

THE IMPACT OF CORPORATE ENVIRONMENTAL AND SOCIAL DISCLOSURE ON FIRM VALUE CREATION OVER ITS DIFFERENT LIFE CYCLE STAGES: AN EMPIRICAL EVIDENCE FROM EGYPT

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Abstract: This study investigates the relationship between firm value creation (FVC) and corporate environmental and social disclosure (CESD) and how FVC differs in terms of its life cycle stages in Egypt by analyzing the impact on FVC from 2013 to 2019 of non-financial firms listed on the Egyptian Stock Exchange (EGX). The study used multivariate analyses and found that CESD negatively impacts FVC. Furthermore, FVC differs in its life cycle stages. The results proved that the growth stage negatively affects the FVC, and the shaking-out stage positively affects the FVC. Meanwhile, the remaining stages show no significant relationship with FVC. For the control variables, industry type, liquidity, auditor type, leverage, and profitability showed significant positive influences on FVC. At the same time, the firm age and the board size exhibited a significant negative association with FVC. Meanwhile, the firm size showed no significant association. These findings offer insight into the factors influencing FVC for non-financial Egyptian firms listed on the EGX. This study adds

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to the current literature because empirical research on the influence of CESD and different life cycle stages on FVC is insufficient in Africa, especially in Arabic nations. Our results have some consequences for the business strategy, as strong CESD can enhance a firm's reputation and attract environmentally and socially conscious consumers, potentially leading to increased sales and customer loyalty. This, in turn, can contribute to FVC through higher profits and a stronger brand image. CESD can also mitigate environmental risks and improve resource efficiency, reducing costs and boosting profitability, ultimately impacting FVC. Our results greatly interest suppliers, creditors, investors, and researchers in sustainability, CESD, and corporate voluntary disclosure.

Keyword: Firm Value Creation, Corporate Environmental and Social Disclosure, Life Cycle Stages, non-financial firms, Egypt

1. INTRODUCTION

Corporate Environmental and Social Disclosure (hereafter, CESD) are the business activities that exceed a firm's self-interests and regulatory obligations to accomplish and demonstrate some form of environmental and societal benefit (McWilliams & Siegel, 2001). Nowadays, most firms are emphasizing their responsibilities towards the environment and society, increasing the spreading of environmental and social information. These firms allocate a significant portion of their budgets to CESD (Hasan & Habib, 2017).

In the past twenty years, the primary mission of a corporation has shifted from solely maximizing profits to enhancing the well-being of its shareholders and safeguarding their interests by prioritizing environmental and social activities (Widyasari *et al.*, 2019), as the firm's strategy may change to focus on environmental and social obligations to enhance its competitive edge and reputation and increase resource efficiency in the long run (Saeidi *et al.*, 2015).

Several prior research has examined the relationship between firm value creation (hereafter, FVC) and CESD (Yoon & Lee, 2018; Hu *et al.*, 2018; Abdi *et al.*, 2020; Muslichah, 2020; Al Amosh & Khatib, 2023). Although attempts have been made, contentious debates and ongoing discussions persist on the connection between CESD and the FVC (Aboud & Diab, 2018). Only a limited number of research have specifically examined emerging markets; for instance, (Saeidi *et al.*, 2015; Malarvizhi & Matta, 2016; Aboud & Diab, 2018; Muslichah, 2020). Thus, emerging economies require special attention due to political instability and unique cultural characteristics. Hence, the first aim of our study is to examine the influence of CESD on the FVC in Egypt.

In 2007, the Egyptian Corporate Responsibility Center (ECRC) released the S&P/EGX Index for Corporate Social Responsibility (CSR) to motivate

firms to publish environmental, social, and governance (ESG) actions (Wahba & Elsayed, 2015). The Egyptian government also changed the 2016 Corporate Governance Code to emphasize the importance of publishing such information and how honesty, fairness, and accessibility will improve stakeholder relations and Egyptian firms' potential efficacy that are unable to conduct voluntary disclosure due to lacking regulatory frameworks (Abdelazim *et al.*, 2023). Thus, this area needs more research.

The academic literature pays scant attention to how firms reach their long-run strategy, even though firms grow during their entire lifespan (Amin *et al.*, 2023). Thus, our study seeks to investigate the influence of CESD on FVC over different life cycle stages. These stages are classified into five groups: introduction, growth, maturity, shaking-out, and declining. Our study used Dickinson's (2011) cash flow patterns to reflect a firm's growth and profit as it could be the ideal technique for assessment because it covers investments, operational practices, and market shares (Hasan & Habib, 2017).

Prior research indicates that different life cycle stages are significantly associated with various aspects of the firm decision-making process and performance, including dividends, investments, cost of debt, cost of equity, cash holdings, risk, and financial resources (DeAngelo *et al.*, 2006; Amin *et al.*, 2023; Hasan & Habib, 2017; Hsu & Chen, 2018; Atif *et al.*, 2022; Al-Hadi *et al.*, 2019; Jan *et al.*, 2021; Khuong *et al.*, 2023). Thus, based on prior literature, different life cycle stages can influence a firm's decision-making process; thereby, it will affect FVC, which is considered an essential part of a firm's decisions. Thus, the second aim of our study is to analyze how FVC differs over its different life cycle stages in Egypt.

Our study is a further study of two studies: the first one is Aboud & Diab's (2018) study, which stated that a firm's value rises when it appears in the ESG index when Tobin's Q measures the FVC. This study should have considered the effect of different life cycles and is limited to only the best 30 firms in the ESG index, which include non-financial firms, financial institutions, and banks, every year without any differentiation to their unique characteristics.

The second one is the Gamal *et al.* (2022) study, which examined the impact of firms' life cycles on their sustainability performance by employing only a sample of firms listed in the Egyptian ESG index without considering the other firms not included. Also, there is no guarantee that the firm will continue in this index yearly during the sample duration.

This previous study serves as a motivation for our research to investigate further how CESD affects FVC and how FVC differs over its life cycle stages, as

the index of this previous study includes only the most active 30 non-financial firms, financial institutions, and banks every year without any differentiation to their unique characteristics in ESG activities. Thus, our study aims to broaden the scope by analyzing a larger sample of Egyptian firms over an extended period using a different index for CESD. Furthermore, this previous study shows only a significant correlation between firms' life cycle stages and their sustainability performance without clarifying the direct impact of each stage on this performance.

Hence, to our knowledge, this study is considered one of the early studies that use both CESD and the different life cycle stages as primary independent variables to analyze their direct effect on FVC in Egyptian firms, where understanding the relationship between FVC, CESD, and different life cycle stages is vital.

Our study makes significant contributions to the current literature in multiple ways. Most studies focus on examining the effect of CESD on FVC based on the different firm characteristics without considering the impact of various life cycle stages. Thus, our study fills this gap with a life-cycle strategy.

Additionally, this study's importance and contribution stem from the discussed topic, which concentrates on the impact of CESD and different life cycle stages on FVC. To our knowledge, only three previous studies have been conducted in an African or Arabic nation. Moreover, this study is conducted in a developing country, Egypt, an emerging economy with unique regulations and settlements, where the disclosure of environmental and social data is voluntary and not compulsory until the end of 2021.

Our study has some consequences for the business strategy, as CESD can indicate effective leadership and dedication to long-lasting sustainability through the firm's different life cycle approach. This, in turn, has a potential impact on investors who prioritize environmental and social factors, which could increase the stock price and FVC.

In addition, CESD and a firm's life cycle approach can improve a firm's reputation by implementing robust CESD policies. This can result in favorable brand perception and increased customer loyalty, increasing sales and a greater FVC. Our study attracts the attention of suppliers, creditors, investors, and researchers in sustainability, corporate social responsibility (CSR), and corporate voluntary disclosure.

To fulfill the study objective, the remaining paper will be presented as follows: Section 2 offers comprehensive reviews of the literature and the development of the hypotheses. Section 3 explains the methodology and results

in detail. Section 4 exhibits the sensitivity analysis. Finally, Section 5 addresses our study's conclusions, future prospects, and limitations.

2. LITERATURE REVIEW

The following section will discuss the literature review regarding CESD and firm value creation, followed by prior literature discussing firm life cycle and value creation.

2.1. Corporate Environmental and Social Disclosure and Firm Value Creation

Investigating the value of firm creation through CESD is crucial as it demands a significant investment of resources (Temiz, 2021). CESD includes voluntary actions of firms to benefit various shareholders, including suppliers, customers, investors, employees, and regulators (Malik, 2015). In this context, CESD is a supplementary component to the financial information disclosed in regularly issued financial statements. It also provides insights into the potential opportunities and risks for a firm's long-term intellectual property value, specifically by focusing on those associated with environmental and social information (Kuzey & Uyar, 2017).

Our study follows the stakeholder theory, which is considered a framework for ethics in business and managerial behavior that focuses on both the value-based aspects and the moral of directing a firm (Freeman & McVea, 2005). According to this theory, firms' CESD depends on their shareholders' loyalty. This theory asserts that a firm should establish positive relationships with all shareholders to meet their information requirements and prioritize the interests of other shareholders, such as suppliers and employees, besides its principal shareholders through CESD to improve FVC (Khuong *et al.*, 2023).

In addition, according to the stakeholder theory, it is widely believed that a firm's main objective is to maximize its shareholders' value (Jones, 1995). When a firm performs CESD, such disclosure will help establish a favorable reputation and increase trust among different shareholders, resulting in a favorable impression of the firm by its shareholders, which, in turn, will enhance the firm's earnings as well as continually maximize its value (Aboud & Diab, 2018). Consequently, the firm enhances its CESD to uphold its commitments to shareholders and the public (Jan *et al.*, 2021). Also, Managers deploy CESD as an instrument strategy to distinguish their firms from their rivals, enhance operational effectiveness, cultivate customer loyalty (Alotaibi & Hussainey, 2016a), and optimize FVC (Malik, 2015; Jan *et al.*, 2021).

Several empirical studies have linked CESD to firm value creation and have found a positive connection. For instance, Dhaliwal *et al.* (2011) reveal that high CESD U.S. firms with lower capital-raising costs attract experts and institutional investors and will increase the FVC. Similarly, El Ghouli *et al.* (2011) assert that high CESD U.S. firms pay less for equity capital. They also suggest that choosing product strategies and implementing solid environmental policies could reduce firms' equity costs, maximizing their value creation.

In addition, Saeidi *et al.* (2015) denote that CESD indirectly improves the firm's performance by boosting competitive advantage, reputation, and client satisfaction in Iranian firms. Alotaibi & Hussainey (2016b) found that CESD in Saudi Arabia is positively associated with market capitalization. Meanwhile, there is no association when using either Return on Assets or Tobin's Q as indicators for firm value. Similar to Chung *et al.* (2018) study, which discovered that CESD positively correlates with Korean firm value, and Hu *et al.* (2018) study, which clarified that CESD and FVC have a positive relationship in China as well as Jan *et al.* (2021) study, which denoted that CESD positively associated with the Chinese firm performance. Similar results were revealed by Aboud & Diab's (2018) study in the Egyptian context, as Khuong *et al.*'s (2023) study, which discovered that CESD boosts FVC in Vietnamese firms, and Al Amosh & Khatib's (2023) study found that CESD positively influences the FVC of Jordanian firms.

Moving to the agency theory, where agency problems arise from the conflict of interests between insiders and outsiders and cause information asymmetry (Fama & Jensen, 1983). Accordingly, CESD is crucial in mitigating this asymmetry, reducing agency conflicts, and boosting FVC (Muslichah, 2020). On the other hand, CESD can arise due to a conflict of interest between management and shareholders, where managers who prioritize their interests may promote their CESD (Hu *et al.*, 2018).

According to the agency theory, managers may dispute interests when prioritizing personal benefits over their shareholders' interests, especially when releasing environmental and social information (Jensen & Meckling, 1976).

For instance, Friedman (2007) states that CESD hurts the firm's investors, suggesting a negative relationship between FVC and CESD. Also, Preston & O'bannon (1997) discover that when managers prioritize their interests, it can result in excessive investment in CESD practices, harming the shareholders' interests, putting the firm at a competitive disadvantage, and harming its value. In addition, Elliott *et al.* (2014) stressed that investors' explicit evaluation of CESD can negatively weaken the link between high CESD and investors'

assessments of fundamental firm value. Similarly, Malarvizhi & Matta (2016) state that the association between environmental disclosure and firm performance is insignificant in Indian firms. Nonetheless, Ngoc's (2018) results show that the financial performance of commercial banks in Vietnam negatively correlates with their CESD. Muslichah (2020) found that the direct effect of CESD on FVC is insignificant in Indonesian firms. We can conclude from the previous studies that the existing literature needs a broad consensus regarding whether CESD exclusively yields beneficial outcomes for FVC due to the conflicting results. Although several empirical studies investigated the different impacts of CESD on firm performance, firm market value, and profitability, there still needs to be an ongoing disagreement regarding its usefulness. Thus, our study aims to fill the gap in current research on how CESD might influence the FVC by formulating the following hypothesis:

H1: There is an association between the CESD and FVC of Egyptian firms.

2.2. Firm's Different Life Cycle Stages and Firm Value Creation

The existing literature variably characterizes a firm's different life cycle stages. Prior research indicates that this life cycle contains five distinct stages: introduction, growth, maturity, shaking-out, and declining (Dickinson, 2011). During each stage, the firm must adjust to the particular circumstances and make suitable decisions regarding policy and strategy. In addition, the policy for allocating resources in each stage is subject to variation depending on the stage of development, resulting in different expenses (Khuong *et al.*, 2023). The existing literature relies heavily upon the **life cycle theory** (Hasan & Habib, 2017). This theory demonstrates that firms proceed in a series of stages as they pass through frequent changes in different areas, including operations, expenses, finances, managerial capabilities, strategies, and sentiment toward risk (Jan *et al.*, 2021). According to this theory, the introduction stage is when a new firm is established as a distinct entity (Scott & Bruce, 1987). As a firm grows, it faces competition from other firms and has initial success; then, it enters the maturity phase, where its innovative efforts diminish, but internal operations flourish, and the firm can maximize its profitability (Quinn & Cameron, 1983). After that, firms enter the shaking-out stage, where they may broaden their product offerings to survive and maintain market share (Scott & Bruce, 1987). In the last declining stage, firms may "dry up" and collapse in the declining stage. If these firms fail to reorganize, acquisitions, or merge, they will be terminated and closed (Quinn & Cameron, 1983). Finally, Firms may break down and vanish in the ultimate declining stage due to their failure to

expand their offerings, which can lead to business failure (Quinn & Cameron, 1983).

Several empirical studies examine how the different stages of a firm's life cycle affect the financing, investment, and sustainability decisions. For instance, Anthony & Ramesh (1992) study examined the accounting data across the life cycle. It discovered that capital expenditures and earnings increase during growth and positively correlate with market returns but diminish during the declining stage. In addition, Mashayekhi (2013) stated that the firms' financial composition has modifications during their life cycle. Furthermore, according to Richardson (2006), firms invest more in expansion at the early stages, while in the maturity stage, they tend to invest more in maintaining existing assets. Hribar & Yehuda (2007) suggest that the consistency of financial profits will vary with various life cycle phases and affect capital cost and value relevance; also, they find that the maturity stage has the least capital cost, while the growth and declining stages have significantly high costs.

The theory of resource-based posits that firms vary in their collection of resources (including physical, technological, financial, reputation, organizational resources, and human capital) and abilities, which are essential in clarifying a firm's growth performance and allocating funds for charitable activities (Campbell, 2007). According to this perspective, mature firms possess extensive, varied, and plenty of resources and capacities, whereas young and declining firms have limited and restricted ones. Introductory firms face challenges such as not having a well-established client base and lacking knowledge about industry trends, future costs, and revenues (Helfat & Peteraf, 2003). In addition, due to the "liability of newness," these firms face early exit possibilities. While growing firms may face intense market competition despite their product growth and rapid sales (Helfat & Peteraf, 2003).

Based on the previous literature, our study investigates how the FVC might differ over its different life cycle stages by affecting its ability to allocate resources towards increasing the FVC by formulating the following second hypothesis:

H2: The FVC of Egyptian firms differs over their life cycle stages.

Several studies explain the connection between the firm's financial performance, equity cost, and disclosure with the different life cycle stages. For instance, Elsayed & Paton (2009) find that economic performance has the highest impact on the environmental disclosure of mature firms, and it has a minor influence on the environmental disclosure of growing firms. Furthermore, Hsu & Chen (2018) state that a firm's debt and equity have a plateau shape regarding the disclosure of U.S. firms through its life cycle. In

the maturity stage, higher disclosure firms will have fewer significant issues, as their dividend payout, cash holdings, retained earnings, and free cash flow will decrease from firms with high disclosure to firms with low disclosure. Also, young and small firms typically turn to private loan markets, while larger firms, which are more established, primarily depend on public markets. In Egypt, Gamal *et al.* (2022) investigated the effect of a firm's life cycle on its sustainability performance and showed that its life cycle stages significantly impact its sustainability performance. In contrast, Jan *et al.* (2021) show that Chinese firms in the maturity stage show a stronger negative correlation between positive CESD and firm performance, while the remaining phases have an insignificant impact.

Thus, from previous studies, we can conclude that young firms, mainly in the introduction and growth phases, need more assistance from shareholders since they need outside resources to make profits and maximize their FVC (Udayasankar, 2008). Also, young firms may struggle with their cash flow issues (including poor liquidity ratios) to generate profits while raising costly capital due to uncertain cash flows, which hinders their ability to compete with older firms with high liquidity ratios (Elsayed & Paton, 2009). Nonetheless, introductory and growing firms are less visible; therefore, they may utilize disclosure to obtain external resources and gain legitimacy, but they require more than mature firms (Udayasankar, 2008). On the other hand, Udayasankar (2008) suggests that firms with restricted resources may benefit from disclosure because they can access vital resources exclusively. However, most research indicates that resource availability drives disclosure decisions, which will, in turn, increase FVC (Campbell, 2007; Clarkson *et al.*, 2011).

From the above discussion, we can conclude that restricted funds and irrevocable investments will limit firms from maximizing FVC in the introduction and growth stages. Therefore, our sub-hypotheses may be developed as follow:

H2a: The introduction stage negatively impacts the FVC of Egyptian firms

H2b: The growth stage negatively impacts the FVC of Egyptian firms.

Furthermore, mature firms must be more motivated to strategically use opportunities to enhance their financial performance, as they already make adequate profits. These firms are currently moving in the correct path for their operational strategy, and preserving their ethical reputation remains a possibility. In this stage, firms can develop a unique reputation that cannot

be easily duplicated by investing in increasing corporate disclosure to counteract competition (McWilliams & Siegel, 2001). Moreover, firms in the maturity stage can make meaningful contributions by reallocating resources and reducing expenses for mature firms to engage in CESD (Udayasankar, 2008). Also, mature firms affect their FVC because they are more stable, have more stable financial flows, and can attract more investments than young firms (Russo & Perrini, 2010). Thus, given mature firms' tremendous competitive advantages, capacities, and appropriate resource allocation, they should be more able to maximize their FVC than firms in previous phases (Khuong *et al.*, 2023). Therefore, the research hypothesis may be developed as follows:

H2c: The maturity stage positively impacts the FVC of Egyptian firms.

Following the agency theory, firms in their early stages have greater possibilities for growth, but these opportunities decrease over time (Jensen & Meckling, 1976). Therefore, when resources focused on expansion have been used up, firms start acquiring growing firms or undertake mergers with other firms during the declining stage. According to Campbell (2007), firms in the shaking-out and declining stages typically concentrate on critical actions like reorganization, acquisitions, and mergers over CESD practices, which are seen as indirect methods of ensuring survival. Finally, the shaking-out and declining firms have limited resources.

Thus, these firms prioritize survival and may not prefer to increase their corporate voluntary disclosure with their weak financial performance, which may harm their shareholder value (Hasan & Habib, 2017). These last two stages prioritize survival and frequent restructuring to enhance operational efficiency, which could entail optimizing processes, discontinuing unproductive product lines, or downsizing unnecessary personnel. Also, engaging in these measures can reduce expenses and increase profitability, ultimately leading to a greater firm valuation (Campbell, 2007). Thus, we hypothesize the following:

H2d: The shaking-out stage negatively impacts the FVC of Egyptian firms.

H2e: The declining stage negatively impacts the FVC of Egyptian firms.

3. METHODOLOGY

The study sample, study variables, and measurements, as well as the study models designed to examine the influence of CESD on firm value creation in its different life cycle stages, are presented in this section.

3.1. Data and Sample Selection

The scope of our analysis includes a sample of firms listed on the Egyptian Stock Exchange (EGX) from 2013 to 2019. In addition, we removed 17 financial firms, insurance, and banking from the sample due to their unique reporting and accounting methods (Hassanein & Hussainey, 2015). Furthermore, missing data firms were removed, resulting in 28 deleted firms.

In addition, nearly eight firms are excluded due to their fiscal year ending on a date different from 30 June or 31 December. We take this procedure in our study to minimize potential disruptions from differences in fiscal year durations and ensure that the sample remains homogeneous. The final sample of our research amounts to 47 firms with 329 firm-year observations. Finally, we employed multiple data analysis tests (Descriptive, Pearson correlation, multicollinearity, Normality, homoscedasticity, autocorrelation, and multiple regression models) to analyze data and reach conclusions.

We gathered information on FVC and the firm's different life cycle stages from the firm's website and the annual reports. CESD information is collected from the board of directors' reports, the firm's website, and the annual reports. Although there is no specific set of criteria for providing information regarding sustainability, the directors' report includes information on environmental and social initiatives and projects. GRI-G4 standards are employed in collecting data about the nature and level of CESD. It is a common practice to conduct textual research in accounting using content analysis, especially in corporate disclosure (Boshnak, 2022).

3.2. Research Variables and Measurement

This study has one dependent variable, two independent variables, and eight control variables. **Table (1)** shows the study variables and their measurements.

3.2.1. Dependent Variable

3.2.1.1 Firm Value Creation (FVC)

FVC is the dependent variable in our study. It is calculated by the market-to-book ratio, which equals the equity's market value over the equity's book value (Temiz, 2021).

3.2.2 Independent Variables

3.2.2.1. Corporate Environmental and Social Disclosure (CESD)

CESD is the first dependent variable in our study and is computed by the

items disclosed in the modified index for CESD adapted from previous studies (Alotaibi & Hussainey, 2016a; Boshnak, 2022). Furthermore, the present study conducted content analysis using a manual approach to determine the amount of CESD using the adopted index. According to Boshnak (2022), the manual content analysis technique is a valuable instrument for assessing the level of disclosure due to its reliability, accuracy, and widespread acceptance in the context of corporate disclosure. Also, it facilitates a deeper comprehension of the extent, traits, and complexity of the data under examination. The adopted index in this study is composed of five distinct categories. These categories are as follows: (1) environmental and energy information, (2) information on the firm's employees, (3) information on the firm's community, (4) firm's products and services, and (5) information on firm's customers with total 31 disclosure items. The Unweigh assessment technique is further utilized in this index to determine the amount of CESD; if the last year's report is accessible, each component of the adopted index will take a value of "1"; otherwise, it will take a value of "0". Finally, the adopted index is computed by dividing the number of components disclosed by the overall number of components (31 items).

3.2.2.2. Firm's Different Life Cycle Stages

The firm's different life cycle stages (FDLCS) are the second independent variable in our study. We used Dickinson's (2011) categorization of the corporate life cycle, which is detected by the distinct cash flow trends, as a means to identify the various stages of the life cycle, as previously explored in other studies (Hasan & Habib, 2017; Hsu & Chen, 2018; Widyasari *et al.*, 2019; Gao *et al.*, 2023; Amin *et al.*, 2023). The firm's different life cycle stages (FDLCS) include the following five stages: Introduction stage (INTRO), growth stage (GROW), maturity stage (MATUR), shaking-out stage (SHAK), Declining stage (DECL) as depicted in table 1.

3.2.3. Control Variables

The eight control variables formulated from prior studies as follows: the industry type (*INDUST*) (Kamel & Awadallah, 2017), the liquidity (*LIQUID*) (Aly *et al.*, 2010), the auditor type (*AUDIT*) (Abdelazim *et al.*, 2023), the firm age (*AGE*) (Hasan & Habib, 2017), the board size (*BDSIZE*) (Cheng & Courtenay, 2006), the firm size (*SIZE*) (Amin *et al.*, 2023), the leverage (*LEVER*) (Hasan & Habib, 2017), and the profitability (*ROA*) (Alotaibi & Hussainey, 2016a) as shown in table 1.

Table 1: The Study Variables and Measurements

<i>Variables</i>	<i>Acronym</i>	<i>Measurements</i>
Dependent Variable: Firm Value Creation	(FVC)	The Market-to-Book percentage measures the FVC by multiplying the equity's fair value by its book value (Temiz, 2021).
Independent Variables: CESD	(CESD)	The ratio of elements from the disclosure checklist disclosed in the CESD index compared to the total number of elements (Boshnak, 2022).
Firm's Different Life Cycle Stages	(FDLCS)	A dummy variable from 1 to 5 reflects the various life cycle stages of the firm using cash flow from operating activities (OCF), Cash flow from investing activities (ICF), and Cash flow from financing activities (FCF). (Dickinson, 2011)
Introduction stage	(INTRO)	A binary variable equals one if the firm is in the introduction stage (<i>INTRO</i>). Its operational net cash flow is less than zero, the investment net cash flow is less than zero, and the financial net cash flow is more significant than zero, and if not, it takes zero (Hasan & Habib, 2017).
Growth stage	(GROW)	A binary variable is equal one if the firm is in the growth stage (<i>GROW</i>) and its operational net cash flow is greater than zero, the investment net cash flow is less than zero, and the financial net cash flow is greater than zero, and if not, it takes zero (Widyasari <i>et al.</i> , 2019).
Maturity stage	(MATUR)	A binary variable which is equal one if the firm is in the maturity stage (<i>MATUR</i>) and its operational net cash flow is greater than zero, the investment cash flow is less than zero, and the financial cash flow is less than zero, and if not, it takes zero (Amin <i>et al.</i> , 2023).
Shaking-out stage	(SHAK)	A binary variable which is equal one if the firm is in the shaking-out stage (<i>SHAK</i>) and its operational net cash flow is either less than, greater than, or equal to zero, the investment net cash flow is either less than or greater than or equal zero, and the financial net cash flow is either less or greater than or equal to zero, and if not, it takes zero (Dickinson, 2011).
Declining stage	(DECL)	A binary variable which is equal one if the firm is in the declining stage (<i>DECL</i>) and its operational net cash flow is less than zero, the investment net cash flow is greater than zero, and the financial net cash flow is either less or greater than or equal to zero, and if not, it takes zero (Gao <i>et al.</i> , 2023).

Control Variables:		
Industry type	<i>(INDUST)</i>	A binary variable that is equal to one if the firm is a manufacturing one and (0) if not (Kamel & Awadallah, 2017).
Liquidity	<i>(LIQUID)</i>	Current assets to current liabilities (Aly <i>et al.</i> , 2010).
Auditor type	<i>(AUDIT)</i>	A binary variable which is equal to one when the external auditors have an international affiliation with Big 4 audit companies and zero otherwise (Abdelazim <i>et al.</i> , 2023).
Firm age	<i>(AGE)</i>	The natural logarithm of the total years from the firm's initial registration in the Egyptian Stock Exchange (Hasan & Habib, 2017)
Board size	<i>(BDSIZE)</i>	It represents the number of individuals who are members of a given board and is computed by the natural logarithm of those individuals (Cheng & Courtenay, 2006).
Firm size	<i>(SIZE)</i>	The natural logarithm of the total assets (Amin <i>et al.</i> , 2023).
Leverage	<i>(LEVER)</i>	Total liabilities to total assets (Hasan & Habib, 2017).
Profitability	<i>(ROA)</i>	Overall net earnings are divided by the firm's total assets (Alotaibi & Hussainey, 2016a).

3.3. Research Model

This study aims mainly to examine the impact of CESD on FVC over its different life cycle stages. Thus, we followed prior studies in this area (e.g., Hasan & Habib, 2017; Hsu & Chen, 2018; Widyasari *et al.*, 2019; Gao *et al.*, 2023; Amin *et al.*, 2023). We developed the following primary model and used multiple linear regression to test related hypotheses:

The Main Statistical Model: FVC

$$\begin{aligned}
 FVC_{it} = & \beta_0 + \beta_1 CESD_{it} + \beta_2 FDLCS_{it} + \beta_3 INDUST_{it} \\
 & + \beta_4 LIQUID_{it} + \beta_5 AUDIT_{it} + \beta_6 AGE_{it} \\
 & + \beta_7 BDSIZE_{it} + \beta_8 SIZE_{it} + \beta_9 LEVER_{it} \\
 & + \beta_{10} ROA_{it} + \text{fixed year effect}_i + \varepsilon_{it}
 \end{aligned} \tag{1}$$

The following five sub-models are developed from the previous primary model to test the impact of CESD on FVC in each stage of the five FDLCS:

$$\begin{aligned}
 FVC_{it} = & \beta_0 + \beta_1 CESD_{it} + \beta_2 INTRO_{it} + \beta_3 INDUST_{it} \\
 & + \beta_4 LIQUID_{it} + \beta_5 AUDIT_{it} + \beta_6 AGE_{it} \\
 & + \beta_7 BDSIZE_{it} + \beta_8 SIZE_{it} + \beta_9 LEVER_{it} \\
 & + \beta_{10} ROA_{it} + \text{fixed year effect}_i + \varepsilon_{it}
 \end{aligned} \tag{1A}$$

$$\begin{aligned}
 FVC_{it} = & \beta_0 + \beta_1 CESD_{it} + \beta_2 GROW_{it} + \beta_3 INDUST_{it} \\
 & + \beta_4 LIQUID_{it} + \beta_5 AUDIT_{it} + \beta_6 AGE_{it} \\
 & + \beta_7 BDSIZE_{it} + \beta_8 SIZE_{it} + \beta_9 LEVER_{it} \\
 & + \beta_{10} ROA_{it} + \text{fixed year effect}_i + \varepsilon_{it}
 \end{aligned} \tag{1B}$$

$$\begin{aligned}
 FVC_{it} = & \beta_0 + \beta_1 CESD_{it} + \beta_2 MATUR_{it} + \beta_3 INDUST_{it} \\
 & + \beta_4 LIQUID_{it} + \beta_5 AUDIT_{it} + \beta_6 AGE_{it} \\
 & + \beta_7 BDSIZE_{it} + \beta_8 SIZE_{it} + \beta_9 LEVER_{it} \\
 & + \beta_{10} ROA_{it} + \text{fixed year effect}_i + \varepsilon_{it}
 \end{aligned} \tag{1C}$$

$$\begin{aligned}
 FVC_{it} = & \beta_0 + \beta_1 CESD_{it} + \beta_2 SHAK_{it} + \beta_3 INDUST_{it} \\
 & + \beta_4 LIQUID_{it} + \beta_5 AUDIT_{it} + \beta_6 AGE_{it} \\
 & + \beta_7 BDSIZE_{it} + \beta_8 SIZE_{it} + \beta_9 LEVER_{it} \\
 & + \beta_{10} ROA_{it} + \text{fixed year effect}_i + \varepsilon_{it}
 \end{aligned} \tag{1D}$$

$$\begin{aligned}
 FVC_{it} = & \beta_0 + \beta_1 CESD_{it} + \beta_2 DECL_{it} + \beta_3 INDUST_{it} \\
 & + \beta_4 LIQUID_{it} + \beta_5 AUDIT_{it} + \beta_6 AGE_{it} \\
 & + \beta_7 BDSIZE_{it} + \beta_8 SIZE_{it} + \beta_9 LEVER_{it} \\
 & + \beta_{10} ROA_{it} + \text{fixed year effect}_i + \varepsilon_{it}
 \end{aligned} \tag{1E}$$

Where: *FVC*, the Market-to-Book ratio of firm *i* in year *t*; *CESD*, the score of the disclosure amounts of environmental and social information of firm *i* in year *t* as reported in the index; *INTRO*, introduction stage; *GROW*, growth stage; *MATUR*, maturity stage; *SHAK*, shaking-out stage; *DECL*, declining stage; *INDUST*, industry type; *LIQUID*, liquidity; *AUDIT*, auditor type; *AGE*, firm age; *BDSIZE*, the size of board; *SIZE*, firm size; *LEVER*, leverage; *ROA*, profitability (return on assets).

4. RESULTS AND DISCUSSION

4.1. Descriptive Statistics

Table 2 and table 3 show the descriptive results of the study variables. The results of the descriptive statistics show a significant variation among the study variables, where *FVC* fluctuates from -2.3460 to 6.7629, with a mean value of 0.319. At the same time, *CESD* ranges from 0.290 to 0.806, with an average of 0.581. Also, *FDLCS* spans from 1 to 5 in five different phases, with a mean of 3.3100 as follows:

First, *INTRO* varies from 0 to 1, with an average value of 0.1003, which indicates that only 10.03% of our sample is in the initial phase. Then, *GROW* extends from 0 to 1, with an average value of 0.1246, suggesting that only

12.46% of our sample is in the growth stage. After that, *MATUR* spans from 0 to 1, with an average value of 0.3495, which indicates that merely 34.95% of our sample is mature firms. Finally, the last two phases, *SHAK* and *DECL*, range from 0 to 1, with average values of 0.2158 and 0.2097, respectively, which imply that 21.58% of our sample is in the shaking-out stage and 20.97% in the declining stage.

As for the control variables, it is shown that *LIQUID* ranges from 0.335 to 28.048, with an average value of 2.863 and a standard deviation of 4.736. Furthermore, both *INDUST* and *AUDIT* range from 0 to 1, with average values of 0.68085 and 0.51368, respectively, which implies that 68.1% of our sample is in the manufacturing sector and 51.37% of our sample is affiliated with one of the big four audit firms. After that, the minimum value of *AGE* is 0.693, and the maximum value is 3.611, with a standard deviation of 0.582 and a mean value of 2.753. *BDSIZE* spans from 1.386 to 2.833, with a mean value of 2.1269 and a standard deviation of 0.3463. In comparison, *SIZE* ranges from 17.251 to 23.795, with a standard deviation of 1.437 and a mean of 20.685.

The minimum value of *LEVER* is 0.0175, and the maximum value is 1.599, with a standard deviation of 0.237 and a mean of 0.397. Finally, *ROA* varies from -0.3916 to 0.5496, with a standard deviation of 0.1275 and an average of 0.0604.

Table 3 below shows that in the *INTRO* stage, which represents 10.03% of our sample, the average amount of *FVC* is 18.78%. Then, it begins to decrease until it reaches its lowest average amount of 2.7% in the *GROW* stage, which represents only 12.46% of our sample, and it starts to increase to reach approximately 11.77% in the *MATUR* stage, which constitutes 34.95% of the sample. After that, *FVC* continues to rise to reach 39.02% in the *SHAK* stage, which represents the largest proportion of 21.58% of our sample; then, it reaches its maximum average amount of 81.74% in the *DECL* stage, which represents only 20.97% of our sample.

Table 2: Descriptive Results

	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>Minimum</i>	<i>Maximum</i>	25	<i>Median 50</i>	75
<i>FVC</i>	329	0.3190	1.1327	-2.3460	6.7629	-0.3213	0.1065	0.8363
<i>CESD</i>	329	0.58084	0.19062	0.29032	0.80645	0.38710	0.64516	0.74194
<i>FDLCS</i>	329	3.3100	1.2202	1.0000	5.0000	3.0000	3.0000	4.0000
<i>INTRO</i>	329	0.10030	0.30086	0	1	0	0	0
<i>GROW</i>	329	.1246	.33079	0	1	0	0	0

	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>Minimum</i>	<i>Maximum</i>	<i>25</i>	<i>Median 50</i>	<i>75</i>
MATUR	329	.3495	.47755	0	1	0	0	1
SHAK	329	.2158	.41201	0	1	0	0	0
DECL	329	.2097	.40773	0	1	0	0	0
INDUST	329	0.68085	0.46686	0	1	0	1	1
LIQUID	329	2.86334	4.73571	0.33510	28.04816	0.90902	1.39741	2.55097
AUDIT	329	0.51368	0.50057	0	1	0	1	1
AGE	329	2.75320	0.58172	0.69315	3.61092	2.56495	2.94444	3.09104
BDSIZE	329	2.1269	0.3463	1.3863	2.8332	1.9459	2.1972	2.3979
SIZE	329	20.68532	1.43784	17.25132	23.79577	19.68033	20.75251	21.66125
LEVER	329	0.39711	0.23738	0.01754	1.59853	0.25198	0.38156	0.52630
ROA	329	0.0604	0.1275	-0.3916	0.5496	0.0004	0.0381	0.1173

Table 3. FVC Over Firm's Different Life Cycle Stages

<i>Dependent Variable: FVC</i>				
	<i>Mean</i>	<i>Std. Deviation</i>	<i>N</i>	<i>Frequency</i>
INTRO	0.1878	1.23878	33	10.03%
GROW	0.0271	0.78762	41	12.46%
MATUR	0.1177	1.03717	115	34.95%
SHAK	0.3902	0.87992	71	21.58%
DECL	0.8174	1.45445	69	20.97%
Total	0.3190	1.13269	329	100%

4.2. Bivariate Correlation Analysis

Table 4 below shows a comprehensive Pearson correlation matrix including all the studied variables. The coefficients exhibit a comparatively low magnitude. Some relations appeared to be substantial, while others were identified as non-significant.

As shown in the table, the FVC (*FVC*) correlates significantly and positively with the firm's different life cycle stages (*FDLCS*) (.208**), industry type (*INDUST*) (.156**), auditor type (*AUDIT*) (.143**), and leverage (*LEVER*) (.486**). In contrast, it negatively and significantly correlates with liquidity (*LIQUID*) (-.168**) and board size (*BDSIZE*) (-.141*).

The results imply that the FVC of Egyptian firms will increase with the firm's different life cycle stages if the firm is in the manufacturing sector and has an auditor from the big four audit firms with a high percentage of leverage and low liquidity as well as a small board size.

Regarding CESD (*CESD*), it is positively and significantly correlated with industry type (*INDUST*) (.480**), auditor type (*AUDIT*) (.207**), board

size (*BDSIZE*) (.147**), firm size (*SIZE*) (.326**), and profitability (*ROA*) (.238**).

The results indicate that the CESD in the Egyptian context will increase if the company size is prominent in the manufacturing sector and has an auditor from the big four audit firms with a large board size and a high percentage of ROA.

After that, different life cycle stages (*FDLCS*) are positively and significantly correlated with auditor type (*AUDIT*) (.138*) and leverage (*LEVER*) (.153**). The results indicate that the different stages of Egyptian firms are positively and substantially correlated with their high percentage of leverage and their external auditor from the big four audit firms.

Finally, the highest correlation between the study variables was between FVC (*FVC*) and leverage (*LEVER*), which was found to be 0.486. Consequently, this suggests no problem with multicollinearity among the independent variables, as all the coefficients are below 0.80. (Porter & Gjarati, 2009).

Table 4: Pearson Correlation Analysis

	<i>FVC</i>	<i>CESD</i>	<i>FDLCS</i>	<i>INDUST</i>	<i>LIQUID</i>	<i>AUDIT</i>	<i>AGE</i>	<i>BDSIZE</i>	<i>SIZE</i>	<i>LEVER</i>	<i>ROA</i>
<i>FVC</i>	1	0.082	.208**	.156**	-.168**	.143**	-0.089	-.141*	0.018	.486**	0.064
<i>CESD</i>		1	0.047	.480**	-0.059	.207**	-0.069	.147**	.326**	0.055	.238**
<i>FDLCS</i>			1	-0.045	0.002	.138*	-0.060	-0.046	0.089	.153**	0.003
<i>INDUST</i>				1	-.133*	-.197**	.172**	-0.038	-.299**	0.030	.111*
<i>LIQUID</i>					1	-0.003	-0.020	.171**	0.052	-.474**	0.014
<i>AUDIT</i>						1	-.177**	.130*	.428**	0.107	0.042
<i>AGE</i>							1	0.039	-.256**	0.079	-0.024
<i>BDSIZE</i>								1	.317**	-.204**	.203**
<i>SIZE</i>									1	-0.027	.170**
<i>LEVER</i>										1	-0.316**
<i>ROA</i>											1

** and * imply correlations are significant at the 0.01 and the 0.05 levels (2-tailed).

4.3. Testing Results of Hypotheses

The regression results of CESD's effect on FVC at different life cycle stages are shown in Table 6 using the following models:

4.3.1. Results of Primary Model (1)

Model (1) explains that the results for (*H1*) and (*H2*) regarding the impact of CESD on FVC over its different life cycle stages where it has an adjusted R^2 of .361, which implies that model (1) could interpret 36.1% of total variances in FVC, and the value of the F-test for the model is significant (F =19.559, Sig.=0.000). **Table 5** exhibits the results of the primary analysis.

Regarding the independent variables, the CESD (*CESD*) indicates that it negatively and significantly impacts FVC, as the regression coefficient was (-1.128) and is significantly statistical at a significance level of 1%. This conclusion indicates a negative association between the CESD and FVC. Therefore, the hypothesis (*H1*) states, “*There is an association between CESD and FVC of Egyptian firms,*” is supported.

This result is consistent with prior research, which discovered a negative association between CESD and FVC (e.g., Elliott *et al.*, 2014; Malarvizhi & Matta, 2016; Ngoc, 2018; Muslichah, 2020). This result could be interpreted through the agency theory, which states that managers (the agent) and shareholders (the principal) enter into a binding agreement that results in agency cost. Such conflict between those two parties affects CESD and induces such disclosure to serve as a tool for managers to prioritize their interests over the firm. As a result, CESD may be a low priority in developing operating strategies and could potentially negatively impact FVC (Khuong *et al.*, 2023).

Our result might be attributed to several factors. Firstly, the lack of significant penalties for non-compliance with CESD practice standards and the voluntary nature of CESD practice enforcement in Egypt may discourage companies from disclosing their CESD practices. Furthermore, a lack of awareness regarding the significance of the correlation between CESD practices and long-term FVC exists within the Egyptian context, potentially leading investors to underestimate the importance of CESD.

The firm's different life cycle stages (*FDLCS*) variable positively and significantly impacts FVC, as the coefficient of regression was (0.095) and is significantly statistical at a significance level of 5%.

This conclusion indicates a positive association between the firm's life cycle stages and FVC. Therefore, the hypothesis (*H2*) states, “*The FVC of Egyptian firms differs over their life cycle stages,*” is supported.

The result of our study could be interpreted through the resource-based theory, which states that firms' resources and abilities affect their growth performance and charitable funding (Campbell, 2007). This point of view argues that maturity firms have a wealth of resources and capabilities, while startup and collapsing firms have a scarcity of resources. This result is similar to the results of previous studies (e.g., Richardson, 2006; Hribar & Yehuda, 2007; Diebecker *et al.*, 2017; Al-Hadi *et al.*, 2019).

4.3.1.1. Results of Model (1A)

Model (1A) explains (*H2a*) results for the introduction stage impact on FVC where it has an adjusted R^2 of .351, which implies that model (1A) could

interpret 35.1% of total variances in FVC, and the value of the F-test for the model is significant ($F = 18.775$, $\text{Sig.} = 0.000$).

Regarding the introduction stage (*INTRO*), model (1A) indicates a negative but insignificant impact on FVC, as the regression coefficient was (-.078) and is not significantly statistical at any significance level. This conclusion implies no connection between the introduction stage and FVC. Therefore, the *hypothesis (H2a) states that “the introduction stage negatively impacts the FVC of Egyptian firms” is unsupported.*

The result of our study could be interpreted through the resource-based theory, which argues that introductory firms have restricted resources to survive. Startups and new companies have little experience estimating future cash flows and determining firm value. Investors depreciate the firm's value since cash flow estimates are unknown in the early phases (Helfat & Peteraf, 2003). Our result is similar to previous studies (Campbell, 2007; Mashayekhi, 2013; Jan *et al.*, 2021).

4.3.1.2. Results of Model (1B)

Model (1B) explains (*H2b*) results for the growth stage impact on FVC where it has an adjusted R^2 of .357, which implies that model (1B) could interpret 35.7% of total variances in FVC, and the F-test value for the model is significant ($F = 19.246$, $\text{Sig.} = 0.000$).

Regarding the independent variable, the growth stage (*GROW*), model (1B) indicates that it negatively and significantly impacts FVC, as the regression of coefficient was (-0.273) and is significantly statistical at a significance level of 10%. This conclusion indicates a negative association between the growth stage and FVC. Thus, the hypothesis (*H2b*) states that “the growth stage negatively impacts the FVC of Egyptian firms” is supported.

Our result could be justified in two ways; first, according to the agency theory, some conflicts could arise when managers' interests conflict with shareholders' as they may emphasize quick expansion over shareholder value (Khuong *et al.*, 2023). Second, High-growth firm management might ignore profitability measurements of resource allocation and cost control in favor of growth indicators such as market share (Khuong *et al.*, 2023). Thus, this concentration can increase costs and inaccuracies, lowering firm value.

4.3.1.3. Results of Model (1C)

Model (1C) explains (*H2c*) results for the maturity stage impact on FVC where it has an adjusted R^2 of .354, which implies that model (1C) could

interpret 35.4% of total variances in FVC, and the F-test value for the model is significant ($F = 18.993$, $\text{Sig.} = 0.000$).

The result of the model (1C) for the independent variable, the maturity stage (*MATUR*), shows a negative but non-significant impact on FVC, as the coefficient of regression was (-0.139) and is not significantly statistical at any significance level. This conclusion indicates no association between the maturity stage and FVC. Hence, the hypothesis (*H2c*) states that “*the maturity stage positively impacts the FVC of Egyptian firms*” is unsupported.

Our result could be due to the legitimacy theory, which states that firms in the maturity stage may already have established legitimacy and may not need actions to gain further legitimacy (Al-Hadi *et al.*, 2019). In this stage, firms may have developed relationships with their shareholders, who are already pleased with their management’s performance. In addition, mature firms experience slower growth than their high-growth phase; thereby, investors may lower their valuations for these mature companies (Al-Hadi *et al.*, 2019). Our result of the non-association is similar to Khuong *et al.* (2023).

4.3.1.4. Results of Model (1D)

Model (1D) explains (*H2d*) results for the shaking-out stage impact on FVC, where it has an adjusted R^2 of .358, which implies that model (1D) could interpret 35.8% of total variances in FVC, and the F-test value for the model is significant ($F = 19.292$, $\text{Sig.} = 0.000$).

Concerning the independent variable, the shaking-out stage (*SHAK*) results in the model (1D) indicate that it positively and statistically impacts FVC, as the coefficient of regression was (0.235), at a statistically significant level, denoted as $P < 0.10$. Accordingly, the finding indicates that FVC increases when the firm shakes. Thus, the hypothesis (*H2d*) states that “*the shaking-out stage negatively impacts the FVC Egyptian firms*” is unsupported.

Our result could be due to the resource-based theory, where shaking-out firms are likely to be more efficient in resource reallocation, eliminating inefficiencies, focusing on core competencies, and improving their decisions about innovation, ultimately enhancing firm value (Ryu & Won, 2022). Another reason for this surprising result is that in the Egyptian environment, dissolving companies may possess essential assets, such as property, equipment, or intellectual capital. Potential investors who can optimize the FVC may find these assets enticing.

4.3.1.5. Results of Model (1E)

Model (1E) explains (*H2e*) results for the declining stage impact on FVC where it has an adjusted R^2 of .355, which implies that model (1E) could

interpret 35.5% of total variances in FVC, and the F-test value for the model is significant ($F = 19.081$, $\text{Sig.} = 0.000$).

For the independent variable, the declining stage (*DECL*), the results of model (1E) imply that it positively but insignificantly impacts FVC, as the coefficient of regression was (0.196) and is not significantly statistical at any significance level. Accordingly, the finding indicates no association between FVC and the declining stage. Hence, the hypothesis (*H2e*) states that “the declining stage negatively impacts the FVC of Egyptian firms” is unsupported.

Our result relied upon the stakeholder theory, which recognizes various shareholders’ presence in a firm (Freeman & McVea, 2005). When a firm’s decline is irreversible, it may choose to implement a run-off strategy that aims to maximize the value for its shareholders by selling off assets or distributing dividends. Although this technique may not be optimal for the firm’s long-term viability, it can neutralize its value (Khuong *et al.*, 2023).

For the control variables, the results in the primary model and its five sub-models for firm age (*AGE*) and board size (*BDSIZE*) indicate a negative significant impact on FVC at statistically significant levels of 1% and 10%, respectively. In comparison, the remaining control variables, Industry type (*INDUST*), liquidity (*LIQUID*), auditor type (*AUDIT*), leverage (*LEVER*), and profitability (*ROA*), show a positive significant impact on FVC at statistically substantial levels of 1%, or 5%. However, firm size (*SIZE*) does not affect FVC at any significance level.

Finally, the Durbin-Watson statistics of the primary model and its five sub-models are 1.812, 1.777, 1.803, 1.760, 1.771, and 1.789, respectively, which are within the range of 1.5 to 2.5, implying the absence of autocorrelations in the model’s residuals (Widyasari *et al.*, 2019). The variance inflation factor (VIF) test for all regression models indicates that the multicollinearity problem does not exist, as all VIF values are less than the accepted threshold of 10 (Alin, 2010).

4.4. Further Analysis using ANOVA Test

Our study used post-hoc tests because a business’s life cycle stages are identified into five categories: introduction, growth, maturity, shaking-out, and declining. The Games-Howell test assesses the interacting effects of independent categorical variables upon the dependent variable metrics when there is inequality in variances between the groups, where the impact of such interaction indicates the aggregate effect of multiple groups of independent variables upon dependents one (Sauder & DeMars, 2019).

Table 5: Multiple Regression Results

Variable	Panel A: Dependent Variable FVC																
	Main Model (1)		Model (1A)		Model (1B)		Model (1C)		Model (1D)		Model (1E)						
	B	(t-stat)	B	(t-stat)	B	(t-stat)	B	(t-stat)	B	(t-stat)	B	(t-stat)					
CESD	-1.128*** (-3.030)		-1.127*** (-3.004)		-1.146*** (-3.068)		-1.128*** (-3.013)		-1.209*** (-3.216)		-1.080*** (-2.877)						
FDLCS	0.095** (2.267)										1.057						
INTRO			-0.078 (-0.455)							1.054							
GROW					-0.273* (-1.781)						1.022						
MATUR							-0.139 (-1.255)				1.115						
SHAK									0.235* (1.860)			1.074					
DECL											0.196 (1.459)		1.191				
INDUST	0.694*** (4.614)		0.694*** (4.572)		0.709*** (4.689)		0.668*** (4.381)		0.680*** (4.501)		0.687*** (4.543)		1.976	1.985	2.006	1.980	1.977
LIQUID	0.037*** (2.967)		0.039*** (3.158)		0.038*** (3.053)		0.039*** (3.104)		0.038*** (3.106)		0.038*** (3.034)		1.378	1.372	1.370	1.368	1.377
AUDIT	0.240** (2.102)		0.257** (2.232)		0.264** (2.318)		0.260** (2.274)		0.260** (2.281)		0.251** (2.191)		1.306	1.297	1.297	1.297	1.302
AGE	-0.285*** (-3.120)		-0.294*** (-3.199)		-0.293*** (-3.201)		-0.282*** (-3.065)		-0.292*** (-3.193)		-0.282*** (-3.065)		1.128	1.126	1.135	1.126	1.134
BDSIZE	-0.267* (-1.678)		-0.289* (-1.806)		-0.277* (-1.739)		-0.273* (-1.706)		-0.288* (-1.805)		-0.265* (-1.653)		1.216	1.214	1.219	1.213	1.224

SIZE	0.050 (1.045)	0.053 (1.107)	0.050 (1.048)	0.054 (1.114)	0.055 (1.149)	0.050 (1.042)	1.898	1.896	1.898	1.896	1.897	1.900
LEVER	2.931*** (10.988)	3.030*** (11.431)	3.005*** (11.372)	3.001*** (11.295)	3.087*** (11.632)	2.919*** (10.601)	1.605	1.561	1.566	1.575	1.580	1.694
ROA	2.371*** (5.382)	2.398*** (5.335)	2.377*** (5.374)	2.542*** (5.639)	2.398*** (5.435)	2.490*** (5.612)	1.263	1.294	1.264	1.307	1.260	1.268
Constant	-1.033 (-1.052)	-0.763 (-0.775)	-0.691 (-0.705)	-0.772 (-0.787)	-0.832 (-0.850)	-0.807 (-0.823)						
Fixed-Effect	Year	Year	Year	Year	Year	Year						
Adjusted R²	.361	.351	.357	.354	.358	.355						
Std. Error	.90519	.91218	.90796	.91022	.90755	.90943						
F-test	19.559***	18.775***	19.246***	18.993***	19.292***	19.081***						
Durbin-Watson	1.812	1.777	1.803	1.760	1.771	1.789						
Df-model	10	10	10	10	10	10						
Df-residual	318	318	318	318	318	318						
Observation	329	329	329	329	329	329						

Notes: ***, **, and * are significant at the following levels: 1, 5, and 10 percent (2-tailed), and the t-statistic is stated in parentheses.

Table 6 shows that *DECL* enterprises have higher *FVC* than other firms. *DECL* stage mean differences were more remarkable. The mean difference between the *DECL* and *INTRO* stages was 0.6296 or 62.96%, indicating that the decreasing stage is more significant. The mean difference between *DECL* and *GROW* was 0.7903* or 79.03%, demonstrating that the declining stage is more substantial than the growth stage at 0.003.

The mean difference between *DECL* and *MATUR* was 0.6997* or 69.97%, demonstrating that the declining stage is more significant than maturity at

Table 6: The results of Post-Hoc Tests (Games-Howell) Test for Multiple Comparisons

<i>Dependent Variable: FVC</i>						
<i>Post Hoc: Games-Howell Test</i>						
<i>Different Life Cycle Stages</i>		<i>Difference in Mean (I-J)</i>	<i>Standard Error</i>	<i>Significant</i>	<i>The interval for the difference at 95% Confidence Level</i>	
					<i>smaller Limit</i>	<i>Higher Limit</i>
INTRO	GROW	0.1608	0.24826	0.966	-0.5409	0.8624
	MATUR	0.0701	0.23634	0.998	-0.6011	0.7412
	SHAK	-0.2024	0.23960	0.915	-0.8817	0.4769
	DECL	-0.6296	0.27778	0.168	-1.4065	0.1474
GROW	INTRO	-0.1608	0.24826	0.966	-0.8624	0.5409
	MATUR	-0.0907	0.15647	0.978	-0.5260	0.3447
	SHAK	-0.3632	0.16135	0.171	-0.8122	0.0859
	DECL	-.7903*	0.21398	0.003	-1.3841	-0.1966
MATUR	INTRO	-0.0701	0.23634	0.998	-0.7412	0.6011
	GROW	0.0907	0.15647	0.978	-0.3447	0.5260
	SHAK	-0.2725	0.14234	0.314	-0.6650	0.1201
	DECL	-.6997*	0.20003	0.006	-1.2545	-0.1448
SHAK	INTRO	0.2024	0.23960	0.915	-0.4769	0.8817
	GROW	0.3632	0.16135	0.171	-0.0859	0.8122
	MATUR	0.2725	0.14234	0.314	-0.1201	0.6650
	DECL	-0.4272	0.20387	0.229	-0.9925	0.1382
DECL	INTRO	0.6296	0.27778	0.168	-0.1474	1.4065
	GROW	.7903*	0.21398	0.003	0.1966	1.3841
	MATUR	.6997*	0.20003	0.006	0.1448	1.2545
	SHAK	0.4272	0.20387	0.229	-0.1382	0.9925

The Mean Square (Error) term = 1.218.
 The (*) implies that the difference in mean is significant at the .05 level.

0.006. Finally, the mean difference between *DECL* and *SHAK* was 0.4272 or 42.72%, showing that the declining stage is more critical than the shaking-out stage.

Thus, we can conclude that declining firms in the Egyptian environment have higher FVC than the other phases. In addition, the substantial influence of different life cycle stages on FVC between the introduction, growth, maturity, and shaking-out stages (the mean difference) is not statistically significant. Also, it is clear that firms at the declining stage significantly have a high FVC compared to growing and mature firms, with less than 5% significance levels. One justification for this surprising and unexpected result is that it may be the type of firm that may influence normal expectations. For instance, Egyptian firms that the government owns in the declining phase may still get assistance from the government, which artificially raises its market value above what its actual profitability indicates. Thus, future studies may be conducted to clarify the direct impact of government ownership and other kinds of ownership on the relationship between FVC and different life cycle stages.

4.5. Sensitivity Analyses

A sensitivity analysis is conducted to check our results' robustness and ensure our study findings' reliability. This sensitivity analysis deployed an alternative measure of FVC using Tobin's Q, which is measured by the ratio of the total debt amount and fair market value of equity to total assets (Chung *et al.*, 2018).

4.5.1. Using Tobin's Q technique to Measure FVC:

In this sensitivity analysis, Tobin's Q is used to determine the FVC as an alternative to the Market-to-Book ratio, which is utilized in our primary analysis to explore the negative relationship between CESD and the amount of FVC over its different life cycle stages.

Thus, table 7 below shows that the sensitivity analysis results are relatively the same as the primary analysis results as CESD, firm age, and board size negatively and significantly affect the amount of FVC while the firm's different life cycle stages, industry type, liquidity, auditor type, leverage, and profitability positively and substantially impacts FVC; especially in the declining stage. Unlike the primary analysis, the firm size is substantial. Although the *DECLINE* stage in our sensitivity analysis significantly and positively impacts FVC, the remaining stages are insignificant. This result implies that our finding is related to the positive and significant effects of industry type, liquidity, auditor type, firm age, leverage, and profitability on increasing the amount of FVC and

eliminating the negative impact of the declining stage and the low amount of CESD; especially in old firms with a large number of board members.

Also, the adjusted R^2 is relatively less than the primary analysis's. Therefore, this implies that the primary analysis results are better than the sensitivity analysis results. **Table 7** exhibits the results of the sensitivity analysis.

Table 7. Sensitivity Analysis using Tobin's Q for FVC

<i>Panel A: Dependent Variable FVC</i>						
<i>Variable:</i>	<i>(1)</i>	<i>(1A)</i>	<i>(1B)</i>	<i>(1C)</i>	<i>(1D)</i>	<i>(1E)</i>
<i>CESD</i>	-2.679*** (-4.059)	-2.680*** (-4.033)	-2.693*** (-4.053)	-2.681*** (-4.048)	-2.769*** (-4.145)	-2.572*** (-3.876)
<i>FDLCS</i>	0.159** (2.124)					
<i>INTRO</i>		-0.189 (-0.620)				
<i>GROW</i>			-0.234 (-0.857)			
<i>MATUR</i>				-0.307 (-1.560)		
<i>SHAK</i>					0.265 (1.183)	
<i>DECL</i>						0.445* (1.871)
<i>INDUST</i>	0.702*** (2.630)	0.702*** (2.614)	0.712*** (2.647)	0.645** (2.392)	0.684** (2.547)	0.687** (2.570)
<i>LIQUID</i>	0.048** (2.195)	0.052** (2.376)	0.051** (2.323)	0.051** (2.310)	0.051** (2.340)	0.049** (2.223)
<i>AUDIT</i>	0.473** (2.336)	0.497** (2.440)	0.511** (2.520)	0.505** (2.499)	0.507** (2.503)	0.484** (2.393)
<i>AGE</i>	-0.370** (-2.284)	-0.386** (-2.371)	-0.383** (-2.355)	-0.360** (-2.209)	-0.382** (-2.352)	-0.358** (-2.203)
<i>BDSIZE</i>	-0.926*** (-3.280)	-0.964*** (-3.398)	-0.951*** (-3.352)	-0.928*** (-3.2760)	-0.960*** (-3.389)	-0.909*** (-3.206)
<i>SIZE</i>	0.256*** (3.0140)	0.262*** (3.062)	0.259*** (3.031)	0.262*** (3.077)	0.264*** (3.089)	0.254*** (2.987)
<i>LEVER</i>	3.981*** (8.415)	4.144*** (8.827)	4.125*** (8.778)	4.079*** (8.679)	4.210*** (8.927)	3.892*** (7.997)
<i>ROA</i>	4.428*** (5.667)	4.446*** (5.586)	4.481*** (5.698)	4.771*** (5.982)	4.491*** (5.726)	4.659*** (5.941)
<i>Constant</i>	-2.362 (-1.357)	-1.900 (-1.090)	-1.868 (-1.072)	-1.923 (-1.108)	-2.002 (-1.151)	-2.002 (-1.155)
<i>Fixed-Effect</i>	Year	Year	Year	Year	Year	Year
<i>Adjusted R²</i>	.295	.286	.286	.290	.288	.293
<i>Std. Error</i>	1.60502	1.61539	1.6145	1.6102	1.6128	1.6075
<i>F-test</i>	14.710***	14.115***	14.166***	14.411***	14.261***	14.565***

<i>Durbin-Watson</i>	1.784	1.774	1.776	1.731	1.753	1.773
<i>Df-model</i>	10	10	10	10	10	10
<i>Df-residual</i>	318	318	318	318	318	318
<i>Observation</i>	329	329	329	329	329	329
<i>Notes: ***, **, and * are significant at the following levels: 1, 5, and 10 percent (2-tailed), and the t-statistic is stated in parentheses.</i>						

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

This research investigated the relationship between a firm's value creation (FVC), its Corporate Environmental and Social Disclosure (CESD), and its different life cycle stages in the Egyptian context. Our study encompassed non-financial companies listed on the Egyptian Exchange (EGX) from 2013 to 2019, resulting in 329 observations.

The study employed multiple regression analysis in one primary model and five sub-models, with FVC as the dependent variable. Simultaneously, the independent variables are CESD and the firm's different life cycle stages. Then, each phase of the five life cycle phases (introduction, growth, maturity, shaking-out, and decline) is used as an independent variable in its sub-model. Additionally, eight control variables were incorporated, including industry type, liquidity, auditor type, firm age, board size, firm size, leverage, and profitability.

The regression results revealed that CESD negatively impacts the FVC. This result could be due to several reasons; first, in the absence of stringent enforcement of CESD practices standards and its voluntary nature in the Egyptian context, firms may have less motivation to reveal their CESD practices, as there is no immediate penalty for not doing so. Second, there is a lack of awareness in the Egyptian environment of the importance of the relationship between CESD practices and long-term FVC, which may cause investors to disregard the importance of CESD. In addition, Egyptian firms could face some challenges in enforcing strong CESD policies, especially the cost of implementing CESD, which requires substantial investments in novel technologies and procedures. For instance, Egyptian firms operating in highly competitive sectors or in the introduction stage may encounter difficulties justifying these expenses unless they observe a distinct return on investment.

In addition, FVC differs in its life cycle stages. The growth stage significantly and negatively influences FVC, and the shaking-out stage positively and substantially influences FVC. In comparison, the remaining stages do not considerably impact FVC. Among the control variables, industry type, liquidity, auditor type, leverage, and profitability emerged as significant positive

influences on FVC. At the same time, the firm's age and board size significantly and negatively impact FVC. Meanwhile, the firm size showed no significant association with FVC. These findings suggest the need for a more nuanced understanding of the Egyptian market dynamics and regulatory environment and offer insight into the factors influencing FVC for non-financial Egyptian firms listed on the EGX.

However, it is essential to note that the lack of relationship between FVC and the introduction, maturity, and declining stages is not broadly correct. Firms in the following stages are either startup firms with minimal earnings but valuable innovative technologies with tremendous growth potential or mature firms with strong brands, loyal customers, and efficient operations despite consistent profitability, indicating significant firm value. Also, declining firms may own essential assets such as real estate, machinery, or intellectual capital. These assets may be appealing to potential investors who can maximize the FVC.

Moreover, the impact of a firm's life cycle stage on its FVC and the associated theoretical frameworks may only be applicable in some cases where firm-specific attributes and the regulatory framework in a particular industry can have a substantial impact. Hence, additional investigation is required to comprehensively understand the intricate correlation between FVC and Egyptian enterprises' introduction, maturity, and declining phases. This research should consider these distinctive aspects to offer a more refined comprehension.

5.2. Recommendations and Directions for Future Research

This research lays the groundwork for future investigations. Future research could examine the relationship between FVC, CESD, and different life cycle stages within different corporate governance frameworks, considering the unique Egyptian setting would be a valuable continuation. Additionally, future research could explore ownership structures' direct and indirect effects on the relationship between FVC, CESD, and the different life cycle stages, particularly within Egypt as an emerging market or across developing economies. This will present another promising avenue for future research. Furthermore, replicating this study in a comparative context with another country featuring distinct regulatory frameworks could offer valuable insights.

5.3. Limitations of the Study

Nevertheless, the study acknowledges limitations. First, the sample is restricted to a single country (Egypt), which necessitates a cautious interpretation of the

results, as generalizability to other countries with differing contexts might be limited. Additionally, dummy variables for life cycle stages could capture other financial characteristics besides the intended stage. Future research could address this by employing alternative measures, such as retained earnings ratios or firm age. Finally, the study period only extends to 2019 and reflects a period of voluntary CESD. Since mandatory CESD implementation was introduced in Egypt in 2022, future research could explore the post-2022 impact of mandatory CESD on FVC over different life cycle stages and disclosure practices.

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Declaration of Conflict of Interest

There exist no ethical issues bothering the study and sponsorship regarding funding and related issues of contradictions.

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