	484	287095	294514
combined	1216	739936	739936

$H_0: \text{EGX\_SP} \sim n(\text{Market}==0) = \text{EGX\_SP} \sim n(\text{Market}==1)$

$z = 1.238$

$\text{Prob} > |z| = 0.2158$

For the EGX100\_EWIReturn, after conducting the Mann-Whitney U test, the p-value is less than 0.05, hence, the null hypothesis is rejected. This means that there is a significant difference between the mean return of EGX100\_EWIReturn index in the bull and the bear market as shown in Table (6). Therefore, H2 is accepted.

**Table 6: Mann-Whitney U test: EGX100\_EWIReturn, by (Market)**

Market	obs	rank sum	expected
0	732	464883	445422
1	484	275053	294514
combined	1216	739936	739936

Ho: EGX100~n(Market==0) = EGX100~n(Market==1)

$z = 3.247$

Prob > |z| = 0.0012

### **Model (C): (ESG Index and Firm Financial Performance)**

The objective of this study is to investigate whether a company's ESG related activities, as measured by ESG scores, are associated with financial performance in emerging markets. Based on the variables that we selected, panel data regressions are employed on the empirical model, over a 5-year time period, and the sample includes 22 most active companies listed in EGX30. Our model uses an accounting based measure to assess firm performance (ROA) and (ROE), and also includes two commonly employed control variables that account for firm size and leverage (Huang, 2021).

To test the effect of ESG Index on Firm Financial Performance, this paper utilizes SEM technique to deal with the endogeneity problem between ESG Index and Performance through the following three stages: model specification, and model estimation, and goodness of fit (Hair et al., 2006). In this paper we investigate the interrelationships between ESG Index, and Performance simultaneously.

To check the robustness of the findings, we use robust statistical techniques:

- SEM + panel data: a recursive structural equation model has causation which flows in one direction.

### 3.1 Structural Model Specification

Considering the potential endogeneity problem between ESG Index and Financial Performance by using the following structural equation model:

Since there are two different measures of returns (ROA, and ROE), we end up with two estimates. The model using ROA, ROE are respectively named as Model 1, and Model 2. We illustrate the path diagram of the two endogenous variables in Figure 1, and Figure 2.

#### **Model (1):**

The first equation of the SEM can be modelled by the following specification:

$$\mathbf{Return}_{ROA} = \alpha_{it} + \alpha_1 (\mathbf{ESG}_{Index}) + \alpha_2 (LEV_{Firm}) + \alpha_3 (SIZE_{Firm}) + \varepsilon_1$$

Next, the determination of the ESG index is also endogenized using the following specification:

$$\mathbf{ESG}_{Index} = \beta_{it} + \beta_1 (Cov19_{Dummy}) + \beta_2 (LEV_{Firm}) + \beta_3 (SIZE_{Firm}) + \varepsilon_1$$

### Model (2):

The first equation of the SEM can be modelled by the following specification:

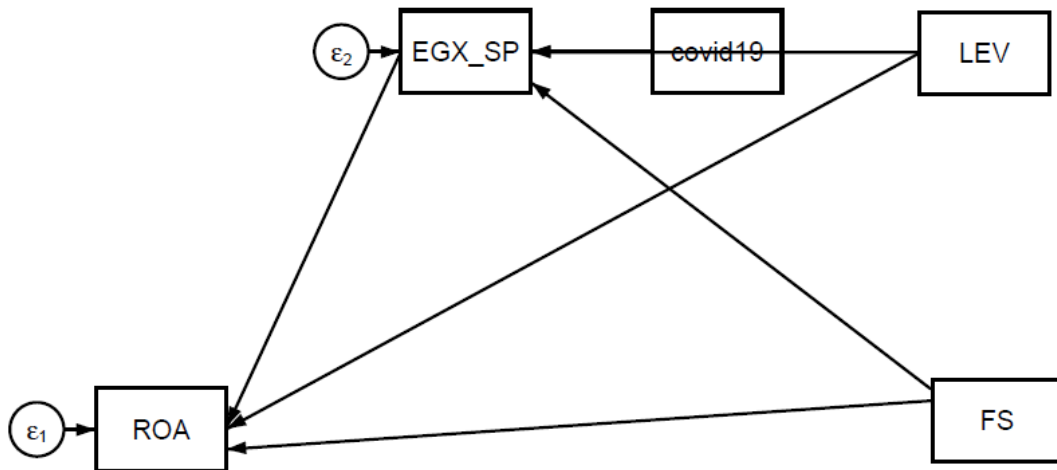
$$\mathbf{Return}_{ROE} = \alpha_{it} + \alpha_1 (\mathbf{ESG}_{Index}) + \alpha_2 (LEV_{Firm}) + \alpha_3 (SIZE_{Firm}) + \varepsilon_1$$

Next, the determination of the ESG index is also endogenized using the following specification:

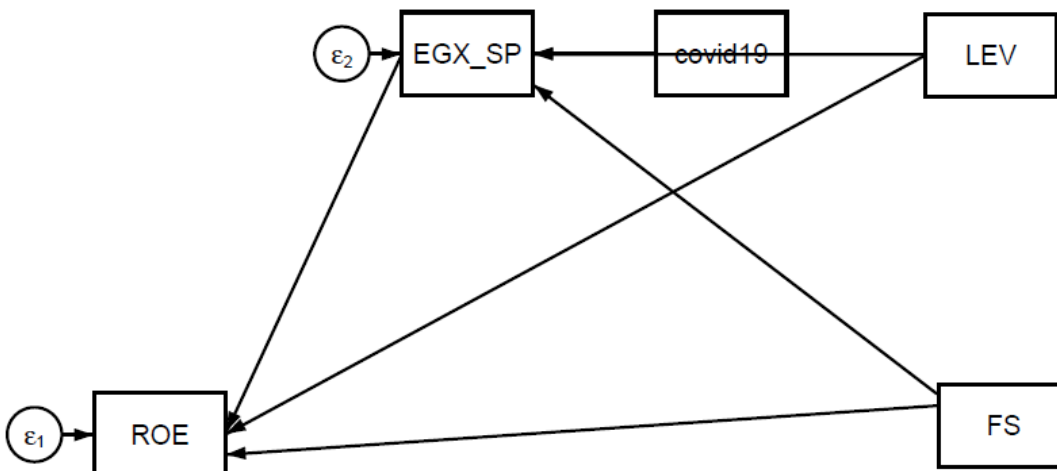
$$\mathbf{ESG}_{Index} = \beta_{it} + \beta_1 (Cov19_{Dummy}) + \beta_2 (LEV_{Firm}) + \beta_3 (SIZE_{Firm}) + \varepsilon_1$$

ROA is the return on assets of company  $i$  in year  $t$ , ROE is the return on equity of company  $i$  in year  $t$ ,  $\alpha$  is the constant term, ESG is the overall environmental, social and governance score of company  $i$  in year  $t$ , Cov19 is a dummy variable takes a value of 1 during Covid 19 period (2020, 2021, 2022), and a value of Zero before Covid19 period (2018, 2019), LEV is the leverage, and SIZE is the firm size.

**Figure 1: Path Diagram of the Structural Equation Model (1)**



**Figure 2: Path Diagram of the Structural Equation Model (2)**



### **3.2 The Estimation Results**

The results about the estimation of the structural model (1), and (2) are presented in Table 7.

**Table 7: Estimated Path Coefficients of the SEMs**

<b>EGX_SP</b>	<b>Model 1</b>	
<b>EGX_SP</b>	<b>1</b>	<b>2</b>
covid19	<b>-0.0025039</b>	<b>0.000</b>
LEV	-10.40719	0.369
FS	-3.022292	0.863
Constant	2285.546	0.000
<b>ROA</b>	<b>1</b>	<b>2</b>
<b>EGX_SP</b>	<b>0.0001791</b>	<b>0.014</b>
LEV	-0.0177042	0.228
FS	-0.01585	0.475
Constant	-0.0319997	0.903
<b>EGX_SP</b>	<b>Model 2</b>	
<b>EGX_SP</b>	<b>1</b>	<b>2</b>
covid19	-0.0025039	0.000
LEV	-10.40719	0.369
FS	-3.022292	0.863
Constant	2285.546	0.000
<b>ROE</b>	<b>1</b>	<b>2</b>
<b>EGX_SP</b>	0.0000596	0.745
LEV	0.0004631	0.990
FS	-0.0133344	0.811
Constant	0.307108	0.643

Note: This table provides results from SEM of the effect of **EGX Index on Performance** from January 2018 to December 2022. A robust t-statistics test is conducted. Column (2) provides p-values. Column (1) presents the path coefficients of the model (A), and (B). \* Statistical significance at 10% level, \*\* Statistical significance at 5% level, \*\*\* Statistical significance at 1% level.

According to the previous, in testing the hypotheses, results reveal that H3, H4 are statistically significant. Thus, these hypotheses are supported. Therefore, this study finds a significant positive relationship between SP/EGX ESG index and firm financial performance measured by ROA in the Egyptian Stock market. Additionally, this study finds a significant negative relationship between Covid19 and SP/EGX ESG index.

### **3.3The Goodness of Fit**

The fit indices shown in Table 8 indicate that the hypothesized structural model provides a good fit to the data. In Table 8 the (R-squared) value of EGX\_SP is 0. 63, therefore, the fit indices indicate that the hypothesized structural model provides a good fit to the data.

**Table 8: Structural Equation Model Goodness of Fit**

<b>Measures</b>	<b>Fitted</b>	<b>Variance Predicted</b>	<b>Residual</b>	<b>R-squared</b>	<b>Mc</b>	<b>Mc2</b>
<b>EGX_SP</b>						
EGX_SP	88182.72	56166.59	32016.13	0.6369342	0.7980816	0.6369342
ROA	0.0552155	0.0040148	0.0512007	0.0727112	0.2696501	0.0727112
Overall				<b>0.6433684</b>		
<b>EGX_SP</b>						
EGX_SP	88182.72	56166.59	32016.13	0.6369342	0.7980816	0.6369342
ROE	0.3234543	0.0004968	0.3229576	0.0015358	0.0391896	0.0015358
Overall				<b>0.6371234</b>		

## 4 Conclusion

This paper adds to the growing literature on the potential links between ESG practices and firm performance in an emerging markets setting, and thus addresses the call by Brogi and Lagasio (2019) and Duque-Grisales and Aguilera-Caracuel (2019) to expand research in these national contexts. The ESG investing has been increasingly adopted by the financial markets, hence, we aim to study the effect of ESG on Indices' and Firms' performance globally and nationally; therefore, this paper follows a quantitative approach to answer three questions; the first question aims to evaluate and compare the performance of World Index (ACWI), and Emerging Markets (EM) index. Even though, the mean of EM index is higher than the mean of ACWI index, the paired T-test shows no significance in the difference of the mean returns of the pair's indices. Therefore, H1 is rejected. The reason can be that the data for this study covers the 5 years, which can be considered as a small sample to provide a difference in the mean returns.

The purpose of the second question is to compare the performance of SP/EGX ESG index against its benchmark Index and to evaluate SP/EGX ESG index and EGX100 index during the bull and bear markets. For the EGX100\_EWIReturn, after conducting the Mann-Whitney U test, the p-value is less than 0.05, hence, the null hypothesis is rejected. This means that there is a significant difference between the mean return of EGX100\_EWIReturn index in the bull and the bear market. Therefore, H2 is accepted.

In addition, the last question seeks to study the effect of the total ESG scores on the companies' performance in the Egyptian Stock market. Our analysis is



based on the stakeholder management approach, and is supported with institutional theory. This study is based on panel data of listed firms in Egypt and it was chosen for convenience and the accessibility of ESG scores through the Egyptian Stock Exchange (EGX) and due to the fact that the existing literature mainly focuses on Developed Markets. Hence, choosing Egypt will not only add value to the country of origin of the researcher but also to the existing literature. The empirical findings point to a positive association between ESG index and firm performance, which support our hypotheses that environmental and social scores are positively related to performance. These results are in line with the position of Odell and Ali (2016) who posit that firms in emerging markets will benefit from addressing social and environmental concerns. Positive environmental and social scores can lead to an enhanced reputation, or organizational legitimacy, and thus reduce the possibility of restrictive government regulation, in addition to leading to better customer relations, greater employee satisfaction, and enhanced recruiting efforts.

To test the effect of ESG Index on Firm Financial Performance, this paper utilizes SEM technique to deal with the endogeneity problem between ESG Index and Performance. This study finds a significant positive relationship between SP/EGX ESG index and firm financial performance measured by ROA in the Egyptian Stock market. Additionally, this study finds a significant negative relationship between Covid19 and SP/EGX ESG index.

Our study found that the ESG index was positively associated with ROA. As such, we strongly suggest that firms employ widely accepted good governance practices to reduce information asymmetry problems (Jensen and Meckling,

1976), and build trust with investors (Zubeltzu-Jaka et al., 2018). As capital markets in emerging economies tend to be shallow, access to global funds is pivotal for firms competing in this setting. In sum, legitimacy concerns will be alleviated by following good governance practices.

This article adds to the growing literature on the impact of ESG practices on firm performance in emerging market settings. As firms in these regions face additional challenges compared to their counterparts in the developed world, understanding how they adapt to these multifaceted issues and address stakeholder demands is an area worthy of future investigation. Finally, our study uncovers cause-effect relationships between ESG and performance, though using the structural equation modeling which is an appropriate statistical analysis.

#### **Conflict of Interest Statement**

The author certify that there is NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

#### **Data Availability Statement**

The data that support the findings of this study are available on request from the corresponding author.

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## ملخص:

الاستثمار المستدام - يشمل مجموعة متنوعة من فئات الأصول المختارة مع الاهتمام بالقضايا البيئية والاجتماعية والحوكمة (ESG). وهي استراتيجية استثمارية تسعى إلى الجمع بين المنافع الاجتماعية والبيئية والعوائد المالية، وبالتالي ربط اهتمامات المستثمر الاجتماعية والأخلاقية والاقتصادية في ظل ظروف معينة، كما تساعد هذه المؤشرات على جذب رؤوس الأموال الأجنبية، سعياً إلى المشاركة الدولية في أسواق رأس المال المحلية. الغرض من هذا البحث هو دراسة ما إذا كانت بدائل الاستثمار المستدام توفر عوائد مالية أفضل من المؤشرات التقليدية في الأسواق المتقدمة والناشئة على حد سواء. نتناول في هذا البحث تأثير المعايير البيئية والاجتماعية والحوكمة على أداء المؤشرات والشركات باستخدام مؤشرات مورجان ستانلي كاييتال إنترناشيونال (MSCI) كمرجع عالمي ومؤشرات مصر كمرجع وطني. كما قمنا بدراسة تأثير مؤشر الحوكمة البيئية والاجتماعية والحوكمة على أداء الشركات المصرية باستخدام نموذج المعادلة الهيكلية، لدراسة العلاقات المتبادلة بين مؤشر الحوكمة البيئية والاجتماعية والحوكمة والأداء في وقت واحد. وتشير النتائج إلى أنه، بعد التحكم في حجم الشركة والرافعة المالية، فإن الشركات التي تتمتع بدرجات أعلى في المعايير البيئية والاجتماعية والحوكمة تشهد مستويات أعلى من الربحية. يتم استكشاف عدد من الآثار السياسية والإدارية بناءً على هذه النتائج. تضيف هذه الدراسة إلى فهمنا الإضافي للعلاقة بين الأنشطة البيئية والاجتماعية والحوكمة وأداء الشركة في الأسواق الناشئة.

**الكلمات المفتاحية:** مؤشرات الاستدامة، الاستثمار المسؤول اجتماعياً، عوائد المؤشرات، الأسواق المالية، MSCI.