Corporate Sustainable Performance and Profitability: Exploring the Moderating Role of Liquidity and Stock Volatility in Egypt

الأداء المستدام للشركات والربحية: استكشاف الدور المعتدل للسيولة وتقلبات الأسهم في مصر

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الملخص

الهدف من هذه الدراسة هو معرفة ما إذا كان الأداء المستدام للشركات يؤثر على ربحية الشركة من خلال استكشاف الدور المعتدل للسيولة وتقلبات الأسهم في مصر. الهدف من الدراسة هو تشجيع وتعزيز ممارسات الاستدامة. استخدمت هذه الدراسة التجريبية منهجًا كميًا لدراسة تأثير العوامل البيئية والاجتماعية والحوكمة لاستدامة الشركات على ربحية الشركات في مصر. تشمل عينة الدراسة ٣٠ شركة مدرجة في مؤشر S&P/EGX ESG من ٢٠١٠ إلى ٢٠٢٢. تم استخدام نموذجين للانحدار مع الأداء المستدام للشركات كمتغير مستقل يتم قياسه من خلال إفصاحات البورصة المصرية وربحية الشركة التي يتم قياسها من خلال العائد على

الأصول كمتغير تابع و النموذج الآخر مع الأداء المستدام للشركات كمتغير مستقل يقاس بمؤشر الكثافة وربحية الشركة كمتغير تابع يقاس بـ LN (ROA). تم إجراء اختبارات التحليل الوصفي وافتراضات الانحدار، بما في ذلك الاعتماد المقطعي، والتغايرية باستخدام STATA ١٧ لضمان ملاءمة البيانات. تظهر النتائج وجود علاقة غير هامة بين الأداء المستدام للشركات المقاس بدرجات ESG وربحية الشركة المقاسة بالعائد على الأصول في نموذج الانحدار الأول. وفيما يتعلق بنموذج الانحدار الثاني أشارت النتائج إلى وجود علاقة موجبة معنوية بين الأداء المستدام للشركات المقاس بمؤشر الشدة وربحية الشركة المقاسة بـ ln(ROA). علاوة على ذلك، أشارت البيانات التجريبية إلى أن الشركات التي تظهر درجة عالية من الالتزام بالممارسات المستدامة وتسعى بقوة للقبول في مؤشر الاستدامة تميل إلى كسب أعلى مستوى من الربحية.

الكلمات المفتاحية

الاستدامة؛ الربحية. الأداء البيئي؛ الأداء الاجتماعي؛ حوكمة الشركات; شدة.

Abstract: The aim of this study is to investigate whether Corporate sustainable performance impacts the firm profitability by exploring the moderating role of liquidity and stock volatility in Egypt. The objective of the study is to encourage and promote sustainability practices. This Empirical study used a quantitative approach to investigate the impact of corporate sustainability environmental, social and governance (ESG) factors on firm profitability in Egypt. The study's sample includes the 30 listed firms in S&P/EGX ESG from 2010 till 2022. Two regression models were used with Corporate sustainable performance as an independent variable measured by ESG scores disclosures by Egyptian exchange and firm profitability measured by ROA as a dependent variable and the other model with Corporate sustainable performance as an independent variable measured by intensity index and firm profitability as a dependent variable measured by ln(ROA). Descriptive analysis and regression assumptions tests, including cross-sectional dependence, and heteroscedasticity were conducted using STATA 17 to ensure data suitability. Results demonstrate an insignificant relation between corporate sustainable performance measured by ESG scores and firm profitability measured by ROA in the first regression model. Regarding the second regression model, the results indicated that there is a positive significant relation between corporate sustainable performance measured by Intensity index and firm profitability measured by ln(ROA). Furthermore, empirical data indicated that companies that display a high degree of commitment to sustainable practices and aggressively pursue admission into the sustainability index tend to earn the highest level of profitability.

Keywords: Sustainability; Profitability; Environmental performance; Social performance; Corporate Governance; Intensity.

Introduction

Awareness about hedging from the future has increased day by day throughout the world due to the need of being sustainable in the market. Therefore Hodges & Boyazoglu (2003) stated that sustainability is an essential social, economic and environmental issue, over the past year's environmentalists, social activists and scientists have been figuring out the consumption of natural resources without harming the environment, the three elements for substitutability which are social, economic and environmental become to be known as the 'triple bottom line'. The triple bottom line has brought sustainability to the boardroom and highlighted the economic benefits of improved treatment of the environment. Expressed as the concept of sustainability in business the concept of corporate social performance (CSP) which is generally identified as an assimilation of sustainability elements to business, the performance of business that maintain the concept of sustainability are considered financial, environmental, and social performance dimensions (Dyllick & Muff, 2016; Taha & Al-Nimer, 2023).

The sustainability reports define that the companies that maintain the concept of corporate social performance have an increase in their earnings and have been growing and expanding early. So, in recent year's companies have concentrated on the concept of sustainability, their sensitivity to the environment and society in which they function. Consequently, as companies' awareness grows over time, the question of how this affects financial performance has surfaced (Morgan *et al.,* 2021).Building the understanding off the CSP concept it is crucial to examine the profitability implications (Bekmezci, 2015; Despotovic *et al.,* 2016; Alarussi & Alhaderi, 2018) defined profitability as funds produced from its income after subtracting the expenses accrued during a specific period and it is a key metric for assessing the company's financial health. However, the market price of shares fluctuates sharply up and down due to several factors, which impact the nature of investment decisions for dealers to either buy or sell shares. In contrast, the liquidity of shares is based on corporate

profits when the share price rises. It is an important factor that signals management's success, shareholder's satisfaction, the company's sustainability and investor attraction. For example, Salem, (2019) indicated that due to the financial crisis that may face the countries the market price of the shares fluctuates strongly up and down which influences the nature of the investment decisions for investors to buy or sell the shares, in contrary the shares liquidity is based on the profits when the share price increases.

The fluctuations of the stocks are affected by many factors including inflation, interest rate and currency exchange rate making the financial assets more attractive for investors who want to deal with them more easily, also markets allow investors to remain stocks if they need to change the composition of their portfolio investment. It gives the company permission for a fixed access to capital through the stock issuance, knowing the effect of liquidity and volatility of stock prices on the profitability level of the company. The central problem is the industrial companies' low-profit levels, which affects the economies (Yameen *et al.,* 2019).

Managers of the companies are an essential element in corporate management and also managers have a huge impact on the company's strategies towards sustainable development (Taha& Al-Nimer, 2023). In emerging countries, the perception of managers towards CSP is precise. Furthermore, Yameen *et al*. (2019) discovered that the liquidity ratio has a notable influence on the company's profitability. Furthermore, in recent decades, corporate sustainable performance (CSP) has garnered attention from stakeholders including corporate managers, researchers, policymakers, The majority research on the relation between CSP and profitability addressed contradicting findings, despite the fact that the CSP has been the focus of countless studies and ideas. A positive relationship between CSP and corporate financial performance has been found in some studies (Waddock & Graves, 1997; Stanwick & Stanwick, 1998; Margolis & Walsh, 2001; Orlitzky *et al.,*2003; Cormier & Magnan, 2006; Taha &Al-Nimer, 2023; Febrian& Hendriyeni, 2024). While (Yau *et al.,* 2024) found

no effect between CSP and profitability also a negative relationship has been found in some studies (Brammer *et al.*,2006; Garcia-Castro *et al.*,2010; Cerciello, *et al.*,(2023).Up to the researcher knowledge, there's limited research examining CSP and Profitability investigating the moderating role of stock volatility and liquidity, especially in emerging countries like Egypt also Egypt's stock market, known for its sensitivity to fluctuations, presents a unique environment to study these dynamics so that the study will specifically focus on companies listed on S&P/EGX ESG in Egypt from 2010 till 2022.

Literature Review

Sustainability, at the World Commission on Environment and Development (WCED) is filling the needs of the modern generation without compromising the capabilities of the upcoming generations to accomplish their own requirements. Moreover, the United Nations World Commission on Environment and Development Report (1987), indicates that corporate sustainability is regarded as an approach to business and investment that aims to implement the most stringent business processes in order to fulfill and align the requirements of both present and future stakeholders (WCED, 1987).

Corporate Sustainability is considered with developing shareholder long-term value through the acceptance of risks of management offered by social, environmental and economic factors (Mays 2003). Corporate Sustainability Performance (CSP) measures a company's integration of environmental, economic, social, and governance aspects within its activities and finally, the effects these variables have on the company and society (Artiach *et al.*, 2010). The notion of corporate sustainability performance (CSP) may be seen as the incorporation of three aspects of sustainability into organizations, reflecting the idea of sustainability in the business context (Dyllick & Muff, 2016).

In recent years, firms have increasingly prioritized sustainability as a means of showcasing their awareness and concern for the environment and society in which they operate. As firms become

more aware over time, the question of how these impacts financial performance has arisen. Profitability is a measure of how effective a firm's operational and investment decisions are, whereas profitability ratios evaluate how efficiently a company utilizes its resources to generate maximum earnings (Al-Dhunaibat&Muhammad,2017) In addition, cultivating a favorable perception of the organization necessitates skillfully managing the equilibrium between its reputation and its achievements. Although it may incur high expenses, executed with precision, these costs might be mitigated by assisting in covering operating expenses (Despotovic *et al.*,2016).

Businesses that embrace the notion of sustainability are evaluated based on their financial, environmental, and social performance factors. Moreover, Sustainability reports clarify the performance of organizations that embrace the notion of sustainability, and there has been a recent surge in the number of enterprises that publish sustainability accounts or papers (Morgan *et al.*,2021).

The determinants of corporate sustainable Performance Environmental Factors belonging to the environment include water pollution, usage of renewable resources and nonrenewable resources, wastes, emissions, water usage, health, safety, child labor, workplace diversity and also the impact of operations on the society and the community also governance include all these issues related to the management Board meetings, board attendance, diversity and corruption (Sharma *et al*., 2020).

Social Factors related to social Discrimination and low level of diversification, safety for employees with high-risk operations as well as the inequality of income. Governance Factors related to the Misunderstanding of the leadership's roles by many employees and managers also face confusion while managing the acts of corruption and opportunism of managers (El-Deeb *et al.*,2023).

Wood, (2010) stated that the first one that categorizes the measures of CSP is Ullmann's (1985) landmark article on CSP–FP measurement, Ullmann indicates that there are three categories of measures.

-Social disclosure: Include both voluntary corporate social reporting and essential pollution reporting, which has been required since 1973. Additionally, Ernst Ernst & Ernst's rankings provide valuable insights into corporate pollution disclosure.

-Social Performance: Utilized the ranking methodology, and reputational; indicators such as the pollution performance index or company self-descriptions.

-The Economic performance is assessed by analyzing several indicators such as shareholder returns, median return on equity, beta, and price-earnings ratio over multiple years. This a result of the review of This based 31 empirical research conducted in the 1970s and early 1980s.

Also, Wood, (2010) applied a comprehensive analysis in the research of CSP and its metrics. The sustainability index which is determined by the author is the most frequently applied. Also there have been many different measures for CSP according to the availability of this measure as is not surprising that there is no huge agreement on one of the measures as the best indices as (PSI, KLD, GRL, DJSI) these indices are becoming more and more popular.

Furthermore (Ulmann, 1985; Orlitzky *et al.*, 2003) indicated that it has been acknowledged that the inclusion of the company or exclusion in reputation indexes can be considered as a reliable indicator of its high or poor long-term performance. Taha *et al.*, (2023) stated that sustainability encompasses essential processes that provide the necessary resources for companies to sustain their reputation, achieve long-term goals, and foster growth over time.

Sustainability is recognized as an innovative aspect that confers a competitive advantage to businesses. While researchers have offered several definitions of sustainability, it is primarily defined across three dimensions: economic, environmental, and social. While Wood (1991) indicated that CSP might be seen as the CSR concept of application, McWilliam *et al*., (2006) finally concluded that CSP is frequently used as a substitute for corporate social responsibility

(CSR). Also, Carroll & Shabana (2010) take a similar perspective and indicate that CSP integrates both the normative and the descriptive aspects of CSR. While Montiel (2008) separated CSR and CSP in the way how (the economic, social, and environmental) factors are linked with each other. CSP identifies that social and economic aspects are related to each other, while CSR deference them as a separated aspect. Kaptein &Wempe (2002), stated that CSR is viewed as a transitional stage when businesses look forward to balancing social, economic, and environmental challenges, however CSP is seen as the extreme organizational goal which balances the requirements of the present generation with the needs of future generations Panapanaan *et al.*, (2003) recognized CSR as one of the corporate responsibilities, while the CSP is part of corporate responsibilities. Van Marrewijk (2003) indicated that CSR concentrates on the corporation's role as a communication channel between humans and the environment, while CSP is more focused on the corporation's role as a human-oriented agent.

Within the growing body of literature on CSP, several studies have tackled the relation between CSP and firm profitability. Waddock & Graves, (1997) Found that CSP is positively associated with the firm financial performance supporting the theory that addresses the positive relation between the resource availability and CSP also the authors found that there is a positive relation between the CSP and the future financial performance of the firm supporting the theory of John Wiley &Sons that said that CSP and good management are positively related.

Laskar, (2019) examined the correlation between corporate sustainability reporting and the financial performance of companies in India and South Korean firms by using the content analysis approach, which relies on the reporting format of the Global Reporting Initiatives, the sample comprises 28 non-financial enterprises listed in India and South Korea, observed over 6 years (2010-2015). The disclosure ratings are utilized alongside regression analysis to investigate the correlation between sustainability reporting/performance and firm performance. The regression analysis

revealed a statistically significant positive relationship between corporate social performance and business profitability for South Korean enterprises. However, in India, the influence on sustainability is negative. Moreover, the impact of sustainability reporting is shown to be more pronounced in South Korea compared to India. Keskin *et al.*, (2020) Explored the impact of sustainability on CFP using discriminant analysis between sustainable and non-sustainable companies using the companies included in Borsa Istanbul (BIST100) (Istanbul Stock Exchange) and the Borsa Istanbul Sustainability Index, and found that the relation between sustainability and CFP significantly affected by variables such as firm size, leverage, volatility and price to book ratio and results also indicated that the large corporations are widely seen as more sustainable due to their well-established dedication furthermore By employing this approach, companies are able to attract a greater number of investors. As a result, their stock prices exhibit lower volatility and attain a more favorable price-to-book ratio and also have more access to external finance compared to companies classified as non-sustainable. Furthermore, they exhibit lower levels of price fluctuations in the market and are more well regarded by investors and all stakeholders. Likewise, Matuszewska, (2021) determined that enhancing corporate sustainability performance across all dimensions leads to increased total revenues (TR) for US companies. Moreover, there is a positive between corporate sustainability performance and corporate financial performance at both the overall and individual levels. Also, El-Deeb, *et al*., (2023), indicated a positive significant relation between ESG and firm value in Egypt by investigating this relation in the listed firms in EGX using the sustainability reports to measure the ESG in Egypt. Hamdy, *et al.,* (2022) found a positive association between sustainability and corporate profitability in Egypt by measuring the CSP using the ESG score disclosures by the Egyptian exchange.

Alam & Tariq (2023) investigated the relationship between CSP and CFP in Pakistan and found that there is a positive relation between CSP and market-accounting-based financial performance using the total sustainability efforts by Pakistan's companies that have been assembled over an index that's is based on Global Reporting Initiative

(GRI) reporting guidelines and some context-specific indicators. Taha & Al- Nimer 2023, investigated the impact of CSP in the Jordanian manufacturing sector, while also considering the moderating influence of liquidity and stock price volatility. The study includes 56 industrial enterprises in Jordan and uses an empirical multivariate panel data model to examine how the sustainability factors (environmental, social, governance) affect the profitability of these firms. This study utilized 38 to quantify the CSP to determine if corporations ranked high on sustainability characteristics outperformed those ranked poor. The study founds strong correlation between CSP and profitability. It also found the moderation effect of liquidity and stock price volatility on the impact of CSP on the profitability of industrial business listed on the ASE. Moreover, empirical research indicates that Jordon's firms should priorities enhancing their corporate social performance efforts in order to improve their financial success

On the other hand, Febrian & Hendriyeni (2024) investigated the impact of CSP on leverage adjustment in companies listed in the Indonesia stock exchange by using multiple linear regression and moderated regression analysis and found that CSP can increase companies' leverage adjustments.

Though a different outlook Abukari *et al*., (2023) Investigated the effect of corporate sustainability consistency on firm financial performance in Canada and found a significantly positive association between corporate suitability and firm performance, moreover, the authors found that the companies that perform consistently well in sustainability have a better financial performance than the inconsistent ones.

Several theories in the current literature try to explain the positive association between CSP and firm profitability. The stakeholder theory is the most commonly used. The stakeholder is a group of people that may have an impact or affect by the achievements of an organization's goal. The goal of this theory is to pinpoint the groups that management must take into account as stakeholders, whether

they are within or external to the organization (Freeman ,2010). Furthermore, as survival is the primary goal of any institution, (Donaldson & Lee, 1995) Pointed out that stakeholder theory covers all internal and external ties of organizations and involves the management of these relationships to maintain the organization's existence. Stakeholders are divided into major and secondary categories.

Primary stakeholders are those whose continuous engagement is essential to the company's survival while the secondary stakeholders are those who have an impact on, are impacted by or are influenced by the corporation but don't engage in transactions with business. Therefore, the stakeholders want to know how business activities impact publicly held and social capital as well as the sustainability of such assets over the long run. Additionally, the stakeholders anticipate that managers would consider these outside factors when making decisions that affect the sustainability of these public (Clarkson 1995).

Furthermore, it is in the company's strategic best interest to respect the interests of its stakeholders, which gives birth to the CSR and CSP aids in improving stakeholder relations (Wiseman 1982; Ullmann, 1985; Barth & McNichols, 1994; Li, *et al.*, 1997; Barth, *et al.*, 1997; Cormier & Magnan, 1997; Neu, *et al.*, 1998; Ruf *et al.*, 2001; Patten, 2002; Clarkson *et al.*, 2004; Cho & Patten, 2007; Clarkson, *et al.*, 2008; Clarkson *et al.*, 2013; Clarkson *et al.*, 2015). Another theory focuses on providing an understanding of the connection between CFP and CSP is the resource-based perspective theory (RBP), Organizations strive to meet stakeholder demands above the care minimum of promises because organizations view doing so as a strategic investment (Ruf *et al.*,2001). According to the RPB, companies can have a long-term competitive advantage by effectively managing the non-replaceable limited resources (Laurenço *et al.*, 2012). The resource-based view (RBV) indicated that the performance of competitive advantage results from specific resources and talents of firms that may be expensive for competitors to imitate (Barney, 1991; Wernerfelt, 1984, Rumelt 1987). These resources may

contribute to a sustained competitive advantage and superior business value performance.

The legitimacy theory is an additional theory Deegan & Unerman (2011), propose that the legitimacy theory is based on the idea that a "social contract" exists between company and the society it operates. In order to be socially accepted and demonstrate their presence, companies strive to validate their business activities through the practice of business social performance (CSP) reporting. Maignan & Ralston (2002), argue that a business's legitimacy is contingent upon maintain a mutually beneficial relationship with its stakeholders, as the firm has ethical obligations towards these parties in several domains a firm's legitimacy depends on continuing a complementary connection with its stakeholders since it has moral responsibilities with these parties in a several different ways and areas (Adams *et al.*, 1998).

Conversely, Cerciello, *et al.,* (2023) stated that sustainability business practices reduce profitability by examining the effect of sustainable business practices on profitability in the listed European firms failing to give a full disclosure is excluded focusing on the consistent one in EURO Stoxx 300 index by using the ESG score to measure the sustainable business practices by using a dynamic panel model. Yau, *et al.*, (2023) in instance investigated the relation between sustainability reporting and corporate performance moderated by the internationalization level of the 100 firms listed in Bursa Malaysia (FTSE). The authors analyzed sustainability reporting by using the global reporting initiative (GRI) standard and the G4 Guideline. Content analysis approach was used to create the sustainability reporting index (SRI). The moderating variable for this study uses the internationalization level, which is measured by the overseas sales generated. The results indicated that the disclosure of sustainability reporting doesn't have any impact on business performance, while internationalization enhances corporate financial success, it does not have a moderating effect in the connection between sustainability reporting and corporate performance. Furthermore, the authors found that Based on the regression analysis there is insufficient evidence to

support the assertion that firms who provide more information in their sustainability reports have superior performance also this might be attributed to the fact that the Malaysian organizations are still relatively inexperienced in non-financial reporting. Despite the high expense sustainability reporting has the potential to enhance the reputation of companies in the Global market. In a step-by-step manner, a company that is highly globalized and has a significant number of sustainability reporting disclosures may generate significant financial gains for the company in future.

Several theoretical explanations have been proposed to justify these negative results. In contrast with the stakeholder theory, for example Brown & Caylor (2006) said that striving to meet the needs of all stakeholders is not advantageous, but rather negative to the performance of a company. The trade-off view regards ESG operations as an additional expense that diminishes the value of shareholders by inefficiently utilizing resources, hence affecting the performance of the company (Friedman, 1970).

Generally speaking, the conventional neoclassical approach regards ESG methods as the primary cause of extra expense (Derwall *et al*., 2005; Hassel *et al*., 2005; Palmer *et al*., 1995). Schuler & Cording (2006), indicated that managers who apply the ESG practices are giving up opportunities for more profitable initiatives. In this point of view, apart from the explicit costs implied by ESG activities, ESG also comes with a relevant opportunity cost. Sprinkle & Maines (2010) expand the argument cost, by identifying three types of costs associated with ESG practices: opportunity costs, sunk costs and recurrent costs. Agency theory states that management incentives to pursue personal interests are considered negative benefits to shareholder (Brown *et al*., 2006; Krüger, 2015) ESG activities considered one of the channels through which the managerial agency problem happens (Bénabou & Tirole, 2010; Buchanan *et al*., 2018; Masulis *et al.,* 2015; Seifert et al., 2004).

Barne & Rubin (2010) stated that the agency costs arise when firms' managers tend to engage in ESG practices to develop the individual

benefits, like decreasing to focus in the material duties responsibilities and personal reputation (Jensen, 2002). Also, some studies confirm that managers of the firms may fail to maximize the firm profit while engaging in the ESG targets to their own interests. (TripUllmann, & Meckling, 1976; Jjraporn & Chintrakarn, 2013). However, Garcia & Orsato 2020, obtained mixed outcomes in a sample of developing countries such as Brazil and South Africa negative relation between ESG and financial performance. While the relationship direction changed applied in the developed countries indicating a positive relation between ESG and financial performance (Buallay A 2019). demonstrates that ESG practices affects financial performance positively but negatively in the banking sector in the manufacturing companies. La Torre *et al*., (2021) found no relationship between ESG practices and account-based financial performance.

The literature regarding the association between Corporate sustainable performance and Firm Profitability focused on limited independent variables with a mixed result varies between positive relation as mentioned by Stanwick& Stanwick,(1998);Waddock & Graves, (1997); Ameera&Othman, (2012); (Laskar,2019); Keskin *et al*.,(2020); Matuszewska, (2021); Alam & Tariq,(2023); Taha & Al-Nimer (2023); Abukari *et al*., (2023); Hamdy *et al*., (2023); El-Deeb *et al,* (2023); Febrian & Hendriyeni,(2024) while other researchers found negative relation Jha & Rangarajan, (2020); Cerciello, *et al*., (2023) and other found no effect (Yau *et al*.,2024). Moreover, many studies have not focused on the banking sector, especially in the developing countries.

Additionally, the previous literature has applied a various different measures to measure the CSP such as ESG score disclosures by the stock exchange, corporate sustainability assessment methodology derived in the sustainability checklist by using the content analysis and some researchers create their own index by using the sustainability reports and applying the content analysis to measure the CSP. This diversification in methodologies leads to standardization and comparability lack across research leads to a need for consistent

and focused research in the CSP in the developing countries, and still there is a notable gap especially in the Arabian countries such as Egypt and this an important research area that needs to be explored.

From the previous literature review, the researcher hypothesizes that There is a positive significant relationship between CSP and firm profitability in S&P/EGX ESG. Liquidity moderates the effect of CSP on the profitability of Companies listed in S&P/EGX ESG. Stock Price Volatility moderates the effect of CSP on the profitability of Companies listed in S&P/EGX ESG. This paper will fill the gap of identifying the impact of CSP on firm profitability in Egypt from 2010 till 2022.

Methodology

This study employs an empirical approach to investigate the impact of CSP on firm profitability by exploring the moderating role of liquidity and stock volatility in Egypt by applying a quantitative method for data analysis. This research is based on cross-sectional data of companies listed in S&P/EGX ESG index (Table 8) from 2010 till 2022 which contains the top 30 companies performing well along three parameters of environmental, social and corporate governance responsibility when compared to their market peers, by excluding the banking sector and the non-financial holding companies as they have different operating nature. Also, this research relies on a random sampling technique as samples picked at random. All data collected from the annual reports of listed companies in S&P/EGX ESG index and the ESG Score disclosure by the Egyptian exchange.

The research aims to examine the impact of Corporate sustainable performance as an independent variable on firm profitability as a dependent variable measured by Return on Assets (ROA) by dividing the net income over the total asset moreover by exploring the moderating role of liquidity and stock volatility in Egypt.

Table 1: Research Variables and Measurements

Table of Measurements

Abb	Definition	Formula	Source	Reference	Expected Sign
CSP (Independent Variable)	The degree to which companies incorporate economic, social, environmental and governance aspects into operations.	ESG scores disclosures by the Egyptian Exchange	Egypt for Information Dissemination (EGID)	Hamdy, et al,2022)	+
SV (Moderating Variable)	Fluctuations in the stock price	Standard deviation $\sigma = \sqrt{(\sum(x - \bar{x}) (x - \bar{x})^2 / n)}$	Investing.com	Taha, *et al.*, (2023).	+
LIQ (Moderating Variable)	Liquidity of shares is based on the profits come from the raise of charges and that the company can pay its obligations.	Current Ratio Current assets/ Current liability	Annual reports from the Company 's Website	Taha, *et al.*, (2023).	+
FS (Control Variable)	The scale on which the company operates	Log Total assets	Annual reports from the Company	Farooq& Kaur,2021).	+

Source: Prepared by the Author

To do so, research will employ linear regression to identify the impact of CSP on firm profitability. To test hypotheses related to the significance of the impact of CSP on firm profitability, two model are estimated using the linear regression analysis using STATA 17 as an analytical tool with the following models:

The first regression equation tests the impact of the corporate sustainable performance on the firm profitability by exploring the moderating role of liquidity and stock volatility in Egypt using the ESG score to measure the CSP and ROA to measure the profitability. (Taha *et al.*, 2023)

$$ROA=\beta_0+\beta_1 ESGSCOREs+\beta_2 SV+\beta_3 LIQ+\beta_4 FS+\beta_5 ESG*SV+\beta_6 ES$$

G×LIQ+ ϵ

ROA= Return of Assets

ESG Score= Environmental, Social and Governance Score

SV= Stock volatility

LIQ= Liquidity

FS= Firm size

The second regression equation tests the impact of the corporate sustainable performance on the firm profitability by exploring the moderating role of liquidity and stock volatility by using the intensity index as a measurement for the CSP and ln(ROA) as a measurement for profitability.

ln(ROA)= β_0+ β_1ESG SCOREs β_2SV+ B_3LIQ+ β_4FS + β_5D1+ β_6D2+β_7D1∗ LIQ+β^8D1*SV+β_9D2*LIQ+β_{10}D2*SV + ϵ

ROA= Return of Assets

ESG Score= Environmental, Social and Governance Score

SV= Stock volatility

LIQ= Liquidity

FS= Firm size

Table 2: Descriptive statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
ROA	47	5.434078	10.81368	-43.58696	36.66659
LIQ	47	2.245796	2.642653	.3884375	16.67733
SV	47	2.74341	4.585236	.1458728	27.22355
FS	48	6.545361	.6908209	4.429714	7.753859
ESG Scores	49	0.316659	.0048813	.0106844	.0479535

Source: Authors' calculations using STATA 17

Descriptive statistics represent brief information about the characteristics and distribution of values in one or multiple datasets. Table (2) presents the overall statistics of the variables utilized in the study, including the mean, standard deviation, minimum, and maximum values.

Based on the outcome of the descriptive analysis one might conclude that: Return on assets (ROA) has an average statistical value of 5.434078 ,the highest is 36.66659 and the lowest number is -43.58696 With a total of 47 observations and a standard deviation of 10.81368.ESG Scores has an average statistical value is 0.316659, the highest is 0.479535 and the lowest value is 0.0106844 With a total of 49 observations and the standard deviation of 0.0048813.The firm liquidity(LIQ) has an average statistical value of 2.245796, the highest is16.67733 and the lowest is 0.3884375 With a total of 47 observations and a standard deviation equal to 2.642653. The stock

volatility (SV) has an average statistical value of 2.74341, the highest is 27.22355, and the lowest value is 0.1458728 With a total of 47 observations and a standard deviation equal to 4. 585236.The firm size has an average statistical value of 6.545361, the highest is 7.753859, and the lowest is 4.429714 With a total of 48 observations and a standard deviation of 0.6908209.

Table 3: Shows the Correlation Matrix of Dependent and Independent Variables

		ESG Scores	ROA	LIQ	SV	FS
ESG Scores	Pearson Correlation	1	-.053-	-.003-	.082	.155*
	Sig. (2-tailed)		.450	.965	.239	.026
	N	219	209	212	207	208
ROA	Pearson Correlation	-.053-	1	.225**	.196**	-.122-
	Sig. (2-tailed)	.450		.001	.006	.082
	N	209	209	205	197	206
LIQ	Pearson Correlation	-.003-	.225**	1	.055	-.063-
	Sig. (2-tailed)	.965	.001		.440	.371
	N	212	205	212	202	204
SV	Pearson Correlation	.082	.196**	.055	1	-.011-
	Sig. (2-tailed)	.239	.006	.440		.879
	N	207	197	202	207	196
FS	Pearson Correlation	.155*	-.122-	-.063-	-.011-	1
	Sig. (2-tailed)	.026	.082	.371	.879	
	N	208	206	204	196	208

Source: Authors' calculations using STATA 17

From table 3 it is apparent that ESG has a negative weak correlation with ROA at -0.053, also ESG is insignificant with ROA at 0.4.

ROA has a weak positive correlation with the liquidity at 0.225 and this at a significant level of 1%. ROA has a strong positive correlation with the stock volatility at 0.196 and that's at a significant level of 10%. Also, ROA has a strong negative correlation at -0.122 with firm

size at the significant level of 10%

The Shapiro-Wilk test is used to determine whether or not the gathered data follow a normal distribution. The data gathered is not normally distributed if the Shapiro-Wilk test probability value is less than 0.05. On the other hand, it can be said that the data is normally distributed if the Shapiro-Wilk Probability value is higher than 0.05(González-Estrada & Cosmes 2019).

Table 4: Shapiro- Wilk Normality Test –

Variable	Obs	W	V	Z	Prob>Z
Error1	42	0.96652	1.374	0.671	0.25121

Source: Authors' calculations using STATA 17

Table 4 shows that the Shapiro-Wilk value method value is 0.25121 Which is more than 0.05, indicating that the data is normally distributed.

Heteroscedasticity test is used to identify if there are a variance differences from the residuals for all observations and it's used in a linear regression model, if the significant level is $p > 0.05$ means that no Heteroscedasticity problem exist, and if the $p < 0.05$ then there is a Heteroscedasticity problem.

Table 5: Heteroskedasticity Test --

Breusch-Pagan LM	
Statistic	18.53
Prob	0.0000

Source: Authors' calculations using STATA 17

Table 5 demonstrates that the model has no heteroscedasticity problem as the p-value is below 5%.

Table 6: Coefficients of regression model

ROA	B	Std. Error	t	Sig.
(Constant)	3.403	8.848	.385	.701
ESG Scores	24.391	275.250	.089	.929
LIQ	1.228	4.067	.302	.763
SV	1.206	1.023	1.179	.240
FS	-5.338E-8	.000	-.983	.327
Interaction LIQ	-13.706	126.304	-.109	.914
Interaction SV	-16.244	29.022	-.560	.576
Sample size	192			
R squared	9.8%			
R squared adjusted	6.9%			
F test statistic	3.361			
P-value	0.004			

Source: Authors' calculations using STATA 17

Regression estimates in table 6 indicate an insignificant relation between the CSP measured by the ESG scores and firm profitability measured by ROA. Several models have been tried to reach the significant one however using the data as specified couldn't enable us to reach the write model as noticed that the data type is unbalanced data and that's comes from the entry and exist of the companies in S&P/EGX ESG index every August, the process of inclusion and exclusion for companies means that different numbers of companies are reflected each years which can cause bias and make the data analysis more difficult ,So Data treatment was made by reclassifying the data according to their activities in the market , accordingly data classified into three groups high intensity , medium intensity and low intensity. High intensity which ranges from (8 to 13) times this company entered the market, medium intensity which ranges from (4 to 7), low intensity which ranges from (1 to 3) and that's an indicator to their

activities in the market moreover these variables were entered to regression model as dummy variables under D1 which represent the high frequencies companies entered the S&P/EGX ESG index and D2 which represent the moderate frequencies companies entered the S&P/EGX ESG index also when the scatter plots was drawn with the independent variables the relationship is not liner and therefore we consider the Lin transformation for ROA and that's how we chose our model and that's reflected in the appendices .

Table 7: Pooled OLS effect model of the log ROA

Log ROA	Coefficient	Robust St. Err.	t	p-value	[95% Conf	Interval]	Sig
FS	-0.8889009	0.4891706	1.82	0.077	-1.880055	0.1022527	****
D1	2.111319	0.6622036	3.19	0.003	0.7695675	3.453071	***
D2	2.110972	0.5309811	3.98	0.000	1.035102	3.186842	***
Interaction LIQ	4.56059	2.236838	-2.04	0.049	0.283256	9.092854	***
Constant	5.449423	3.094204	1.76	0.086	-0.8200295	11.71888	***
*** p<.01, ** p<.05, * p<.1							

R-squared	0.3533	Number of obs	42
F (4, 37)	4.59	Prob > F	0.0041
Root MSE	1.6426		

Source: Authors' calculations using STATA 17

In table 7 the regression estimates showed a positive significant relationship between Corporate sustainable performance measured by intensity index and firm profitability measured by ln(ROA) Furthermore, the coefficient for D1 which expresses the high-intensity companies in entering the sustainability index is 2.111319 and this indicates that an increase in the intensity of entering the sustainability index for the company will lead to an increase in firm ROA by 2.111319. The coefficient for D2 which expresses the medium intensity firms in entering the sustainability index is equal to 2.110972 and that also means an increase in the intensity for entering the sustainability index for the company will lead to an increase in

firm ROA by 2.110972. So, results illustrate that inclusion in such indexes serves a public validation of the firm's commitment to sustainable practices, which strengthens its reputation among investors, consumers, and other stakeholders. This recognition may lead to greater investment, customer loyalty, and market share, all of which favorably benefit the firm's financial success. Furthermore, companies that display a high degree of commitment to sustainable practices and aggressively pursue admission into the sustainability index tend to earn the highest level of profitability. These companies not only benefit from the financial advantage but also position themselves as a leader in sustainable business practices, ensuring long-term competitive advantage and sustainable growth. These results are empirically supported by Treepongkaruna & Suttipun (2024), who investigated the relationship between CSP and CFP in Thailand in 147 listed firms in the ESG group by using a different method for measuring CSP which is the content analysis by using ESG reports and found the same result while Makridou *et al.*, (2024), also found the same result by measuring CSP by using ESG scores disclosure by the stock exchange in the European countries in the energy sector. Regardless of the different methods, evidence supports the positive impact of CSP on firm profitability such as Tarmuji et al. (2016); Eccles et al. (2016); Taha *et al.,* (2023). All found that the CSP is a significant determinant of high financial performance. So, this result proves the CSP's importance for improving a firm's financial performance and thus, their continued being in the business world. Moreover, these results support the stakeholder viewpoint that argues for the CSP benefits, such as lower legal and compliance costs, increased productivity, enhanced staff morale and improved financial performance (Freeman, 2010). In contrast, the positive impact of CSP on profitability is incompatible with the shareholder theory which is seen as a firm's sole responsibility as maximizing profits for the shareholder that means that if a corporation does something that is not related to the shareholder's profit a shareholder may invest in another company profit (Friedman, 1962; Taha *et al.,* (2023).

The finding reveals that liquidity moderates the relationship between

CSP and firm profitability. As an explanation for these results when firm liquidity increases, that gives an indicator that the firm is able to cover its short-term obligations and that will reflect on firm profitability. This result is consistent with Yameen *et al.,* (2019) who stated that firm liquidity is a significant determinant of profitability and this is consistent with Al-Matari (2023); Taha *et al.,* (2023), who found that firm liquidity has a moderate positive relationship between the bank's profitability score and performance. Also, this result is compatible with Ramadan et al. (2020), which indicated that firm liquidity positively affects firm profitability. Based on the results CSP significantly positively has an impact on firm profitability of companies listed on S&P/EGX ESG. In addition, liquidity moderates the relationship between CSP and profitability in Egypt in the companies listed on S&P/EGX ESG.

The finding reveals that stock volatility had no moderation effect on the relationship between CSP and profitability in Egypt in companies listed in S&P/EGX ESG. This result is contradicted with Taha *et al.,* (2023), who found that stock volatility moderates the relationship between CSP and profitability in Jordan. The contradicting results may be because of the different research methodologies used as Taha *et al.,* (2023), used corporate sustainability assessment methodology derived in the sustainability checklist 38 criteria, economic (13), environmental (12), and social (13) from the study derived by Dow Jones Corporate Sustainability moreover If relevant information was found in the annual reports, "1" is assigned to this company if not the company gets "0".In this research in contracting with Taha *et al.,* (2023) , the dataset includes the ESG scores for the listed companies in the S&P/EGX ESG index from 2010 till 2022 then to overcome the unbalanced data reclassification for data was done and data were classified into three categories of High intensity which represents the high frequencies companies entered the S&P/EGX ESG index from 2010 till 2022 and D2 which represent the moderate frequencies companies entered the S&P/EGX ESG index from 2010 till 2022 so according to the different methodologies used that may lead to this contradicting results.

This research had one control variable which is the firm size when tested with ROA the result was significantly negative and this result was supported by Abeyrathna & Priyadarshana, (2019) who stated that firm size doesn't have a considerable impact on profitability in the listed manufacturing firms in Sri Lanka. Other contradicted studies with this result (Ishmail *et al.,* 2023; Otieno *et al.,* 2016) which found an insignificant relation between firm size and profitability and this may be due to that both studies focused on the microfinance banks in Kenya and this may indicate different in results as banks have a different financial natural compared to the non-financial companies, especially in their classification of assets.

As a result, according to the research findings and calculations, Egypt has to increase applying the concept of sustainability by encouraging sustainability practices in firms. Therefore, recommending the following:

As CSP has a positive impact on the firm profitability it's recommended to government and regulatory bodies to encourage sustainability reporting transparency to enhance investor confidence and market liquidity by mandating comprehensive and transparent sustainability reporting for publicly traded companies like the European Union as it is one of the leading countries in encouraging sustainability reporting transparency.

Promote and encourage sustainable investments by providing tax incentives and subsidies for companies that invest in sustainable practices to make it financially attractive to companies to improve their CSP.

Enhance the regulatory framework by implementing a stringent guidelines and regulations for environmental, social and governance to guarantee that companies stick to a high standard of sustainable performance like Australia, in July2024 Australia introduced regulation for the mandatory sustainability reporting for corporations in order in enhance the transparency by requiring companies to report about it ESG factor.

Conclusion

The study aims to identify the impact of CSP on firm Profitability. In addition to examining the moderating role of liquidity and stock price volatility in Egypt. Thus, the study utilized two measurements for CSP. The first one applied in the first regression model is the ESG score and second one is the intensity index applied in the second regression model. Besides (the current ratio) to measure liquidity, stock price volatility is measured using a formula from previous studies and utilized (Return on Assets) to measure profitability in the first regression model and ln(ROA) for measuring the profitability in the second regression model in this study.

Moreover, the study collected data from annual reports of the companies listed on S&P/EGX ESG from 2010 to 2022. However, the data set was analyzed using STATA 17. Accordingly, the findings of the first regression model stated insignificant relationship between CSP and firm profitability while the second regression model stated a positive significant relationship between corporate sustainable performance and profitability in Egypt; also, liquidity moderate the effect of corporate sustainability performance on the profitability of companies listed in S&P/EGX ESG.

Some limitation should be addressed in future as the study face, The presence of unbalanced data within the dataset for the ESG Scores as companies enter and exit from the index in August each year within the dataset was one of the limitations in this research, the disproportionate representation of certain categories posed challenges in accurately assessing the relationship between the corporate sustainable performance profitability. The imbalance risked biasing the results, making it difficult to draw reliable conclusions.

To address this limitation, a reclassification of the dataset was undertaken to ensure a more balanced distribution of categories. This involved employing techniques such as resampling and adjusting the weights of underrepresented categories to create a more equitable dataset. This reclassification was crucial in enhancing the validity and

reliability of the analysis, ensuring that the finds more accurately reflect the true impact of sustainability practices on profitability. Excluding the banking sector and the non-financial holding companies as they have different operating nature is a limitation in this research and up to the researcher knowledge there was a lack.

Also, a limitation of this study was that up to the researcher's knowledge, there was a scarcity of existing research exploring the relation between CSP and profitability in emerging countries. The limited availability of literature on this topic restricted the depth of comparative analysis and comprehensive understanding of how sustainability practices impact financial outcomes. Therefore, this study aimed to fill this research gap by giving insights from the available literature and by conducting empirical analysis to contribute a new perspective on the CSP's impact on the firm profitability.

Based on the study findings, further research is needed to investigate the impact of the total corporate sustainability performance score and to establish the effect of the three-sustainability dimension environmental, social and governance to decrease the difference in theories and the empirical findings. Adding a new variable in order to test its effect on the relationship between CSP and firm profitability is recommended which will help in the understanding how additional factors might influence this relationship. Finally, there is still a need for studies from developing countries on this relationship.

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Appendices

Appendix A: Table 8 Presents 54 non-financial firms listed in S&P/EGX ESG

COMPANY NAME
Abou Kir Fertilizers
ALEXANDRIA CONTAINERS & GOOD
Alexandria Mineral Oils Company
Arabian Cement Company
Arabian Food Industries
Asek Company for Mining - Ascom
Cairo Poultry
Canal Shipping Agencies
Cleopatra Hospital Company
Delta Sugar
Development and Engineering Consultancies
Dice Sport & Casual Wear
Eastern Company
Edita Food Industries S.A.E
Egypt Gas
Egyptian Chemical Industries
Egyptian For Tourism Resorts
Egyptian International Pharmaceuticals (EIPICO)
Egyptian Iron & Steel
Egyptian Transport (EGYTRANS)
El Ezz Ceramics & Porcelain
El sewedy Electric company
Elswedy Cables
Ezz Steel
Fawry For Banking Technology And Electronic Payment
GB Auto
Heliopolis Housing
IBNSINA PHARMA

Ismailia Misr Poultry Co.
Juhayna Food Industries
Lecico Egypt
Maridive & Oil Services
Medinet Nasr Housing
Misr Cement (Qena)
Misr Chemical Industries
Misr Fertilizers Production Co. Mopco
Obour Land For Food Industries
Orascom Construction Industries (OCI)
Orascom Construction Limited
Orascom Development Egypt SAE
Orascom Development Holdings EDR
Oriental Weavers
Paint & Chemicals Industries (Pachin)
Palm Hills Development Company
Raya Contact Center S.A.E
Sidi Kerir Petrochemicals
Six of October Development & Investment (SODIC)
South Valley Cement
Taaleem Management Services
Telecom Egypt
Tenth of Ramadan Pharmaceutical Industries & Diagnostic-Rameda
United Arab Shipping
United Housing and Development Company
UNIVERSAL UNIPACK