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## From Ratings to Returns: Exploring the Impact of ESG Ratings on Portfolio Returns in Egypt

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**Dalia El Mosallamy**<sup>1</sup>

Department of Business Administration, Economics and Political Science  
The British University in Egypt  
E-mail: [dalia.elmosalamy@bue.edu.eg](mailto:dalia.elmosalamy@bue.edu.eg)

**Ayat Saleh El Mansoury**<sup>2</sup>

Department of Business Administration, Economics and Political Science  
The British University in Egypt  
E-mail: PG.Ayat92394020@bue.edu.eg

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**Abstract:** This paper aims to investigate the impact of Environmental, Social, and Governance (ESG) scores on portfolio performance within the Egyptian market in the period from January 2020 to December 2022. Drawing on ESG scores sourced from the Egyptian stock exchange and the Refinitiv-Eikon database, portfolios are created by ranking individual stocks from highest to lowest based on their ESG (Environmental, Social, and Governance) scores. To construct the portfolios, all stocks are initially ranked in descending order based on their ESG scores. Subsequently, the top 45% of stocks with the highest ESG scores are allocated to the "Top" portfolio, while the bottom 45% of stocks with the lowest ESG scores are assigned to the "Bottom" portfolio. The performance of a total of eight portfolios was then analyzed utilizing the capital asset pricing model (CAPM) and portfolio performance-based evaluation measures. Descriptive statistics and risk-adjusted portfolio performance measures revealed a consistent trend of underperformance across ESG categories among the portfolios constructed. Further analysis employing the Capital Asset Pricing Model (CAPM) provided insights into portfolio returns relative to market expectations. While some portfolios displayed positive performance indicators, overall findings underscored the need for reevaluation and potential adjustments in investment strategies to better align with desired ESG objectives and enhance portfolio performance. This research contributes to the growing literature on sustainable investing in Egypt, emphasizing the importance of incorporating ESG considerations into investment decisions for long-term financial sustainability.

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<sup>1</sup> **ORCID Id:** 0009000401628454

<sup>2</sup> **ORCID ID:** 000900062293268

## Introduction

Since the first "Earth Day" in the United States on April 22, 1970, discussions surrounding environmental issues have expanded significantly, influencing political agendas globally (Martins, 2022). Global economic progress has led to environmental degradation caused by human activity, sparking discussions on sustainability among politicians, businesses, and investors (Dean & McMullen, 2007). The push for more sustainable financial ecosystems was articulated in a 2004 report by the United Nations titled "Who Cares Wins" (Ehrnström & Nehmé, 2023). This report urged companies to adopt ESG frameworks and enhance their disclosure practices. The concept of ESG emerged externally as a framework for evaluating the sustainable impact and commitment of companies in quantifiable terms (McKinsey, 2023). This term became prominent at the start of the 21st century, with a notable increase in scholarly publications on the topic since 2017 (Senadheera *et al.*, 2022). Macey (2022) argued that in the US market, almost half of investors were actively engaged in ESG investments, representing a substantial increase as evidenced by the doubling of investors integrating ESG products into their portfolios since 2019. Investors are now placing considerable emphasis on the ESG policies of managers when making investment decisions. This is evidenced by the fact that a substantial majority (88%) of U.S. investors inquire about how ESG factors are integrated into a manager's investment strategies (Capital Group, 2022). A survey conducted by Morgan Stanley Bank revealed that nearly 90% of respondents express a preference for investments that align with their personal values (Stanley, 2019).

The year 2020 was characterized as a pivotal period for ESG investing, with ESG funds attracting a record \$51.1 billion in net new investments, which is more than double the amount seen in 2019. According to a recent report from Bloomberg Intelligence, the total value of global ESG assets exceeded \$30 trillion in 2022. Projections indicate that these assets are set to surpass \$40 trillion by 2030, representing more than 25% of the anticipated \$140 trillion in assets under management (AUM) (Renzis & Mosson, 2024).

Jacobsen (2021) argued that this growth had been driven by a growing recognition of today's environmental and social challenges, prompting investors to demand action from companies and governments, which was specifically intensified with the recent COVID-19 crisis, leading to a surge in investment in socially responsible investment (SRI) practices. Investors are now evaluating companies' ESG (Environmental, Social, and Governance) performance to avoid endorsing unethical conduct. The reasons for integrating ESG measures vary: some investors avoid "sin" investments altogether to

uphold moral standards, while others do so to potentially identify market-leading performers (Jacobsen, 2021). This trend is compelling companies to move the focus from only enhancing shareholder value to considering the interest of all stakeholders, marking a shift from shareholder capitalism to stakeholder capitalism (Silkon, Lu, Lipton, 2022). This paper aims to contribute to the debate on whether Environmental, Social, and Governance (ESG) ratings have an impact on portfolio performance in Egypt. The investigation is grounded on ESG ratings sourced from the Refinitiv database and focuses on the EGX 30 Index across the timeframe spanning from January 2020 to December 2022. Following the work of Zehir & Aybars (2020), we constructed ESG portfolios from companies listed in the EGX 30 index to explore whether “Top Portfolios” in Egypt, composed of ESG leaders, exhibit significant performance distinctions in comparison to “Bottom Portfolios”, consisting of ESG laggards. This was achieved by constructing decile portfolios based on companies' relative ESG ratings, utilizing a positive screening methodology. To evaluate the portfolios' comparative performance, various measures of risk and return are computed. Additionally, the returns are evaluated using established performance evaluation models, such as the Capital Asset Pricing Model performance-based evaluation measure.

This study is essential because there is a notable gap in research concerning the impact of ESG (Environmental, Social, and Governance) ratings on portfolio performance, especially in emerging markets. Despite the growing global interest in sustainable investing and ESG integration, there is limited empirical evidence and analysis focused on the MENA region in general and Egypt's investment landscape in specific (Abdelmalak, 2024). This study aims to contribute to the debate by providing valuable insights and data-driven conclusions regarding the relationship between ESG considerations and portfolio performance in Egypt.

This paper is structured as follows; Section 2 shows the literature, section 3 shows the methodology and data analysis followed by conclusions and areas for future research.

## **Literature Review**

### **Socially Responsible Investing**

Historically, investors pursued investments primarily based on the criterion of yielding the highest anticipated returns given the lowest possible risk. However, an increasing number of investors have now begun integrating non-financial metrics into their decision-making processes, including social and environmental considerations. This trend, commonly referred to as Socially Responsible Investing (SRI), lacks a formal definition but is frequently associated with sustainable principles that aim to fulfil present needs without compromising the capacity of future generations to meet their

own requirements (Ng, 2019). SRI entails a methodical evaluation of the Environmental, Social, and Governance (ESG) implications of investments. Although terms such as ESG investing, social investing, socially aware investing, green investing, value-based investing, and mission-based investing are often used interchangeably with responsible investing (Camilleri, 2020), for the sake of clarity, the terms SRI and ESG investing will be used consistently henceforth.

## **2.2 Environmental, Social, and Governance (ESG)**

ESG, which stands for Environmental, Social, and Governance, constitutes a vital component of socially responsible investment (SRI) strategies and often serves as the primary focal point in discussions regarding non-financial investment criteria. In the context of this paper, ESG encompasses the criteria by which companies are evaluated concerning their social performance. Specifically, it encompasses the three core areas of Environmental (E), Social (S), and Governance (G). These areas delineate the various aspects within which companies are assessed to determine their ESG scores, which in turn inform the allocation of stocks to their respective portfolios (Yang et. al, 2023).

ESG serves as a set of criteria and standards utilized by socially responsible investors to evaluate potential investments. According to Singh (2022), three primary drivers are motivating the incorporation of ESG considerations: Integration, Values, and Impact. Integration involves the systematic incorporation of ESG risks and opportunities into investment decision-making processes, to enhance long-term risk-adjusted returns. Some investors argue that integrating ESG scoring metrics can help mitigate significant financial risks, thereby potentially increasing overall returns (Yin, Li, & Su, 2023). Values-driven investing, on the other hand, aligns with an organization's or individual's moral beliefs, reflecting the historical roots of socially responsible investing (SRI). Finally, the objective of impact investing is to make investments that actively contribute to positive social or environmental outcomes (Yasar, 2021).

Environmental performance often takes precedence when discussing the components of socially responsible investing (SRI) according to Berry and Junkus (2010). This emphasis can be attributed to the increasing attention given to environmental challenges over the past decade, which has led to its dominant role in assessing companies' non-financial performance. Moreover, environmental metrics are often easier to assess compared to social and governance metrics due to their quantifiable nature (Knuthsen, 2021).

Common environmental measures include waste management, recycling practices, energy and water consumption, resource utilization, and pollution control (Peixoto, Machado, & Richter, 2022). These measures primarily gauge how companies address climate change and related risks.

Social factors focus on employees and local communities, encompassing areas such as human rights, labour practices, health and safety standards, community impact, diversity, and minority contracting. Governance factors center on management rules and principles, including reporting practices, accountability, code of conduct, board independence, transparency, ethical issue management, organizational structure, and anti-bribery measures (Jacobson, 2021).

Egypt is an emerging market where ESG principles are gradually being adopted, making it an ideal focus for studying their impact on portfolio returns. Historically, the business environment prioritized economic gains, but with increasing global pressure for sustainable practices, Egyptian companies are beginning to integrate ESG factors (Iskander, 2023). The introduction of key regulations, such as Environmental Law No. 4/1994 and the Egyptian Financial Regulatory Authority's Corporate Governance Principles (2016), signals a shift towards sustainability in both corporate governance and environmental stewardship.

This shift presents a unique opportunity to examine how ESG performance influences financial returns in a market where the adoption of these principles is still evolving. By choosing Egypt, this study aims to explore the early-stage impact of ESG integration in an economy that is aligning itself with global sustainability trends. However, quantifying some social and governance measures can be challenging, especially in the absence of regulatory standards. This leads to subjective interpretations and methodological variations as viewed by (Nehme, 2023), creating a consensus gap that will be explored further in the subsequent section.

## **Investment Strategies**

### **Negative Screening**

Negative screening is a proactive investment approach that involves deliberately excluding specific investments (Blankard, 2014). This strategy falls under the umbrella of Socially Responsible Investing (SRI), where investors omit companies based on criteria or ethical convictions. In practical terms, investors use this approach to filter out companies that are perceived to be involved in 'unethical' or non-ESG-compliant business practices (Jacobsen, 2021). Such companies are commonly labelled as "sin" stocks, a term rooted in the origins of SRI when products were avoided if they were deemed morally objectionable (Eurosif, 2018).

The typical exclusion criteria in negative screening traditionally cover areas like alcohol, tobacco, gambling, and weapons. However, recent years have seen a broadening of criteria to encompass a more diverse range of considerations, such as animal testing, environmental impact, human rights, labour practices, employment equality, community investment, and proxy voting. Additionally, negative screenings can extend to third-party companies

that engage with "sin" stocks, a concept known as second-order screening (Blankard, 2014).

One drawback of negative screening is that it can limit a portfolio's exposure to certain geographical regions or industries, potentially leading to a less diversified portfolio. However, it can also serve as a protective measure for major investment funds or financial institutions by shielding them from scandals and criticism associated with supporting unethical practices.

Numerous studies have investigated the economic implications of excluding "sin" stocks. However, it is important to note that the motivations for conducting negative screening may extend beyond financial considerations. Some investors view the exclusion of certain products to operate in alignment with the interests and values of their beneficiaries.

Negative screening is a widely employed method in research to identify potential gains or losses associated with avoiding "sin" stocks. Institutional investors often avoid certain industries, such as tobacco, alcohol, gambling, and weapons, due to societal norms. This has prompted researchers to investigate whether adhering to these normative constraints incurs additional costs for investors. Negative screening studies typically begin by identifying stocks involved in controversial business sectors, which are labelled as "sinful." These stocks are then segregated into one portfolio, while the remaining assets form another portfolio and are evaluated.

Hong and Kacperczyk (2009) conducted an analysis of U.S. firms from 1965 to 2006 to test whether investors who avoid sin stocks experience financial penalties. They constructed a long-short portfolio with sin stocks in the long position and socially accepted stocks in the short position, assessing performance using the Carhart 4-Factor model. Their findings supported the hypothesis, demonstrating that sin stocks yielded higher returns compared to accepted stocks, with a price impact of 15 to 20% for investors choosing sin stocks. They linked this premium to the lack of attention from institutions, which led to sin stocks being undervalued about their intrinsic values, a concept referred to as the "shunned stock" hypothesis. Additionally, they observed that the elevated risk of litigation associated with sin stocks played a role in increased expected returns.

Salaber (2007) conducted a similar study in the European market from 1975 to 2006, focusing on sin stocks such as tobacco, alcohol, and gambling. Apart from examining sin stock premiums, the study explored correlations with legal and cultural factors using the Fama-French 3-Factor model. Positive abnormal returns were observed in sin stocks, with the level of excess returns influenced by local factors such as religion, taxes, and litigation risk. In a more recent study, Blitz & Fabozzi (2017) used the Fama-French 5-Factor model to attribute sin premiums to quality factors such as profitability and investments, indicating that controlling for these factors nullified the sin stock advantage.

### ***Positive Screening***

In contrast to negative screening, positive screening is an inclusive approach where investors actively seek out the best-performing companies. This strategy is often referred to as second-generation screening, with negative screening representing the first generation. Positive screening practices tend to be more intricate than negative screening because they require a thorough analysis of underlying scoring metrics, such as the Environmental, Social, and Governance (ESG) pillars (Blowfield and Murray, 2008).

In practical terms, investors using a positive screening strategy typically begin by ranking companies based on their ESG performance. The highest-ranking companies then undergo a conventional financial performance analysis (Eurosif, 2016; Tan, Szulczyk, & Sii, 2023). By integrating ESG information, investors can identify potential risks and opportunities, gaining a more comprehensive understanding of a company's performance and future exposure.

A closely related approach to positive screening is the "best-in-class" screening strategy, where investors seek out companies with the highest ESG scores within specific sectors or industries. This approach may include companies from traditionally "sin" industries if they rank at the top among their peers. Consequently, this strategy encourages more companies to adopt ESG practices, even in industries typically excluded due to ethical concerns. Moreover, the "best-in-class" strategy incentivizes companies to continually enhance their environmental and social performance (Barko, Kremmers, & Rennebog, 2021)

Positive screening studies in portfolio-based research aim to link corporate social performance with financial performance. They create portfolios based on ESG scores or social metrics, rank companies, and apply models like CAPM or Fama-French 3 factor models to analyze returns. However, despite similar methodologies, these studies yield inconsistent findings, showing positive, negative, or neutral relationships between socially responsible investing (SRI) and financial performance.

Halbritter and Dorfleitner (2015) investigated the relationship between social and financial performance using ESG scores from three distinct sources: Asset 4 (Refinitiv), Bloomberg, and KLD, focusing on the US market from 1991 to 2012. They constructed value-weighted portfolios based on ESG overall scores as well as scores for Environmental (E), Social (S), and Governance (G) aspects, employing a 20% cut-off point for portfolio construction. The portfolios' returns were then analyzed using the Carhart 4-Factor model and the Fama-MacBeth regression model. Their findings revealed inconsistent results across the three data sources, with differing alphas for long-short portfolios—Asset4 showed a positive alpha, Bloomberg a negative one, and KLD a neutral alpha. However, these alphas were not

statistically significant, leading to the conclusion that high and low portfolios did not display significant performance differences across all scores and robustness checks. Despite the lack of statistical significance in alphas, a notable dependence between the chosen rating agency and outcomes was observed.

Mark K. Pyles (2020) conducted a study on the financial performance of high and low portfolios using ESG data specifically from Bloomberg, covering the period from 2011 to 2017 with the S&P 500 index as the asset universe. The primary hypothesis was to examine whether companies with higher ESG scores exhibited superior returns compared to lower-scoring companies. Similar to previous studies, Pyles employed a positive screening approach, creating high and low portfolios based on a 20% cut-off point and assessed their returns using the Fama-French 5-factor model. Results indicated that the top 20% firms in ESG scores experienced lower abnormal returns than the bottom 20%, with statistically and economically significant differences in abnormal returns. However, after accounting for firm characteristics such as size, dividend yields, and profitability, the abnormal returns became insignificant, leading to the conclusion that ESG scores from Bloomberg did not demonstrate a significant alpha, suggesting a neutral stance regarding the relationship between socially responsible investing (SRI) and financial performance.

## **Data Collection and Methodology**

### **ESG Scores**

The research analysis centers on the ESG scores which are essential for building and evaluating portfolios categorized by high and low scores. The manual construction of these scores would be time-consuming, demanding a substantial volume of data points, and potentially yielding no additional value. Following the suggestion of Huber and Comstock (2017), it has been determined that extracting these scores from a well-established database is the appropriate course of action.

According to Huber and Comstock (2017), several ESG providers, such as Sustainalytics, Bloomberg, and Refinitiv, are prominent sources of ESG scores. While Sustainalytics is a prominent global leader in ESG and corporate governance research and ratings, their dataset primarily consists of raw scores for indicator-level data, lacking comprehensive pillar scores (Sustainalytics, n.d.). Bloomberg offers over 10 years of historic ESG scores but relies heavily on disclosed company data (Bloomberg, n.d.). In contrast, Refinitiv, a comprehensive ESG-data provider since 2002, offers the most relevant information for this study, including overall pillar scores for Environmental (E score), Social (S score), and Governance (G score), as well as two aggregated ESG scores (Refinitiv, 2020). Thus, Refinitiv has been chosen as the preferred



databank due to its comprehensive ESG scoring system and extensive historical data.

Refinitiv's ESG scores are derived from a comprehensive set of over 450 ESG metrics collected from diverse sources like annual reports, company and NGO websites, CSR reports, and news outlets. The database evaluates ESG scores for over 10,000 global companies (Refinitiv, 2020). These scores assess companies' performance relative to their industry and country of origin, ensuring a fair methodology. The scoring model includes two main ESG scores: 'ESG' and 'ESG Combined.' The 'ESG' score is based on a subset of 186 metrics selected for comparability, impact, data availability, and industry relevance. These metrics are grouped into 10 categories aligning with ESG's three pillars. The ESG pillar scores are based on the cumulative scores of underlying categories, with weightings adjusted based on industry transparency. The overall ESG score is a weighted sum of the E, S, and G scores, normalized from 0 to 100 for clarity, where higher scores indicate stronger ESG performance. (Refinitiv, 2020).

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<b>EFG Holding</b>
<b>Oriental Weavers Carpet Co SAE</b>
<b>Eastern Company SAE</b>
<b>Talaat Mostafa Group Holding Co SAE</b>
<b>Abu Dhabi Islamic Bank</b>
<b>Telecom Egypt SAE</b>
<b>Commercial Internal Bank Egypt CIB</b>
<b>Juhayna Food Industries SAE</b>
<b>El Sewedy Electric SAE</b>
<b>Ezz Steel Co SAE</b>
<b>Egypt Kuwait Holding Co SAE</b>

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Table 1- Companies with published ESG scores from 2020

### ***Market Data***

In addition to considering ESG scores, the empirical analysis includes an asset pool composed of companies listed in the EGX 30 Index. Moreover, to ensure consistency in time series regressions, only publicly traded companies that have consistently reported scores throughout the entire study period from January 2020 to December 2022 were included. The year 2023 was excluded as only one company, Talaat Moustafa Group, had reported ESG scores, compromising the data consistency needed for accurate analysis (Refinitiv, 2024). Thus, the asset pool comprises 11 companies for the entire analytical duration.

### ***3.3 Portfolio Construction***

Following the work of Zehir & Aybars, 2020, the development of ESG portfolios within this research aims to assess the influence of ESG scores on the performance of portfolios comprising companies listed in the EGX30 during the period spanning 2020 to 2022. Construction portfolios based on ESG scores was frequently seen in the literature of socially responsible investing. The EGX30 was chosen as a benchmark due to its representation of the largest companies in Egypt in terms of liquidity and activity, weighted by market capitalization (Badr & Massry, 2020). Additionally, the chosen timeframe stems from the limited availability of comprehensive ESG data for companies in preceding years. Given the emergence of ESG considerations within the Egyptian context, many companies had not fully integrated ESG practices, resulting in limited ESG disclosures and data availability before 2020 (Srouf, 2022). Hence, companies lacking published scores before the designated time frame were excluded from the dataset of 30, resulting in the assessment of only 11 companies. As Refinitiv annually publishes ESG scores, the construction of portfolios in this study has been done annually. These portfolios were revised each time new scores were published. Specifically, for a given year "t," the scores from the previous year ("t-1") are utilized and ranked in descending order. Employing the methodology outlined by Zehir and Aybars (2020) and Kempf and Oshoff (2007), the highest-ranking 45% of stocks based on their scores are allocated to the "Top" portfolio, while the lowest ranking 45% are assigned to the "Bottom" portfolio. This threshold was chosen instead of the more conventional 10% due to sample size constraints, as applying a 10% cutoff would have led to a significantly reduced number of stocks in each portfolio, thereby limiting the analytical scope. This selection process resulted in 5 stocks in each portfolio, which were reviewed and revised annually based on updated scores." The top portfolios comprised of companies regarded as ESG leaders, while the bottom portfolios consisted of ESG laggards. The portfolios were constructed using equal weighting to ensure diversification and mitigation of concentration risk. This methodology is extended to encompass Environmental (ENV), Social (SOC), and Governance (GOV) scores, resulting in 8 portfolios consisting of 5 companies each being evaluated.

### ***Portfolio Performance***

Portfolio performance assessment encompasses a variety of metrics. For initial analyses, both the cumulative returns and the annualized average monthly returns have been computed. Yet, considering returns in isolation does not provide a full understanding of performance, necessitating an examination of risk-related metrics. These include the standard deviation, market beta, skewness, kurtosis, Sharpe and Treynor measures. On the other hand, the

market beta is determined through linear regression analysis between the returns of the portfolio and the market.

### Sharpe Ratio

The Sharpe ratio, introduced by William Sharpe in 1966, is a key financial metric that assesses performance by measuring the return earned above the risk-free rate per unit of volatility. It is related to Markowitz's Modern Portfolio Theory (1952), which asserts that higher risk should yield greater rewards. The formula for the Sharpe ratio is:

$$\text{Sharpe} = \frac{R_p - r_f}{\sigma_p}$$

Where:

$R_p$  = is the portfolio's return.

$R_f$  = risk-free rate (typically the return on government securities, like Treasury bills).

$\sigma$  = standard deviation of the portfolio's returns, representing total risk (volatility).

### 3.4.2 Treynor Ratio

The Treynor ratio, introduced by Jack Treynor in 1965, is a performance metric similar to the Sharpe ratio but differs in how it measures risk. While the Sharpe ratio considers total volatility, the Treynor ratio focuses on systematic risk, using the portfolio's beta. It evaluates the return above the risk-free rate for each unit of systematic risk, capturing the relationship between the portfolio and the market. The formula for the Treynor ratio is:

$$\text{Treynor} = \frac{R_p - R_f}{\beta_p}$$

Where:

$R_p$  = the portfolio's return.

$R_f$  = the risk-free rate.

$\beta_p$  = the sensitivity of the portfolio's returns to the market returns.

### 3.4.3 Jensen alpha

Jensen's alpha, introduced by Michael Jensen in 1968, is a risk-adjusted performance metric which evaluates how the actual returns of a portfolio compare to those predicted by a benchmark model. Essentially, alpha indicates whether the returns achieved justify the risk taken by holding the portfolio. Given that actual returns often deviate from those predicted by benchmarks, alpha becomes important in assessing performance and is represented by the intercept of the performance model. According to CAPM, alpha is calculated as follows:

$$\alpha = R_p - (r_f + \beta_p * (R_m - R_f))$$

Where:

R<sub>p</sub> = actual return of the portfolio.

R<sub>f</sub> = risk-free rate.

B<sub>p</sub> = the sensitivity of the portfolio's returns to the market returns.

R<sub>m</sub> = the return of the market (benchmark index).

#### 4 Results and Analysis

*Table 1- Descriptive Statistics and Performance Measures*

The analysis of the provided results across Environmental, Social, and

Score	Portfolio	Overall Performance	Standard Deviation	Beta	Sharpe Ratio	Treynor Ratio	Skewness	Kurtosis	Alpha
ESG	Top	-0.013	0.046	1.174	-0.274	-0.011	-1.195	1.295	0.008
	Bottom	-0.009	0.053	0.519	-0.171	-0.017	-1.032	1.993	-0.091
Env	Top	-0.012	0.050	1.116	-0.245	-0.011	-1.273	2.257	0.007
	Bottom	-0.012	0.059	0.779	-0.193	-0.015	-0.663	1.051	0.002
Soc	Top	-0.012	0.050	0.705	-0.244	-0.017	-1.273	2.257	-0.087
	Bottom	-0.010	0.046	1.099	-0.212	-0.009	-1.050	2.061	0.004
Gov	Top	-0.009	0.052	1.033	-0.179	-0.009	-0.943	0.888	0.003
	Bottom	-0.011	0.039	0.606	-0.295	-0.019	-1.093	3.052	0.000

Governance (ESG) factors reveals a consistent trend of underperformance and unfavourable risk metrics. While the top portfolios exhibit marginally better risk-adjusted returns and lower volatility compared to the bottom portfolios, both sets of portfolios display negative overall performance, indicating returns below the benchmark. Despite lower standard deviations and betas in the top portfolios, suggesting less volatility and sensitivity to market movements respectively, the negative Sharpe ratios imply poor risk-adjusted returns. Similarly, although the top portfolios generally demonstrate slightly better Treynor ratios, indicating slightly more efficient use of systematic risk, the negative skewness across all categories suggests distributions skewed towards more extreme negative returns, while the lower kurtosis in the top portfolios indicates less extreme returns compared to the bottom portfolios. In essence, while the top portfolios may marginally outperform the bottom portfolios in certain risk-adjusted metrics, the overarching pattern of negative returns and unfavourable risk characteristics underscores a need for reassessment and potential adjustments in investment strategies to align with desired ESG objectives and enhance overall portfolio performance.

According to the principles of financial theory, relying solely on basic descriptive statistics, as demonstrated in the preceding section, is insufficient for drawing meaningful conclusions. It's imperative to incorporate risk variables to effectively assess portfolio returns against expected returns based

on risk factors. The factor model employed for analysis is the single-factor CAPM model, which asserts that market performance is the sole explanatory factor. Results from the CAPM analysis are presented below.

**Table 2 CAPM analysis results for Top and Bottom Portfolios**

	<b>Top</b>	<b>Bottom</b>
<i>ESG</i>		
<i>Alpha</i>	0.008	-0.091
$R_m - R_f$	1.174	0.519**
$R^2$	0.486	0.121
<i>ENV</i>		
<i>Alpha</i>	0.007	0.002
$R_m - R_f$	1.116**	0.779**
$R^2$	0.519	0.352
<i>SOC</i>		
<i>Alpha</i>	-0.087	0.004
$R_m - R_f$	0.705**	1.099
$R^2$	0.205	0.426
<i>GOV</i>		
<i>Alpha</i>	0.003	0.000
$R_m - R_f$	1.033	0.606
$R^2$	0.469	0.091

Notes: \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.10$

The CAPM results indicate that the portfolios constructed based on various criteria exhibit mixed performance, with near-zero abnormal returns that are statistically insignificant across all cases, as presented in Table 2. Among the eight portfolios analyzed, the Top ESG portfolio achieved the highest alpha value of 0.8%, while the Bottom ESG portfolio recorded the lowest alpha, at -0.9%, suggesting underperformance relative to market expectations. Despite these variations in alpha, the portfolio's performance remains statistically insignificant at the 0.01, 0.05, or 0.10 levels. The Top ESG, Top ENV, and Top GOV portfolios exhibit higher market risk premiums and moderate to strong relationships with market returns, as indicated by their  $R^2$  values. This implies high exposure to systematic risk. In contrast, portfolios like the Bottom ESG and Bottom GOV show lower market risk premiums and much lower  $R^2$  values, suggesting they are more heavily influenced by unsystematic risks that are not explained by market movements. The market risk premiums are significant at the 0.05 level for four portfolios—Bottom

ESG, Top ENV, Bottom ENV, and Top SOC—while they are insignificant for the remaining four portfolios.

These findings are consistent with Halbritter and Dorfleitner (2015) and Pyles (2020), who also found inconsistent results regarding the financial benefits of high ESG scores. However, they contrast with Singh (2022) and Yin, Li, and Su (2023), who suggested that integrating ESG considerations could enhance long-term returns. Additionally, the generally negative returns observed for high ESG portfolios diverge from Hong and Kacperczyk's (2009) finding of higher returns for "sin" stocks, suggesting that ESG-focused investments in the Egyptian context might not align with the more pronounced premiums observed in other studies.

## Conclusion

This study attempted to evaluate a total of 8 portfolios, divided into "Top" and "Bottom" categories across four dimensions: Environmental, Social, Governance, and ESG scores to determine the impact of Environmental, Social, and Governance (ESG) scores on portfolio performance within the Egyptian market. The findings of this research contribute to the ongoing debate on the financial implications of ESG investments. Despite the growing emphasis on sustainable and responsible investing, the data reveals that portfolios with high ESG scores do not necessarily outperform their low ESG counterparts on a risk-adjusted basis. In the Egyptian context, both Top and Bottom ESG portfolios exhibited negative risk-adjusted returns, indicating that higher ESG scores alone do not guarantee better financial outcomes. The study employed various metrics, including alpha, beta, Sharpe Ratio, Treynor Ratio, standard deviation, skewness, kurtosis, and CAPM to provide a comprehensive analysis of each portfolio's performance. The results showed that 100% of Top portfolios generally displayed higher market sensitivity, as evidenced by their betas, but this increased sensitivity did not translate into improved risk-adjusted returns.

Furthermore, the negative skewness and varying levels of kurtosis observed across 100% of portfolios suggest that returns are non-normally distributed and subject to extreme variations, highlighting the complexity of the relationship between ESG scores and financial performance. The consistent negative Sharpe and Treynor ratios across all 8 portfolios indicate that these investments do not currently deliver sufficient returns to justify the inherent risks. Moreover, the CAPM analysis supports these findings, showing that the alphas for both top and bottom portfolios are statistically insignificant, suggesting no substantial outperformance or underperformance beyond what can be explained by market movements. This implies that, within the Egyptian context, ESG factors may not yet be fully recognized or integrated into investment valuations. Future research should continue to monitor these

developments, providing updated insights and guidance for investors committed to responsible investing in emerging markets.

Regarding areas of Future Research, the validity of this study could be improved by extending the time frame as more data becomes available, addressing a key limitation. Comparative studies with other MENA and emerging markets could also provide broader insights. Additionally, modifying the models used in the analysis—such as incorporating multifactor models like the Carhart four-factor model, Fama French factor model—could further enhance the understanding of portfolio returns.

This study is crucial for decision-makers and fund managers as it highlights the impact of ESG scores on portfolio performance in Egypt. Insights from the study help stakeholders make informed investment decisions and improve risk management while balancing ESG considerations with financial objectives.

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