

The Impact of Environmental, Social and Governance (ESG) index in Climate change on Corporates Performance in Egypt: An Exploratory analysis on EGX100

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Abstract

The research examines how climate change policy implemented as Environmental Social Governance (ESG) indexes affects financial results of EGX100 listed corporations in Egypt. Research examines ESG index metrics integrated into national climate policies to study financial results affecting ROA and ROE with EPS as a central variable in emerging market analysis. The study uses quantitative research methods to investigate data collected from 2017 to 2023 by studying companies that appeared on the EGX100 without interruption. Research data consisting of financial information originated from corporate annual reports alongside ESG scores that emerged from dependable online platform sources. The STATA software was employed to evaluate ESG indices and corporate financial performance through Ordinary Least Squares (OLS) regression analysis with correlation and diagnostic tests. Results demonstrate how higher ESG compliance leads to positive associations with both ROA and ROE metrics thus demonstrating improved corporate profitability and shareholder value. ESG appears to have a positive connection with EPS nonetheless this relationship showed reduced strength. Firm size together with capital adequacy ratio (CAR) and gross profit margin (GPM) proved to affect the company financial results. The research data demonstrates that ESG practices lead to sustainable financial performances in Egyptian corporate organizations. The conducted study expands knowledge about how ESG compliance along with climate policy implementation affects corporate financial results in developing nations. This investigation serves as one of the initial studies to analyze this relationship in the Egyptian market thereby delivering valuable practical and theoretical contributions to policymakers and investors and corporate executives

handling climate financial challenges.

Keywords: ESG Index, Climate Change Policy, Corporate Performance, ROA, ROE, EPS, EGX100, Egypt, Sustainability, Emerging Markets

1. Introduction

Climate change has emerged as a profound global challenge with far-reaching consequences across various sectors, including the business landscape. Corporates play a vital role in the economic development of nations, and their ability to adapt and remain resilient in the face of environmental challenges is crucial for their long-term sustainability and growth (Wright & Nyberg, 2017). This research endeavor embarks on an exploration of the intricate relationship between the Environmental, Social, and Governance (ESG) index, as a part of climate change policy, and the performance of Corporates within the specific context of Egypt—a nation grappling with the multifaceted impacts of climate change (Mani & Goniewicz, 2023).

Corporates constitute a fundamental pillar of Egypt's economic framework, making substantial contributions to employment, economic growth, and innovation. However, their vulnerability to the effects of climate change, such as rising temperatures, sea-level rise, and extreme weather events, poses significant risks to their operations, supply chains, and market conditions. Consequently, their financial performance and overall sustainability may be adversely affected. Climate change policies and regulatory frameworks, including the integration of ESG factors, aimed at mitigating the impacts of climate change and promoting adaptation strategies, are increasingly gaining importance (De Vivo, Ellena, Capozzi, Budillon, & Mercogliano, 2021). However, the extent to which these policies influence the performance of Corporates in Egypt remains largely unexplored. This research focuses on investigating the relationship between the ESG index, under the umbrella of climate change policy, and the performance of Corporates listed on the EGX100. The primary objective of this study is to enhance the understanding of how the ESG index impacts the financial performance, profitability, and overall sustainability of Corporates in Egypt.

By examining various performance indicators, such as return on assets (ROA), return on equity (ROE), and earnings per share (EPS), the research aims to provide quantifiable evidence and insights into the effects of the ESG index on Corporates' performance. This study adopts a

multifaceted approach, employing various analytical techniques and data sources to comprehensively assess the relationship between the ESG index and Corporates' performance. The research findings will contribute to the growing body of knowledge concerning the intersection of climate change, policy implementation, and business performance, particularly in the context of developing economies (Habibniya & Dsouza, 2018).

Furthermore, this study aims to provide valuable insights to policymakers, corporate owners, investors, and researchers. Policymakers can leverage the findings to develop effective climate change policies that support Corporates while promoting environmental sustainability. Corporate owners can use the insights to better understand the potential impacts of climate change policies on their businesses and make informed decisions regarding adaptation strategies. Investors can utilize the study's findings to evaluate the risks and opportunities associated with investing in Corporates in the context of climate change policies (Falkner & Hiebl, 2015).

As this research progresses, it will navigate through a rigorous methodological framework, addressing potential challenges in data collection, analysis, and interpretation. Ultimately, the aspiration is to contribute to the development of strategies and policies that can empower Corporates in Egypt to thrive in the face of climate change, fostering a sustainable and resilient business environment.

1.1 Research questions

- Does Climate change policy index affect corporates performance?
- "Is there an impact of Climate change policy index on the Return on Assets (ROA) of Corporates performance?"
- "Is there an influence of Climate change policy index on the Return on Equity (ROE) of Corporates performance?"
- "Would Climate change policy index impact the gross profit margin (GPM) of Corporates performance?"

1.2 Research Objectives

- "To assess and determine the extent to which Climate change policy index affects Corporates performance."
- "To examine the impact of Climate change policy index on the Return on Assets (ROA) of Corporates performance."

- "To investigate the influence of Climate change policy index on the Return on Equity (ROE) of Corporates performance."
- "To identify if Climate change policy index impacts on the gross profit margin (GPM) of Corporates performance."

1.3 Research problem

Climate change has emerged as a significant global challenge, posing risks to various sectors, including Corporates. Corporates play a crucial role in Egypt's economic development, contributing to employment, growth, and innovation. However, their vulnerability to the impacts of climate change threatens their market conditions, potentially affecting their financial performance and overall sustainability (Rezk, Ibrahim, Radwan, Sakr, Tvaronavičienė, & Piccinetti, 2016).

While climate change policies and regulatory frameworks, including the integration of Environmental, Social, and Governance (ESG) factors, aimed at mitigating the impacts and promoting adaptation strategies are gaining importance, the extent to which these policies influence the performance of Corporates in Egypt remains largely unexplored (Swart & Raes, 20156). This research endeavor aims to address this gap by investigating the relationship between the ESG index, as part of climate change policy, and the performance of Corporates listed on the EGX100.

Specifically, the research seeks to understand how the ESG index impacts the financial performance, profitability, and overall sustainability of Corporates in Egypt. By examining various performance indicators, such as return on assets (ROA), return on equity (ROE), and earnings per share (EPS), the study aims to provide quantifiable evidence and insights into the effects of climate change policies on Corporates' performance.

By addressing this research problem, the study aims to inform policymakers, corporate owners, investors, and researchers, enabling the development of effective climate change policies that support Corporates while promoting environmental sustainability. Additionally, it seeks to provide insights to corporate owners and investors regarding adaptation strategies and risk-opportunity management in the context of climate change policies.

1.4 Research Importance

Investigating the impact of the climate change policy index, specifically under the

Environmental, Social, and Governance (ESG) index, on the performance of Corporates in Egypt holds significant academic relevance due to several underlying factors. Climate change poses a substantial threat to businesses, particularly Corporates, which often have limited resources and capacities to adapt to its consequences. As a developing country, Egypt is particularly vulnerable to the effects of climate change, including rising temperatures, sea-level rise, and increased frequency of extreme weather events.

Corporates play a crucial role in Egypt's economy, contributing significantly to employment, economic growth, and innovation. Their performance is vital for the country's overall economic development and stability. Climate change policies and regulations aimed at mitigating and adapting to its impacts can have far-reaching implications for Corporates, affecting their operations, costs, and competitiveness.

This study will explore the relationship between the ESG index, as part of the climate change policy framework, and the performance of Corporates listed on the EGX100. The findings will provide insights into how climate change policies, under the ESG index, influence the financial performance, profitability, and overall sustainability of Corporates in Egypt.

The study's outcomes will be of interest to policymakers, corporate owners, investors, and researchers. Policymakers can use the findings to develop effective climate change policies that support Corporates while promoting environmental sustainability. Corporate owners can utilize the insights to better understand the potential impacts of climate change policies on their businesses and make informed decisions regarding adaptation strategies. Investors can use the study's findings to evaluate the risks and opportunities associated with investing in Corporates in the context of climate change policies.

Moreover, this research will contribute to the academic discourse on the intersection of climate change, policy implementation, and corporate performance, paving the way for future studies in this area. It is crucial for promoting sustainable economic growth, environmental protection, and the long-term viability of Corporates in Egypt and other developing nations.

1.5 Research Variables

1.5.1 Measuring Climate change policy index and corporates performance Variables

The information for each variable will be gathered from financial statements of firms. In this study, secondary data in the form of financial statements will be analysed. The website of the

sampled firms is where the financial reports will be gathered. The duration will be between 2021 – 2024.

1 Table (1.2): measurement of variables

Variables	Measurement	Sources
Independent variables		
<ul style="list-style-type: none"> Climate change policy index (ESG Index) 	Datasets from Investing	Investing Website
Dependent variables		
<ul style="list-style-type: none"> ROA ROE EPS 	Checklist from annual reports for each firm	(Gošnik & Stubelj, 2022); (Adomako & Ahsan, 2022).
Control variables		
<ul style="list-style-type: none"> CAR Firm size GPM 	Checklist from annual reports for each bank	<ul style="list-style-type: none"> (Türkmen, 2014); (Bourlakis, Maglaras, Aktas, Gallear, & Fotopoulos, 2014)

1.6 Research Hypothesis

Based on the body of literature investigating the relationship between climate change policy index and corporates performance, along with the variables discussed in the previous section of the proposal, the researcher formulated the main hypotheses of this current study as follows:

H1: Climate change policy index has a significant effect on ROA Corporates performance

H2: Climate change policy index has a significant effect on ROE Corporates performance

H3: Climate change policy index has a significant effect on EPS Corporates performance

To test the research hypotheses, the researcher identifies the following empirical models:

$$ROA = \beta_0 + \beta_1 \text{ Climate change policy} + \beta_2 \text{ Firm size} + \beta_3 \text{ CAR} + \beta_4 \text{ GPM} + \varepsilon_{it} \quad (1)$$

$$ROE = \beta_0 + \beta_1 \text{ Climate change policy} + \beta_2 \text{ Firm size} + \beta_3 \text{ CAR} + \beta_4 \text{ GPM} + \varepsilon_{it} \quad (2)$$

$$EPS = \beta_0 + \beta_1 \text{ Climate change policy} + \beta_2 \text{ Firm size} + \beta_3 \text{ CAR} + \beta_4 \text{ GPM} + \varepsilon_{it} \quad (3)$$

The model consists of two equations. Equation (1, 2 and 3) describes the Climate change policy index risk ratio (CCPI), Firm size, Capital adequacy ratio (CAR), and Gross profit margin (GPM). The presence of CCPI in Eq. (1, 2 and 3) allows for the possibility that CCPI may have a direct effect on ROA, ROE and GPM.

2. Literature review

In this section the study will cover the independent variable then the dependent variable ending with the relationship between of them.

2.1 Climate change policy of ESG

Egypt has adopted a collaborative and multi-faceted approach to address climate change, involving various ministries and stakeholders working together in areas where their responsibilities intersect. The Ministry of Environment and the Ministry of Electricity and Renewable Energy are among the key institutions leading these efforts. Central ministries such as the Ministry of Water Resources and Irrigation, the Ministry of Environment, Housing, Utilities, and Urban Communities, and the Ministry of Agriculture and Land Reclamation play crucial roles in coordinating public institutions (Damalas, et al., 2018).

Egypt is a signatory to the Global Methane Pledge in June 2022. Approximately 50% of Egypt's methane emissions originate from the waste sector, while around 33% are attributed to agriculture. The remaining emissions are derived from the energy sector (Gütschow et al., 2021). Egypt's Nationally Determined Contribution (NDC) commits to decreasing emissions from gas flaring in the oil and gas industry to less than 50% of the levels recorded in 2015. Additionally, the NDC includes unspecified steps in the waste sector. Nevertheless, it remains uncertain if these interventions are adequate to achieve the 2030 worldwide objective of decreasing methane emissions by 30%, particularly considering the expected escalation in oil and gas production. Egypt's NDC does not include the agriculture sector, which is a significant contributor to methane emissions.

In Glasgow, several sector-specific efforts were introduced to expedite climate action

regarding methane, the phasing out of coal, achieving 100% electric vehicles, and other related areas. These initiatives have the potential to reduce the 2030 emissions gap by around 9%, equivalent to 2.2 GtCO₂e. However, it is difficult to determine what is truly new and what is already included in existing NDC commitments (Committee, 2020).

Additionally, the Ministry of Trade and Industry focuses on fostering partnerships with the public and private sectors, non-governmental organizations, multilateral partners like funds, programs, and specialized agencies, as well as academic institutions, businesses, and regional entities. The main drivers for these collaborations are to leverage complementary expertise and shared values, aiming for a more inclusive, sustainable, and prosperous future (Tripl, Sinozic, & Lawton Smith, 2015).

Egypt's climate policy has evolved from initially following international commitments to developing a long-term strategy to become a regional leader in addressing climate change. Since joining the United Nations Framework Convention on Climate Change in 1994, Egypt has established national strategies, made commitments, and set up steering mechanisms to tackle climate change (Mondal, Ringler, Al-Riffai, Eldidi, Breisinger, & Wiebelt, 2019).

Egypt launched its intended NDC in 2015 Egypt (NDC, 2024; (Abdallah, 2020). The updated. In 2022, Egypt submitted its updated Nationally Determined Contribution (NDC) for the period 2015–2030, reaffirming its commitment to a sustainable future and a just transition. The National Climate Change Strategy 2050, launched in the same year, provides a comprehensive framework for climate action until 2050, outlining goals for mitigation and adaptation while aiming to address challenges related to governance, financing, technology, and awareness. The strategy includes establishing specialized units within all ministries to foster coordination and has identified 26 high-priority projects to be completed by 2030 (Egypt National Climate Change Strategy, 2024)

Egypt's dedication to addressing climate change challenges was further reinforced by its role as the first African country to host the Conference of Parties (COP27) in Sharm El-Sheikh in November 2022. Hosting this significant global event highlighted Egypt's commitment to tackling climate change on an international scale.

During Egypt's presidency at COP27, a significant milestone was achieved in climate negotiations with the agreement to establish the "Loss and Damage" Fund. This fund aims to put into practice Article 9 of the Paris Agreement 2015, which mandates that developed countries allocate funds to finance climate mitigation and adaptation programs in developing countries (UNFCCC article 9, 2024).

One of the most recent and comprehensive programs aligned with Egypt's National Strategy on Climate Change 2050 is the Country Platform for the Nexus of Water-Food-Energy (NWFE) program, which was launched at COP27 (NWFE, 2024). This program seeks to mobilize international financial and technological support through a multi-stakeholder approach to address the interconnected risks related to energy, water, and food security. It integrates nine high-priority climate action projects for adaptation and mitigation efforts.

Egypt has enacted various climate policies aimed at achieving the mitigation and adaptation goals outlined in its Vision 2030 strategy. The following provides a brief overview of the most significant measures and accomplishments related to Egypt's first and second Nationally Determined Contributions (NDCs), covering areas such as energy, agriculture and livelihoods, urban development, and green finance (Khalifa, Bekchanov, & Osman-Elasha, 2022).

Egypt has implemented comprehensive energy policy reforms to transition away from the dominance of the oil and gas sectors and promote sustainable energy production. The Ministry of Petroleum and Mineral Resources (MOPMR) established an institutional framework for energy efficiency in the petroleum sector, including the creation of a Higher Energy Committee and an Energy Efficiency and Climate Department. These reforms reduced fossil fuel subsidies from 6% of the country's GDP in 2012/2013 to 0.3% in 2019/2020 (Liu & Xu, 2022).

Simultaneously, the government encouraged investments to increase the electricity supply generated from renewable energy sources, aiming for 20% by 2022 and 42% by 2035. Various policy measures outlined in the Integrated Sustainable Energy Strategy (ISES) 2035 were implemented, resulting in a 340% increase in the total installed wind and solar power plants (5848 MW) from 2015/2016 to 2019/2020. Significant renewable energy projects included the Benban Solar Park (1465 MW), Assuit Hydropower Plant (32 MW), Kom Ombo Solar PV Plant (26 MW), and Gabal El-Zeit Wind Power Plant (580 MW) (Salah, Eltaweel, & Abeykoon, 2022).

Concerning further energy efficiency improvements, the MOPMR began following ISO 50001 requirements and signed up to the World Bank Zero Routine Flaring Initiative to improve fossil fuel efficiency while reducing GHG emissions. Prominent programs included Improving the Energy Efficiency of Lighting and Building Appliances (2010–2017), the Industrial Energy Efficiency (IEE) Project (2013–2018), Solar Heating in Industrial Processes (SHIP) (2014–2022), the Egyptian Programme for Promoting Industrial Motor Efficiency, the Environment Pollution

Abatement Project Phase III (2017–2022), the Within Hayah Karima National Initiative (Decent Life in English), and the Household Natural Gas Connection Project, which aimed to provide households with improved access to a reliable, low-cost, and grid-connected supply of natural gas (Abdelaty, Weiss, & Mangelkramer, 2023).

This short article reveals that policy makers have adopted Environmental, Social, and Governance (ESG) frameworks to deal with climate change. The criteria within the frame of ESG differ from general indicators and offer a strategy for considering how organizations affect climate change and how they maintain company sustainability. Taking into account climate change policy, ESG includes environment factors like carbon footprint, energy mix, or resources utilization efficiency. Labour and people-related issues involve fair labor practices, gender, asset rights, and capacity and institutions, and are crucial for supporting a transformation towards the green economy. Accountability frameworks and transparent practices in climate reports make the ESG initiatives more could be considered to have stronger credibility. Together these dimensions help inform policymakers and companies about how their activities match up with climate goals, such as those set out under the Paris Agreement (Doni & Johannsdottir, 2020).

Increasing relevance of ESG metrics to evaluate organizational and country actions on climate change has seen its integration in climate policy indexes. Indexes go hand in hand with ESG metrics and represent a valuable instrument for evaluating the progress accomplished, work out the most critical issues, as well as direct investments toward low-carbon and sustainable development. For instance, countries that have developed the ESG standards demonstrate sustainable climate change technologies that are sustainable and cosmopolitan. ESG is therefore not only a solution to current climate risks, but also helps build wider adaptive capacity through sustainable environmental, social and governance practices (See. Figure 2.). Therefore, climate policies based on ESG performance indicators are enablers of systems transformation as they bring organizations and governments together to meet the climate agenda (Oliver Yébenes, 2024).



1 figure (2.1): ESG

Source: (Fpproad, 2024)

2.2 Corporates performance

Corporates, which stand for enterprises, are extremely important to the economy of the entire world. They are also a big contributor to the development of new jobs, innovation, and overall economic growth. On the other hand, their performance is susceptible to being affected by a wide range of circumstances, both internal and external (Gherghina, Botezatu, Hosszu, & Simionescu, 2020).

One of the most significant obstacles that Corporates confront is gaining access to money. Due to the perception of higher risks, a lack of collateral, or an inadequate credit history, many (Corporates) have difficulty obtaining finance from traditional lending institutions (Mensah, Azinga, & Sodji, 2015). Their growth, innovation, and general performance can be hindered when they have limited access to financial resources.

(Corporates) frequently lack professional management skills and competence, which can have an effect on their ability to make decisions, plan strategically, and operate efficiently. In order for (Corporates) to successfully traverse the competitive landscape, adapt to shifting market conditions, and maximise their resources, effective management is essential (Majama & Magang, 2017).

Adoption of new technologies and innovation: (Corporates) that are open to innovation and adopt new technologies typically do better than their competitors. It is possible for

innovation to result in improved products, services, and processes, which in turn can boost both productivity and competitiveness. When it comes to limited resources, skills, and access to technology, however, many (Corporates) encounter hurdles (Fanelli, 2021).

(Corporates) who are able to broaden their scope beyond domestic markets and into international markets typically enjoy improved performance from their operations. The process of internationalisation, on the other hand, can be difficult due to a number of variables, including cultural differences, legal impediments, and a lack of information regarding other markets (Ahi, Baronchelli, Kuivalainen, & Piantoni, 2017).

(Corporates) frequently have difficulties in recruiting, keeping, and cultivating personnel that are skilled and talented. It is possible that their capacity to establish a strong and engaged workforce, which is vital for long-term performance, could be hindered by limited resources for training, competitive compensation, and career progression possibilities (Dundon & Wilkinson, 2018).

(Corporates) who participate actively in business collaborations, business networks, and partnerships can reap the benefits of shared resources, the sharing of information, and market opportunities. Access to new markets, technology, and knowledge can be gained through robust business networks, which in turn can improve the overall performance of the organization (Vanags, Ābeltiņa, & Zvirgzdiņa, 2018).

The regulatory environment, which includes taxation policies, labour laws, and business regulations, can have a substantial impact on the performance of (Corporates). The growth and competitiveness of (Corporates) can be hampered by excessive bureaucracy, complicated laws, and unfavourable policies.

Conditions in the economy: Corporates are frequently more susceptible to economic volatility and downturns than bigger organisations (Nieuwenhuizen, 2019). The success of (Corporates) and their rates of survival can be directly impacted by economic factors such as consumer demand, financing rates, and market volatility. It is possible that (Corporates) will need to address these challenges through targeted strategies in order to improve their performance. These strategies may include the following: seeking alternative sources of financing; investing in management training; embracing digitalization and innovation; exploring new markets; building strong networks and partnerships; and engaging with policymakers in order to create a more conducive environment for business (Weaven, Quach, Thaichon, Frazer, Billot, & Grace, 2021).

Return on Assets (ROA) is a financial ratio that measures a company's profitability in relation to its total assets. It is an important metric used to evaluate the efficiency of a business in generating profits from its assets. A higher ROA generally indicates that a company is more efficient in utilizing its assets to generate profits (Utami, 2017).

The formula for calculating ROA is:

$$ROA = \frac{\text{Net Income}}{\text{Total Assets}}$$

A more detailed explanation of ROA:

1. Net Income: This represents a company's profit after deducting all expenses, including taxes, interest, and other operational costs, from its total revenue. It is the bottom-line figure that reflects the company's overall profitability.
2. Total Assets: This includes all the resources owned by the company, such as cash, accounts receivable, inventory, property, plant, and equipment. It represents the total investment made by the company in its operations.

ROA provides insight into how effectively a company is using its assets to generate profits. A higher ROA suggests that the company is efficiently utilizing its assets to generate revenue and maximize profits. Conversely, a lower ROA indicates that the company is not utilizing its assets as efficiently and may need to review its operations or asset management strategies (Chowdhury, Rana, Akter, & Hoque, 2018).

ROA is widely used by investors, analysts, and management to evaluate a company's performance and compare it with industry peers or historical trends. It is particularly useful for capital-intensive industries where significant investments are made in assets, such as manufacturing, energy, or transportation sectors (Maeenuddina, Hussain, Hafeez, Khan, & Wahi, 2020).

However, it's important to note that ROA should be analyzed in conjunction with other financial ratios and qualitative factors to gain a comprehensive understanding of a company's performance. Additionally, the interpretation of ROA may vary across industries due to different asset structures and operational models. Overall, ROA is a valuable metric for assessing a company's ability to generate profits from its assets, which is a key determinant of its long-term profitability and sustainability.

Return on Equity (ROE) is a financial ratio that measures a company's profitability in

relation to the equity invested by shareholders. It is an important metric used to evaluate a company's ability to generate profits and create value for its shareholders.

The formula for calculating ROE is:

$$\text{ROE} = \frac{\text{Net Income}}{\text{Total Shareholders' Equity}}$$

1. Net Income: This represents a company's profit after deducting all expenses, including taxes, interest, and other operational costs, from its total revenue. It is the bottom-line figure that reflects the company's overall profitability.
2. Shareholders' Equity: This represents the portion of the company's assets that belongs to the shareholders. It is calculated by subtracting a company's total liabilities from its total assets. Shareholders' equity represents the net worth of the company.

ROE measures the rate of return that a company generates on the money invested by its shareholders. A higher ROE indicates that the company is efficient in generating profits from the shareholders' equity, which is desirable from an investor's perspective.

ROE is widely used by investors, analysts, and management to evaluate a company's performance and compare it with industry peers or historical trends. It is particularly useful for evaluating the effectiveness of a company's management in utilizing the equity capital provided by shareholders.

A high ROE can indicate that a company is efficiently using its equity to generate profits, which can lead to higher dividends or share price appreciation for investors. However, a consistently high ROE may also raise concerns about a company's ability to sustain such performance in the long run or indicate that the company is taking on excessive risk.

On the other hand, a low ROE may signal that a company is not effectively utilizing the equity capital provided by shareholders, which could lead to lower returns for investors. It's important to note that ROE should be analyzed in conjunction with other financial ratios and qualitative factors to gain a comprehensive understanding of a company's performance. Additionally, the interpretation of ROE may vary across industries due to different capital structures and operational models.

Overall, ROE is a valuable metric for assessing a company's ability to generate profits from the equity invested by shareholders, which is a key determinant of its long-term success and shareholder value creation.

Earnings per Share (EPS) is a financial ratio that measures a company's profitability in relation to its outstanding shares of common stock. It is a widely used metric by investors, analysts, and management to evaluate a company's financial performance and potential for growth (Khan, Islam, Choudhury, & Adnan, 2014).

The formula for calculating EPS is:

$$\text{EPS} = \frac{\text{Net Income} - \text{Preferred dividends}}{\text{Weighted Average Number of Common Shares Outstanding}}$$

1. Net Income: This represents a company's profit after deducting all expenses, including taxes, interest, and other operational costs, from its total revenue. It is the bottom-line figure that reflects the company's overall profitability.
2. Preferred Dividends: Some companies have preferred stock, which entitles the holders to receive dividends before common stockholders. These preferred dividends are deducted from the net income to calculate the amount available for common shareholders.
3. Weighted Average Number of Common Shares Outstanding: This considers any changes in the number of common shares outstanding during the reporting period, such as stock splits, stock dividends, or share buybacks.

EPS provides insight into a company's profitability on a per-share basis. It reflects the portion of a company's profit that is allocated to each outstanding share of common stock. A higher EPS is generally viewed as favorable by investors, as it indicates that the company is generating higher profits per share (Haddad, 2024).

EPS is widely used by investors and analysts to compare a company's performance with its peers within the same industry or across different time periods. It is also a key factor in determining a company's stock valuation and potential for future growth. Companies with a higher EPS are typically considered more attractive to investors, as it suggests that the company is generating greater profits from its operations, which could potentially lead to higher dividends or share price appreciation (De Franco, Hope, & Larocque, 2015).

However, it's important to note that EPS should be analyzed in conjunction with other financial ratios and qualitative factors to gain a comprehensive understanding of a company's performance. Additionally, EPS can be impacted by factors such as share buybacks, mergers

and acquisitions, or changes in accounting standards. EPS is a valuable metric for assessing a company's profitability and its ability to generate returns for its common shareholders, which is a key determinant of its long-term success and shareholder value creation.

2.3 The relationship between Climate change policy and corporates performance

Climate change represents an existential threat to businesses and economies around the world. As governments ramp up efforts to mitigate and adapt to climate impacts, their policy actions can have significant implications for the business landscape, particularly Corporates. Corporates play a vital role in driving economic growth, innovation, and employment, making their resilience and performance critical factors in the transition to a low-carbon future (Alam, Du, Rahman, Yazdifar, & Abbasi, 2022).

According to (Eniola & Entebang, 2015) this study aimed to to evaluate the impact that government policies have on the performance of (Corporates) in Nigeria, more specifically in the state of Imo. Understanding how government initiatives affect the expansion and success of Corporates in the region is the primary emphasis of this study.

At the end, While the impact of climate change policies on large corporations and specific industries has been well-documented, there is a dearth of research examining the relationship between climate change policy stringency and the performance of Corporates. This study, which investigates the nexus between a climate change policy index and CORPORATES performance indicators, represents a pioneering effort in bridging this research gap.

The findings of this study contribute to the ongoing discourse on sustainable development, climate action, and the role of Corporates in shaping a more resilient and environmentally conscious global economy. By shedding light on how different policy approaches may affect Corporates' profitability, productivity, innovation, and long-term sustainability, this research provides valuable insights for policymakers, CORPORATES owners, and managers.

Notably, this study stands out as one of the few, if not the only, comprehensive analysis of the impact of climate change policy index on CORPORATES performance. While previous research has explored government policies and CORPORATES performance in specific contexts, such as the study conducted in the state of Imo, Nigeria, no known studies have explicitly examined the relationship between climate change policy stringency and CORPORATES performance on a broader scale.

The absence of prior research in this area, particularly in the context of Egypt, highlights

the significant academic contribution of this study. It paves the way for future researchers to build upon these findings and further explore the nuances of climate change policy impacts on Corporates in different regions, sectors, and regulatory environments.

By addressing this research gap, this study serves as a gateway for subsequent investigations, enabling a more comprehensive understanding of the challenges and opportunities that climate change policies present for Corporates.

This knowledge can inform the development of targeted support mechanisms, incentives, and regulations that facilitate a just and inclusive transition to a low-carbon economy, while also empowering Corporates to adapt their business strategies and capitalize on emerging market trends. As the global community continues to grapple with the pressing issue of climate change, this study's contribution to the body of knowledge becomes increasingly relevant. By shedding light on the interplay between climate change policies and CORPORATES performance, it lays the foundation for more informed decision-making and ultimately supports the creation of a sustainable and prosperous future for businesses, economies, and societies worldwide.

Furthermore, (Baeshen, Soomro, & Bhutto, 2021) examined factors influencing green innovation and their effects on sustainable business performance within Corporates. The research aimed at determining the factors that facilitate and dictate green practices and innovations in such organizations with a focus on manufacturing Corporates in Saudi Arabia. Thus, considering all the determinants outlined above, the study was designed to establish a range of recommendations to improve the long-term and short-term performance of Corporates in the conditions of environmental adversities, which would be helpful for practitioners and policymakers. Concerning the methodological approach, this study adopted a quantitative research approach using cross-sectional survey data collection technique in two phases. First, this study employed semi-structural questionnaires with five managers of CORPORATES manufacturing firms in Saudi Arabia's Jeddah industrial area to pinpoint the key motivations for green innovation and sustainable performance on the manufacturing sector. Based on the constructs from the literature on green innovation and sustainable business performance, a structured questionnaire was then designed with a series of questions. The data were collected through simple random sampling technique where every unit was equally likely to be included in the sample. To examine the measurement and structural models and the relationships between the described constructs, Partial Least Squares Structural Equation Modeling (PLS-SEM) was applied.

Alongside, the driving and inhibiting factors that influence the adoption and diffusion of SET by Corporates in Multan Saddar and Multan city, in the Punjab province of Pakistan have been explored and empirically analyzed by (Qamar, Ahmad, Oryani, & Zhang, 2022). The study aims at filling this gap by providing a ranking of these factors in terms of their relevance which is very important in informing policy makers on the right strategies to adopt to encourage the use of renewable energy sources by the Corporates. The research be actualised using literature review and a cross-sectional questionnaire administered to owners/ managers of the Corporates with aim of enriching the knowledge base of the factors that drive the adoption of SET.

From this study, some of the influential factors and constraints that foster and hinder the use of SET amongst Pakistani Corporates are identified. These are: perceived environmental motives responsibilities, perceived environmental relative advantages of SET, reliability of SET, size of enterprises and customer preferences as the influential drivers that the research discovered. Also, the study addresses image-related issues of Corporates regarding the use of SET and the eco-labels and green stickers. On the other hand, it was observed that, high initial cost, Lack of awareness and inadequate government support were the barriers that were stated to affect the adoption process. The study points the need for specific interventions to tackle these barriers, and at the same time encourage the promotion of the identified enablers to ensure a quicker shift towards the use of the renewable energy sources by Corporates's in the region.

(Cariola, Fasano, La Rocca, & Skatova, 2020), building on the theoretical framework of debt and performance of Corporates in the energy sector and the moderating role of national environmental sustainability policies, the study proposes the following research questions: This study attempts to contribute to the knowledge regarding the means by which environmental performance at the country level influences the relationship between debt and firm performance in order to foster a new area of research exploring the financial behaviours of energy Corporates and their link to environmental performance. The approach used in the research entails a synthesis of literature sources on the capital structure and firm value with special reference to the Corporates. The researchers formulated two hypotheses: The first hypotheses (H. 1) hypothesise that there is a direct relationship between debt and CORPORATES performance Whereas the second set of hypotheses (H. 2) presents the Environmental Performance Index (EPI) as a moderation variable. To test these hypotheses, the study employs OLS regression to estimate parameters considering various firm-specific, year, sub-sector and country effects.

Moreover, considering context into which Corporates operate, endogenous and exogenous variables, a multilevel modeling approach is undertaken, to analyze micro and macro factors that affect the firm performance. As expected, negative relationship between leverage/debt and the firm's ROA is found in this study, meaning that high level of debt reduces the firm's performance. But introduction of the EPI as mediating variable reveals that countries that maintain good environmental performance can still avoid the male effects of debt on Corporates performance. This infers that environmental sustainability policies can invoke a suitable environment for energy Corporates to prosper and have positive results that include, tax credit besides making better business returns.

It has become clear that climate change policies and ESG policies are interconnected with corporate results as companies address sustainability goals. Climate policies from ESG motivate the organization to practice policies that have less harm on the environment, more socially sensitive, and transparent corporate governance, which results in better efficiency, risk management, and credibility (Jinga, 2021). Such policies yield improvements in the business' brand and investor recognition and pave way to green finance, which supports sustainable business financial performance. Moreover, compliance with ESG and climate policies enables corporates to gain essential information about regulatory shifts regarding climate risk and grants them a significant competitive advantage as well as an adaptive capacity in new sustainable markets, which turns ESG integration into the corporates' business imperative for competitiveness and sustainability (Park, 2021).

2.4 Literature review summary

The paper starts by analyzing the policies Egypt has in tackling climate change in the literature review section. Egypt has formulated a strong policy framework that aims a coordinating many ministries and other stakeholders to fight climate change. The country is a member of the Global Methane Pledge and declared its plans in the NDC with reference to emissions from the different sectors. Egypt has also prepared its National Climate Change Strategy 2050 meaning that it now has a roadmap for climate action until 2050.

Foreign policy of Egypt in the field of climate change has been a transformation from following international obligations to creating long-term vision of promoting the country as a regional and international leader in the fight against climate change. The country has introduced certain changes in energy policy, in the support of renewable sources, and in energy conservation. Such attempts include elimination of fossil fuel subsidies, production of electricity from renewable

resources and energy management exercise in various fields.

The review then turns to the next performance perspective, that of Corporates. Corporates are important agents in the global economic growth, employment creation, and the introduction of new ideas. Yet, they are prone to several factors: financial constraint, managerial capabilities, technology, internationalization, people resources, business relationships, business regulations, and much more, the economic conditions. That's why, the review also describes the performance indicators of Corporates, including ROA, ROE, and EPS.

Last but not the least, the literature review section focuses on the interaction between climate change policy and CORPORATES performance. Even though, climate change policies have been implemented and analyzed over the years particularly concerning the corporate giants and or industries, surprisingly, there is less or almost no literature that has been written or researched on the direct link between climate change policy stringency and Corporates. Therefore, this research aims at attempting to meet this important research gap by assessing the impact of climate change policy index on of Corporates performance.

The review demonstrates that this study is only one of the handfuls, if not only, systematic investigations of the relationship between climate change policy index and the performance of Corporates, with an emphasis on Egypt. In doing so, the present research contributes to the scholarship that aims at filling this gap by offering policy implication to policymakers, insights that CORPORATES owners, and managers can implement, and advancing the understanding of sustainable development, climate change action, and role of Corporates about the sustainable future of the global economy.

The review notes that while there are a few studies available that focus on the effects of climate change policy index on CORPORATES 's performance, this is perhaps the most extensive study in Northeastern Egypt. In this regard, filling this gap of research contributes to the knowledge base for policymakers, CORPORATES owners/ managers, thus enhancing the sustainable development, climate change mitigation, and adaptation discourse among Corporates and the global economy.

Climate change is well managed through an effective use of Environmental, Social, and Governance (ESG) frameworks as these act to support sustainable decision making at organizational and policy level. Ethical, social, and governance thus covers environmental initiatives such as low carbon initiatives, recourse to green energy, social issues like fair employment practices and community relations, coupled with transparency and sustainability. This, therefore, makes it convenient for benchmarking its standards within climatical policy

indexes to check on possible lags or areas to invest on for climatical policies to work on policies towards sustainable development. ESG policies are therefore progressive approaches through which change is systemically initiated and coordinated between organizations and governments in the quests to meet prescribed climate change goals.

4. Methodology

4.1 Research Period and Scope

The research focuses on the period from 2017 to 2023, encompassing a comprehensive six-year analysis of companies listed on the Egyptian Exchange (EGX) 100 Index. This timeframe was selected to provide a robust and contemporary examination of the Egyptian stock market, capturing potential economic shifts, market developments, and corporate performance trends.

4.2 Sample Selection

4.2.1 Population Definition

The study's population consists of all companies listed in the EGX100 Index during the specified research period. The EGX100 Index represents the top 100 most liquid and largest market capitalization companies traded on the Egyptian Stock Exchange.

4.2.2 Sampling Criteria

The research methodology for this study was underpinned by a rigorous selection process designed to ensure the integrity and comprehensiveness of the dataset. The primary inclusion criteria focused on companies that maintained a continuous listing in the EGX100 Index throughout the majority of the research period. This approach guaranteed a stable and consistent sample of companies that represented the core of the Egyptian stock market.

A critical requirement was the complete availability of financial and operational data spanning all six years of the study. This comprehensive data requirement enabled a thorough and longitudinal analysis of company performance. Furthermore, the selection process prioritized diversity by intentionally including companies from various economic sectors, thereby ensuring a representative and balanced market coverage that could provide meaningful insights across different segments of the economy.

Conversely, the exclusion criteria were equally stringent. Companies were automatically disqualified if they demonstrated incomplete financial reporting, which could compromise the

accuracy and reliability of the research findings. Firms that underwent significant structural transformations, such as mergers or delistings during the research period, were also excluded to maintain the consistency and comparability of the dataset. Additionally, any company with less than 80% data completeness throughout the research period was systematically removed from the study, preserving the robustness of the analytical framework.

4.3 Data Collection

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4.3.1 Data Sources and methods

This research method deployed an impressive gamut of primary data sources to overcome limitations of analysis and data. Companies' annual reports were the most valuable source of information used in the research as they offered detailed annual data on the financial situation, strategic activities, and organisational features of the chosen subjects. Such documents provided a clear and official inside of the financial stability, management, and strategic placement of

every organization in the market place.

Besides the annual reports, official publications of the Egyptian Exchange (EGX) were also useful in supporting, substantiating the research findings. These official sources gave basic and authentic market information which gave a clear structure and bench mark for referring to when analyzing the company-specific information from the specific annual reports. By using not only company-related but also exchange-endorsed sources, the research guaranteed accurate and poly-dimensional data collection and analysis.

4.4 Variables and Measurement

4.4.1 Financial Performance Metrics

The research will focus on analyzing the relationship between two primary categories of variables: independent and dependent. The independent variable in this research work is the ESG index which is listed in the Egyptian Stock Exchange. This variable is a convenient and exhaustive index of environmental and ethical responsibility of a firm, including environmental, societal and governorship responsibilities.

Complementing the independent variable, the dependent variables encompass three critical financial performance metrics: Return on Asset (ROA), Return on Equity (ROE) and Earning per Share (EPS). These indicators are basic in the evaluation of the financial stability, earnings capacity and general economical performance of a company. Thus, to achieve the research objectives, the seemingly relationship between the ESG index and the financial performance indicators was established, as detailed next:

4.5 Methods

4.5.1 Quantitative Analysis Techniques

The quantitative analysis for this research will use an analysis of the data obtained intensively. As the initial analytical approach the descriptive statistics is planned to be used to give an overall picture of the dataset, trends, averages and variability of its features. This initial analytical stage will be very useful in an attempt to capture the broad distribution of the variables under study and some of the overwhelming characteristics they possess (Li, Fang, & Pang, 2014).

As part of the research method, diagnostic tests will be conducted to confirm or reject the

statistical assumptions and consequently the steps in analysis. These tests will assist in establishment of a number of problems including multicollinearity, heteroscedasticity or any other distribution related problems affecting the results of the research (Zhou, Obuchowski, & McClish, 2014). Ordinary least square regression will form the core of the analysis due to their capacity to manage multiple company on ESG index and various financial performance indicators (Bollen & Brand, 2010).

4.5.2 Statistical Tools

To ensure rigorous and comprehensive data analysis, the study will leverage advanced statistical software packages, specifically STATA and SPSS. These robust platforms will enable sophisticated data manipulation, complex statistical modeling, and comprehensive result interpretation. The research will employ a range of robust statistical testing methods to enhance the credibility and reliability of the analytical outcomes, ensuring that the findings are statistically sound and methodologically sophisticated (Whittier, Wildhagen, & Gold, 2019).

4.6 Ethical Considerations

4.6.1 Data Privacy and Confidentiality

Data privacy and confidentiality constitute a critical aspect of this research methodology. The study will strictly adhere to financial reporting regulations, maintaining the highest standards of professional and academic integrity. Sensitive corporate information will be anonymized where necessary, protecting the confidentiality of individual corporate entities. Furthermore, the research will fully comply with the Egyptian financial market disclosure guidelines, ensuring transparency and ethical data handling (Leuz & Wysocki, 2016).

4.6.2 Research Integrity

Maintaining research integrity is paramount to the study's credibility. The researcher commits to transparent reporting of methodological limitations, acknowledging potential constraints that might impact the study's findings. Data interpretation will be conducted with unwavering objectivity, free from bias or undue influence. Comprehensive documentation of research procedures will be maintained, creating a clear and traceable path of the entire research process, thus enabling potential future replication and independent verification (Pelzang & Hutchinson, 2017).

4.7 Limitations

4.7.1 Potential Research Constraints

The research acknowledges several potential constraints that may impact the study's scope and findings. Data availability restrictions could pose challenges in comprehensive data collection, potentially limiting the breadth of the analysis. Market volatility during the study period may introduce additional complexity, requiring careful consideration and nuanced interpretation of the results. External economic factors that might affect company performance will be carefully considered, recognizing that broader economic contexts can significantly influence individual corporate performance and the relationships between ESG indices and financial metrics.

4.8 Conclusion

The choice of methodology gives guidance on how the EGX100 companies are to be analyzed from 2017 to 2023 and offers comprehensive, credible, and valuable study findings. Although this research constitutes a vital exploration of complex connection between ESG indices and firm performance in the Egyptian context focusing on the Egyptian Stock Exchange. Thus, by empirically examining the relationships between ESG factors and major business performance measures including ROA, ROE and earning per share the study will be able to provide important findings into the potentially promising line of literature on sustainable corporate performance.

The research methodology used in this study is both quantitative and combines adherence to systematic study procedures, as well as formal research ethics. Similarly, while using panel data techniques, different regression models, and other diagnostic tests, the research aim to go a step further than conventional financial analysis.

As such, the research aims at furthering the understanding of the contemporary corporate environment in which firms are operating through examining the nature of ESG practices as well as a correlation between ESG practices and R & M performance.

The relevance of this study goes further than providing a basis for academic discussions; it bears some potential applications for corporate planners, stakeholders, and policymakers in the Egyptian financial system. In that respect, the research results may help explain the economic rationale for sustainability and ethics and may lead more to holistic views of firm advancement that take into consideration both profit and the public good.

Despite the weakness of the study that are involved by limitations of the research like data availability and the variability of the market this study is less biased. The combination of the

extensive research method with ethical guidelines also augments the study conclusions helpful in configuring the ESG indices and the performances of emerging market firms' valid. With the growing global awareness on sustainable business, this study fills an important gap by doing a systematic reflection on how the concept of sustainability can affect and improve firm valuation models. These insights could provide the basis for a conceptual map for more extensive systematic, empirical, official and corporate investigation, planning, and advancement of sustainable corporate performance in the emerging context.

4. Data result

4.1 Descriptive statistic

2 Table (4.1): Summary of Descriptive analysis

Variable	Obs	Mean	Std. dev.	Min	Max
Climate change policy (ESG)	203	703.45	75.97244	581.41	844.36
ROA	203	0.091831	0.145128	0.001237	0.88332
ROE	203	0.163293	0.088405	-0.02543	0.880912
EPS	203	1.529083	2.371761	-4.05	9.69

Source: Calculations based on data collected from EGX100 using Stata 17

A summary of 203 observations exists in the table which presents Climate Change Policy (ESG) together with ROA, ROE, and EPS. Firms display solid ESG performance across the board since their average score reaches 703.45. They also demonstrate moderate standard deviation at 75.97. The mean profitability indicators ROA and ROE demonstrate 9.18% and 16.33% positive values though some companies report losses with ROE at its lowest point at -2.54%. The firms demonstrated varying levels of profitability as measure by EPS through an average value of 1.53 and expansive variation between -4.05 and 9.69. The collected data presents various profitability levels across firms because measurement results differ among companies.

4.2 Correlation analysis

3 Table (4.3): Correlation Coefficients for the phenomenon based on Pearson approach

	EPS	ROE	ROA	Climate change policy (ESG)
EPS	1			
ROE	0.275	1		
ROA	0.692	0.998	1	
Climate change policy (ESG)	0.670	0.607	0.553	1

Source: Calculations based on data collected from EGX100 using Stata 17

From table above, it is shown that there is a positive weak significant relationship between EPS and ROA. In addition, there is a positive strong significant relationship between EPS and ROA. Finally, there is a positive strong significant relationship between EPS and Climate change policy (ESG). This interpretation does not show the suggested hypotheses acceptance whether only the strengths of the relationships between the variables. Hence, further analysis should be conducted to respond to the suggested hypothesis.

4.3 Multicollinearity test

4 Table (4.4): Variance Inflation Factor values of the variables

	1/VIF	VIF
Climate change policy (ESG)	0.991	1.009
GPM	0.915	1.092
Firm Size	0.872	1.146
CAR	0.810	1.235

Source: Calculations based on data collected from EGX100 using Stata 17

A table reveals Variance Inflation Factor (VIF) measurements along with their reciprocal versions (1/VIF) for ESG as well as GPM and Firm Size and CAR. The multicollinearity between variables remains low because VIF values between 1.009 to 1.235 easily fall under the established threshold of 10. The reciprocal 1/VIF values also approach 1 which shows that multicollinearity does not exist between these variables. The selected variables have appropriate characteristics to enter regression analysis because they minimize the risk of inappropriate standard errors along with redundancy.

4.4 Heteroscedasticity test

5 Table (4.5): Breusch Pagan test for heteroscedasticity for each Model

	P-value
ROA	0.4330
ROE	0.1630
EPS	0.3295

Source: Calculations based on data collected from EGX100 using Stata 17

The Breusch Pagan test applied to heteroscedasticity showed that the selected model complies with this assumption. The null hypothesis of Breusch Pagan test states that both normal error terms and constant variance exist but alternative findings suggest data is not homoscedastic (Halunga, Orme, & Yamagata, 2017); (Martin, 2023). The p-values exceeding 0.05 indicate the model verifies the condition of homoscedasticity.

4.4 Pooled effect model

4.4.1 Stationarity test

Variables	Test Statistic	P-value	Decision
Climate change policy (ESG)	-3.9134	0.0000	Stationary
ROA	6.0649	1.0000	Stationary
ROE	-5.6123	0.0000	Stationary
EPS	-8.4207	0.0000	Stationary
Firm Size	-3.6790	0.0001	Stationary

CAR	-3.507	0.0000	Stationary
GPM	-4.0625	0.0000	Stationary

Source: Calculations based on data collected from EGX100 using Stata 17

The table shows that all variables have been tested for stationarity, with significant p-values confirming that they are stationary under the Pooled Effect Model.

4.5 Model Building (Ordinary least square regression)

4.5.1 first model of ROA

6 Table (4.6): Model 1

ROA	Coefficient	Std. err.	t	P>t
ESG	0.532563	0.109298	4.87	0.000
GPM	3.325648	0.866382	3.84	0.000
Firm Size	0.252708	0.11022	2.29	0.022
CAR	-0.64682	0.291899	-2.22	0.028
_cons	0.548575	0.106613	5.15	0.000

Sig values: ***<0.01, **<0.05, *<0.1, "">0.1

Source: Calculations based on data collected from EGX100 using Stata 17

For the first model, the results shows that ESG has a positive significant effect on ROA at 99% confidence level which aligns with study (Nguyen, Hoang, & Tran, 2022). This means that the suggested first hypothesis is accepted.

4.5.2 Second model of ROE

7 Table (4.7): Model 2

ROE	Coefficient	Std. err.	t	P>t
ESG	0.158839	0.071543	2.22	0.028
GPM	0.018228	0.03402	0.54	0.593
Firm size	0.480157	0.061785	7.77	0.000

CAR	-0.33385	0.196424	-1.7	0.091
_cons	0.157142	0.071742	2.19	0.03

Sig values: ***<0.01, **<0.05, *<0.1, "">0.1

Source: Calculations based on data collected from EGX100 using Stata 17

For the first model, the results shows that ESG has a positive significant effect on ROE at 95% confidence level which aligns with study (De Lucia, Pazienza, & Bartlett, 2020). This means that the suggested second hypothesis is accepted.

4.5.3 Third model of EPS

8 Table (4.8): Model 3

EPS	Coefficient	Std. err.	t	P>t
ESG	0.003587	0.002095	1.71	0.088
GPM	3.325648	0.866382	3.84	0.000
Firmsize	0.252708	0.11022	2.29	0.023
CAR	-0.69534	5.002252	-0.14	0.89
_cons	0.254935	0.113959	2.24	0.026

Sig values: ***<0.01, **<0.05, *<0.1, "">0.1

Source: Calculations based on data collected from EGX100 using Stata 17

For the first model, the results shows that ESG has a positive significant effect on EPS at 90% confidence level which aligns with study (Setyaningsih & Wibowo, 2024). This means that the suggested third hypothesis is accepted.

4.6 R square model evaluation

9 Table (4.9): Model R square analyses

Models	R	R2	Adjusted R2
Model 1 of ROA	0.55	0.31	0.29

Model 2 of ROE	0.62	0.39	0.37
Model 3 of EPS	0.66	0.44	0.42

Source: Calculations based on data collected from EGX100 using Stata 17

The R-square (R^2) results from three models demonstrate that the independent variable (ESG) helps moderately explain the dependent variables. ESG explains 31% of the variance that drives ROA based on the findings in Model 1. ESG proves able to explain 39% of changes in ROE based on the R square statistic in Model 2 (ROE). The R-squared value of Model 3 (EPS) reached the highest point at 0.44 which demonstrates that ESG factors explain 44% of EPS variation. Model adjustment through Adjusted R^2 values shows slight reduction yet the analysis trends remain equivalent. The relationship between ESG and EPS together with ROE shows greater strength compared to ROA.

4.7 Discussion

ESG measures of climate change policy generate robust and beneficial associations with ROA and ROE and EPS results showed different degrees of strength and scope. Research outcomes reveal essential insights about climate policy effects on company performance together with their influence on environmental governance and financial results throughout the Egyptian business environment.

Relationship with ROA the strongest association was identified between ESG and ROA, with a highly significant positive coefficient of 0.533 ($p < 0.01$). The solid findings shown here agree with the findings of (Nguyen, Hoang, & Tran, 2022), which suggest that businesses that follow more strictly to climate policy likely to attain higher levels of asset utilization and profitability. Climate legislation compliance demonstrates substantial significance because it results in substantial operational and resource management performance improvements.

Several unknown factors most likely create the powerful relationship between ROA and compliance programs. Climate policy measures lead to operational enhancements and better resource efficiency because these elements enhance profit performance directly. Organizations installing environmental management systems and energy efficiency structures typically notice waste reductions combined with decreased resource use while their production operations become more efficient. The implementation of strict climate policy often demonstrates superior organizational management capabilities with strategic thinking abilities that lead to maximized

assets utilization throughout all business operations.

Modernizing equipment bases and processes stands as a necessary condition for companies to meet climate policy requirements. Modernization delivers higher production capacity and leads to less maintenance expenses. Research that went before identified regulatory compliance costs as climate policy benefits, yet new findings demonstrate operational performance enhancements arising from such policies. The substantial size of ROA effect indicates that Egyptian organizations could access substantial operational efficiency improvements from implementing climate change legislation.

The relationship between environmental, social, and governance variables (ESG) and the return on equity (ROE) yielded a significant positive result ($p < .05$) with a coefficient value of 0.159. The results match those of (De Lucia, Pazienza, & Bartlett, 2020) who showed that climate policy measures can enhance shareholder returns because they improve both risk management and strategic market positions. Even though the ROA coefficient shows higher numbers ROE and climate policies provide shareholder value still requires external factors to complete the translation process.

Studies indicate that the ROE effect demonstrates moderate results because various factors come into play. Climate policies support operational efficiency, yet their initial implementation costs create temporary negative impacts on short-term equity returns. The implementation benefits from climate policy tend to be distributed among stakeholders beyond shareholders although primarily to customers, employees and suppliers. Such situations are likely to happen rather than their opposite. Market recognition of climate policy benefits struggles to catch up with operating advantages in emerging economies because their environmental social governance (ESG) factors are under development.

These findings help to explain benefit distribution throughout stakeholders which demonstrates why organizations must properly manage funding structures when implementing climate policy. The association between Environmental Social Governance (ESG) variables and Earnings Per Share (EPS) remained statistically insignificant with a positive effect of 0.004 ($p < 0.1$) according to (Setyaningsih & Wibowo, 2024).

The weak relationship between climate policy implementation and earnings per share metrics may stem from the multiple factors that affect earnings per share while also showing that climate policy benefits need time before showing direct effects on shareholder metrics. The study provides decisive information about climate policy market valuation through its

confirmation of the weak EPS relationship which is a substantial finding. Market participants in Egypt might still be in the process of factoring in the financial value of meeting climate policy requirements because their coefficient is so low. The relationship depends on varying investor education levels together with specific periods of investment duration.

Climate policy implementation may demonstrate its advantages better through operational metrics rather than market-based metrics at the start of policy enactment. The research highlights potential opportunities to better explain climate policy merits to markets and indicates a requirement for extended duration environmental program evaluation frameworks.

The control variables provided various important findings that helped understand the main results better. All models revealed positive constant effects from company size thus indicating that larger businesses obtain superior advantages from climate policy programs. The large companies exhibit various scale advantages since they possess more execution resources and better administrative capabilities as well as stronger technological access and experienced management structures.

The negative sign on the CAR variable in model comparison leads to unclear questions about how capital structure affects climate policy efficiency. The study demonstrates that corporations with substantial capital encounter reduced pressure for operational enhancements but increased debt capacity tends to result in superior climate policy implementation for improved efficiency across their operations. Positive relationships exist between the GPM and performance metrics as stronger market positioning enables companies to invest in climate policy initiatives and benefit from them. The effectiveness of implementing climate policies requires analysis of market conditions and competitive elements according to this finding.

The study generates various novel findings that extend academic knowledge about climate policy effects on business operations. This paper provides a thorough assessment of how climate policy impacts different business performance indicators throughout Egypt's corporate sector. This research presents a complete understanding of climate policy impacts on different company performance indicators which stands distinct from studies focusing on single indicators or particular industries.

Changes in the strength of connections between ROA, ROE and EPS metrics indicate different ways climate policy might benefit companies through various performance metrics. The complexity of climate policy impacts exceeds simple explanations of costs and benefits since its effects vary among variables and evolve with time duration.

This study adds new evidence that illustrates how business elements determine the reception of climate policy benefits. Control variables maintain their persistent effects which demonstrates that company dimension together with financial makeup and market leadership substantially determine a firm's capability to achieve increased performance from climate regulations. The entire human performance system relates to business success because each factor directly influences corporate output.

According to these findings practitioners and policymakers need to understand various meaningful implications that emerge. The results from company executive perspectives suggest that climate policy measures create significant profit opportunities which derive mainly from operational efficiency improvements. Although the correlation strength differs between success criteria this shows that evaluation of climate policy requires patient examination over the long term.

Policymakers became aware of the importance of firm attributes and market conditions for climate policy development through the obtained research findings. The superior implementation advantages observed for big companies suggest that additional backing is needed to help smaller businesses deal with implementation barriers. The findings demonstrate the necessity for enhancing market-based EPS measurements because they show weak association with regulatory compliance efforts within climate policy.

Specific Restrictions and Suggestions for Future Research

The research outcomes should be evaluated taking into consideration the limitations that came from the study design. The research examines Egyptian enterprise settings but its study findings might have restricted application to other business environments. The ESG measurement fails to include complete climate policy compliance characteristics while also possibly missing extended effects from climate policy implementation during the researched period.

Research in the future should target these limitations by performing studies that span across complete policy implementation cycles and analyze precise classes that connect climate policy to enhanced performance and examine both sector and model-based differences and track market-level climate policy understanding development.

Greater Consequences for the Promotion of Sustainable Development

These research findings create important repercussions regarding corporate sector activism in

climate change solutions. Signs indicate that environmental responsibility can coexist with financial success since climate policy shows positive relations with performance indicators. This link displays high complexity yet requires advanced approaches to design and execute policies because associations between indicators show different strengths. The data shows that market systems alone cannot effectively recognize or distribute the climate policy advantages thus pointing out the potential importance of policy interventions together with market expansion. Operational benefits (ROA) present substantial opportunities for improvement since they significantly surpass the levels of market recognition (EPS) for environmental objectives.

The analysis investigates climate policy effects on Egyptian corporate performance to generate fresh insights supporting economic perspectives on environmental stewardship. The degree of positive association shifts between different performance variables indicates an intricate but generally beneficial relationship exists between climate policy implementation and corporate success. The research findings can guide the designing of new policies and decision making at companies along with identifying essential areas for additional market development.

The study indicates that climate policy strategies deliver practical benefits for companies along with environmental accomplishments. Companies need access to patient financial resources together with complex execution procedures along with detailed analysis of their operational characteristics and market environment. These findings could direct better actions from both industries and national governments during the ongoing climate change crisis at the global level.

5. Conclusion

A study evaluated how climate change policy measured through ESG indices affects the performance of Egyptian corporate entities which list on the EGX100. The study investigated the link between climate change strategies and three financial measurement indicators including ROA and ROE alongside EPS.

Climate policy implementation shows positive effects on organizational performance but produces different results based on evaluation of financial performance metrics. The investigation showed the strongest relation exists between ROA and ESG compliance because effective ESG practices lead to operational excellence with better resource allocation and reduced costs. The analysis reveals medium effects on ROE which signifies that ESG policies establish shareholder value although their financial benefits develop at a gradual pace. The evaluation of EPS demonstrated the shortest relationship with climate policy advantages hence

demonstrating that market value assessments do not quickly integrate these policy benefits. Climate policy impacts depend on firm size together with capital structure and market conditions according to the study findings. Larger companies obtain more significant ESG compliance advantages from economies of scale, better access to sustainable finance and their advanced sustainable practices. Small enterprises confront significant obstacles with compliance expenses thus requiring enhanced backings from both financial establishments and policymakers to succeed. The study outcomes enhance the broader sustainability governance research by demonstrating the requirement of specific policy approaches for distributing positive impacts throughout the sustainable transition process.

5.1 Recommendations

5.1.1 Academic recommendations

Studies about climate change policy effects on corporate financial performance within emerging economies have produced important findings but numerous critical research areas need further academic investigation. Future research on this topic would provide better value through the exploration of various national frameworks to identify if detected connections continue to persist within alternative governance systems. The study could perform an analysis of Egyptian responses within MENA and worldwide countries to understand better how climate policy integration occurs in business models.

The research analyses firms from the EGX100 index but requires further distinctions on an industrial level like this study does. The different industries of the energy sector combined with manufacturing and finance display varying responses to climate regulations based on their individual carbon emissions and levels of inspection. Public officials along with business managers would benefit from understanding specific sector variations when they receive detailed information about these differences. To determine how climate policies impact companies' scientists need to collect extended research data over time. Research needs to extend its time scope because climate-related investments deliver long-term returns that establish the full financial results of their initiatives. Extended observational periods serve as a critical requirement to determine the accurate relationship between climate policy compliance and business performance outcomes.

The existing quantitative research method would be enhanced substantially by adding qualitative approaches to examine this multifaceted topic better. Research interviews with

corporate heads and sustainability experts and policymakers will yield essential information about the realistic hurdles and possibilities that come up when businesses enforce ESG compliance standards. Firsthand observations from industry representatives would bring to light hidden aspects behind the examined relationship which quantitative analysis alone cannot expose.

Finally, future research should delve into market perception analysis to understand how investors and other market participants respond to climate policy compliance. Researchers would examine the stock market reactions that happen when companies perform climate-related actions including environmental disclosure as well as green bond issuance and sustainability report publication. The analysis of market dynamics regarding climate policy compliance would give essential knowledge regarding how such policies effect firm value as well as how investors respond.

5.1.2 Practical recommendations

The research findings advise policy makers and corporate leaders and investors about implementing climate policy and corporate sustainability across various sectors of the economy. To improve ESG regulations the Egyptian government must enhance climate disclosure requirements together with sustainability reporting standards while establishing proper ESG integration processes for governance structure implementation. In recognition of limited resources among small and medium-sized enterprises (SMEs) policymakers should create specific assistance programs through incentives that include fiscal benefits and low-interest green loans to guide their sustainable business model shifts. ESG-compliant projects receive essential access to capital from green financing which is enabled through dedicated investment funds together with sustainability-linked financial instruments. Furthermore, enhanced public-private partnerships between government bodies, financial institutions, and industry stakeholders would create a more robust framework for implementing climate policies effectively.

Corporate leaders face their own set of imperatives in response to these findings. Rather than treating sustainability as a mere compliance issue, companies should fully integrate ESG goals into their core business models. Implementing this integration requires major green innovation funding which must focus on renewable energy development alongside waste reduction methods and energy efficiency optimization. The market valuation and investor confidence will increase through transparent sustainability disclosures along with complete assessments of

climate risk in ESG reporting systems. Organizations must actively explain their ESG programs to draw green investors and institutional entities that only invest in sustainable business designs.

The research shows that sustainability considerations should play a vital role when investors evaluate their investment options because ESG-guided companies demonstrate sustainable long-term value. Investors must actively push for improved governance systems which put climate risk management above all else. When investors participate proactively with companies, they establish a beneficial pattern that reinforces responsible business operations and accelerates the shift toward a carbon-free economy. The proposed recommendations introduce an organized strategy for implementing climate policy and corporate sustainability advancement in Egypt's market framework. All stakeholders who support the development of sustainable business infrastructure must uphold continuous partnership to achieve these strategic initiatives.

The EGX100, an index of the 100 most active companies on the Egyptian Stock Exchange, spans diverse sectors such as financials, real estate, industrials, consumer goods, and telecommunications. The implementation of Environmental Social and Governance principles (ESG) enhances sectors in three ways: it raises operational effectiveness and draws more investment and enables lasting business development. ESG principles can enhance each sector in the EGX100 according to global trends and specific Egyptian observations that we discuss below.

5.1.2.1 Financial Sector

The EGX100, an index of the 100 most active companies on the Egyptian Stock Exchange, spans diverse sectors such as financials, real estate, industrials, consumer goods, and telecommunications. The implementation of Environmental Social and Governance principles (ESG) enhances sectors in three ways: it raises operational effectiveness and draws more investment and enables lasting business development. ESG principles can enhance each sector in the EGX100 according to global trends and specific Egyptian observations that we discuss below.

5.1.2.2 Real Estate and Construction

Real estate and construction firms in the EGX100, such as Talaat Moustafa Group, can leverage ESG to address environmental and social challenges. Environmentally, adopting green building

standards (e.g., LEED certification) reduces energy consumption and waste, lowering costs and aligning with Egypt's push for sustainable urbanization. Socially, ensuring safe working conditions and fair wages for construction workers can enhance reputation and reduce labor disputes. Governance practices, like transparent land acquisition processes, can mitigate legal risks. ESG-focused real estate firms can attract foreign direct investment, as global funds prioritize sustainable urban development, especially in Egypt's rapidly growing cities like the New Administrative Capital.

5.1.2.3 Industrials and Manufacturing.

The industrial sector, including companies like Ezz Steel, faces environmental scrutiny due to high emissions and resource use. Environmental ESG strategies, such as adopting cleaner production technologies and reducing water usage, can lower operational costs and comply with stricter regulations. Socially, improving worker safety and community engagement—such as supporting local infrastructure—can reduce conflicts and enhance brand loyalty. Governance enhancements, like supply chain audits to ensure ethical sourcing, can mitigate risks of reputational damage. By aligning with global ESG standards, industrial firms can access international markets and partnerships, boosting competitiveness in the EGX100.

5.1.2.4 Consumer Goods and Retail

ESG presents benefits to consumer goods and retail organizations including Eastern Company (tobacco) by enabling them to meet shifting consumer demands. Companies that reduce their packaging waste together with adopting sustainable raw materials supplies will lower their expenses while attracting eco-minded buyers. Brand reputation alongside avoidance of controversies becomes achievable as supply chains enforce fair labor standards according to social principles particularly within agricultural industries. Companies that make their prices clear to customers along with their use of ethical marketing practices will gain the trust of their consumers. Firms that adopt ESG practices achieve competitive market differentiation which allows them to obtain capital from ESG-specific investment funds and improves long-term profitability in the EGX100.

5.1.2.5 Telecommunications

The energy sector continues to experience pressure for converting towards sustainable operational approaches by enterprises active in utilities or oil and gas operations. Firms looking to support environmental sustainability should consider investing in renewable power projects

including wind and solar operations to help Egypt achieve its goal of obtaining 42% renewable energy by 2035. Successful energy projects can be achieved by social engagement between firms and communities near these projects. The implementation of transparent contract bidding procedures helps minimize corruption opportunities across the organization. Companies that adopt ESG practices enhance their market value in the EGX100 because they become preferable investments to international stakeholders who focus on zero-carbon portfolios

5.1.2.6 Energy and Utilities

The energy sector continues to experience pressure for converting towards sustainable operational approaches by enterprises active in utilities or oil and gas operations. Firms looking to support environmental sustainability should consider investing in renewable power projects including wind and solar operations to help Egypt achieve its goal of obtaining 42% renewable energy by 2035. Successful energy projects can be achieved by social engagement between firms and communities near these projects. The implementation of transparent contract bidding procedures helps minimize corruption opportunities across the organization. Companies that adopt ESG practices enhance their market value in the EGX100 because they become preferable investments to international stakeholders who focus on zero-carbon portfolios.

ESG integration within EGX100 sectors will improve operational efficiency while minimizing business risks and pull in international capital which makes Egypt a sustainable financial leader in the MENA region. The specific challenges within each sector when applying ESG principles enables increased financial performance and benefits society more effectively. The analysis of S&P/EGX ESG Index between 2007 and 2020 demonstrates that ESG-focused enterprises generate superior performance compared to standard market indices during market disruptions which indicates heightened resistance capabilities for EGX100 firms. Organizations which follow ESG strategies can support Egypt's sustainable development targets leading to extended market success and business excellence.

5.2 Future direction

The results combined with restrictions in this study create multiple promising research directions toward better understanding of how climate policies affect corporate business performance. The investigation needs cross-border research that studies how climate regulations impact firms operating within emerging markets as well as developed economies. The evaluation of different regulatory systems through comparison would expose proven international strategies while assessing how each policy framework performs. Research designs

spanning 10-20 years would present great benefit for understanding climate-related investments because of their extended duration. Utilizing extended research periods allows researchers to properly evaluate how ESG policies perpetually affect financial outcomes by identifying outcomes which shorter studies cannot detect. The analysis of ESG effects on different business sectors would become more specific when researchers conduct studies targeted at renewable energy, banking, and manufacturing industries because these sectors exhibit different environmental impacts and regulatory conditions.

The research field needs to understand market dynamics by studying both behavior and market analyzation. The analysis of market reactions together with stock price movements to ESG disclosures coupled with the study of investor sentiment would allow better understanding of climate policy valuation by markets. The analysis of technological innovation in ESG compliance requires study to understand how artificial intelligence, blockchain and big data analytics affect ESG reporting and implementation practices. International climate accords create a beneficial research domain for examining their effects on corporate sustainability initiatives.

Research on global climate agreements including the Paris Agreement needs to highlight how these arrangements affect corporate activities at national and firm levels to assess international climate governance systems. The analysis between companies implementing strong ESG practices and their credit rating performance and borrowing expenses will provide incentives to support sustainable business operations. Several lines of research can advance our knowledge about the effects of climate policies on company conduct together with proven approaches to spur sustainable business conduct within the rising global climate-conscious economy.

In summary, this research performs an extensive examination of how changes in climate policy impact financial corporate results in Egypt. Measures of ESG compliance trigger positive relationships with ROA, ROE and EPS statistics but show different degree of strength. This research shows that financial outcomes for climate policies mainly depend on organizational size along with government backing and marketplace elements.

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