CORPORATE SUSTAINABILITY PERFORMANCE THROUGHOUT THE FIRM LIFE CYCLE: CASE OF EGYPT

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Abstract

The role of corporations in society is an age-old debate among practitioners and academics. The corporations' primary goal is to excel, prosper, and expand financially is no longer suitable for the community. Unfortunately, the need for financial prosperity leads to hazardous workplaces, chemical exposure, and urban decay. Therefore, companies now view internal and external corporate responsibility as a critical business strategy for sustainable management. Thus, examining the impact of firm life cycle stages on business activities, notably sustainability programs and CSR investments, can shed light on a company's CSR initiatives and sustainability choices. This study uses 420 firm-year data samples from 2013 till 2018 in examining the association between CSR proxied by corporate sustainability performance (CSP) index and firm life cycle for firms listed in the S&P/EGX ESG index. A thorough search of the relevant literature shows that this is the first study to demonstrate this association in Egypt empirically. Our findings show a significant relationship between CSP and firm life cycle stages. The results also show that the firm life cycle has greater explanatory power for CSP levels than previously thought. Therefore, organizations should choose and implement CSR initiatives based on their life cycle stage to ensure long-term value and growth.

Keywords: Corporate Social Responsibility, Corporate Sustainability Performance, Firm Life Cycle, S&P/EGX ESG Index, Egypt, Corporate Governance, Sustainability, Developing Countries

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1. INTRODUCTION

Sustainability and corporate social responsibility (CSR) are two increasingly essential topics (Christensen, Hail, & Leuz, 2019). According to Gössling and Vocht (2007), CSR is the duty of businesses to satisfy social expectations. To evaluate how much a corporation contributes to environmental, social, and economic development, Sherratt (2015) states that the European Commission (SEC, 2001a) CSR to define this, often known as the Elkington's triple bottom line (Elkington, 2013, 1999; Gray, 2006; Diebecker, Rose, & Sommer, 2017; Okpara & Idowu, 2013; Idowu, Capaldi, Zu, & Gupta, 2013). Even though these ideas are not new, they have gathered increasing popularity over the last two decades (Elseidi & Abd El Azim, 2012). According to Goldin and Vogel (2010), one factor for CSR's growing prominence is the severe economic implications associated with significant firms' bankruptcy and scandals (e.g., Enron, WorldCom, Lehman Brothers, among others) and triggered by

the 2007–2008 financial crisis. Indeed, apart from monetary losses for investors, these corporations and markets' failures hindered economic growth and adversely affected environmental and societal stability and sustainability. According to Galbreath (2013), the financial crisis heightened CSR concerns worldwide, especially in emerging nations (Babin, Briggs, & Nicholson, 2011; Galbreath, 2013; Al-Abdin, Roy, & Nicholson, 2018).

Resulting from this heightened CSR importance and CSR concerns awareness, Baird, Geylani, and Roberts (2012) identified that several lines of research had been devoted to this topic. One line of research focuses on determining the factors and measurements for CSR for instance, Marom (2006), van Beurden and Gössling (2008), Wu (2006), Orlitzky, Schmidt, and Rynes (2003), Moore (2001), Mahoney and Roberts (2007), and Turker (2009). The second line of research studies the financial performance and profitability of businesses concerning CSP (e.g., Wahba, 2008; Kolstad, 2007; Waddock & Graves, 1997; Spicer, 1978; Wagner, Van Phu, Azomahou, & Wehrmeyer, 2002; Schnietz & Epstien, 2005), on firm value (Barnea & Rubin, 2010), on brand identity (Schuler & Cording, 2006), on value creation (Visser & Kymal, 2015), on stakeholder perceptions (Holzhauer, 1999; Lemmink, Schuijf, & Streukens, 2003) and corporate governance (Young & Thyil, 2014). Customers, employees, suppliers, community organizations, governments, and even certain shareholders are key actors in CSR initiatives (McWilliams & Siegel, 2001). These critical stakeholders aided in transforming CSR from an altruistic approach to an integrated, dynamic one (Schwartz & Caroll, 2003). In addition, businesses may engage in CSR for philanthropic reasons or to protect their revenues. More specifically, CSR may help a company become more competitive (by generating reputational capital that can be used to negotiate more favorable trade arrangements with stakeholders), increase customer satisfaction, and retain customers. Additionally, CSR can improve access to new capital and finance prospects or cost-cutting options by mitigating risk and positively affecting employee productivity and morale (Genedy & Sakr, 2017). Because the company's activities impact stakeholders, it must satisfy their needs to fulfill its responsibilities. CSR initiatives must be integrated into corporate decisions and resource allocation for this to happen.

Due to the ever-changing business and technological environment, firms must make several strategic decisions to remain competitive, optimizing their CSR investments and sustainability initiatives. The availability of resources will significantly impact the company's whole CSR strategy and sustainability decision-making processes (Grant, 1991). Any item that may assist a corporation in achieving its objectives is referred to as a resource (Peng & Wong, 2008). The three resources are intangibles, physical assets, and human assets. Throughout the life cycle, the possibility of development (or resource shortage) fluctuates (Dickinson, 2011). Businesses' resources, operating, investing, and financing activities, resource benefits, organizational capability, risk capacity, and strategy vary throughout their life cycle (Diebecker et al., 2017; Helfat & Peteraf, 2003). The legitimacy theory explained by Dowling and

Pfeffer (1975) considers the company a more comprehensive social system component. Consequently, the company's operations must consider the social and environmental background. This is required for long-term viability, determined by CSR efforts and the firm's life cycle stage. Therefore, a company's life cycle is characterized by a set of internal and external factors that must be addressed at each step, according to Elsayed (2015), Hasan, Kobeissi, Liu, and Wang (2018), and Wahba and Elsayed (2015). These internal and external conditions include strategic decisions, organizational structure, managerial opportunities, market opportunities, and threats (Hanks, Watson, Hansen, & Chandler, 1993). Thus, according to life cycle theory, companies undergo systematic changes in their resources and standard operating procedures, investment, and financing activities.

The most common institutional and corporate governance challenges in developing nations include a shortage of funds, lack of openness in financial markets, inadequate infrastructure, and corruption (Rodrigo, Duran, & Arenas, 2016). Institutional concerns deter corporations in developing countries from extensively investing in ESG and sustainability. In addition, as a result of information asymmetry, consumers in local markets have difficulties appraising businesses (Su, Huang, van der Veen, & Chen, 2014). Moreover, resources' advantage organizational capacity, risk capabilities, and strategies also change at each stage of organizational development (Diebecker et al., 2017; Helfat & Peteraf, 2003). Consequently, as a firm reaches a new phase in its life cycle, it will change this environmental and organizational set. Even though a large amount of research on the relationship between CSP and many other organizational factors exists, many of these studies have not been undertaken in developing countries, such as Egypt. To date, all ESG studies in Egypt have aimed to assess the degree of CSR activities among firms listed on the EGX 30 index and investigate variables that impact corporate choices to participate in these practices, and explain disparities in these practices across sample companies without giving any attention in the role of firm life cycle as a summary determinant of CSP.

The paper was motivated, however, by the lack of evidence of the relationship between corporate responsibility based on environmental, social, and governance (ESG) factors and firm life cycle, on the one hand, and the relatively rare research on the theoretical mechanisms of the firm's life cycle in the Egyptian context and the importance of firm life cycle to the course of specific aspects of corporate policy, on the other (Wahba, & Elsayed, 2014; Elsayed & Wahba, 2016). However, ESG and sustainability are paramount. Unfortunately, many organizations and investors overlook CSR information, providing an untapped source for staying competitive. In this regard, the purpose of this paper is to investigate the relationship between firm life cycle and corporate sustainability performance (CSP) (expressed in terms of ESG rank and ESG listing in the S&P/EGX ESG index) of companies listed in the S&P/EGX ESG index in Egypt. CSP has been identified as the most apparent consequence of a company's CSR activities and initiatives (Fasoulis & Kurt, 2019; Diebecker et al.,

2017). In the context of a company's societal connections, Diebecker et al. (2017), Sherratt (2015), and Idowu et al. (2013) stated that the configuration of the organization's corporate social responsibility principles, social responsiveness procedures, policies, and initiatives, as well as the observable results linked to these societal connections, are referred to as CSP. Thus, as Wu (2006) states, CSP emphasizes the social aspect of CSR. Based on those mentioned above, we predict CSP levels and determinants to change over time and vary with the firm life cycle. As such, this paper provides an essential addition in this field by filling a practical and theoretical gap between our study and earlier studies by relating CSP to the firm life cycle. This paper is vital in Egypt since it has the second-biggest economy in the Middle East and North Africa. It tries to assist company managers in better allocating resources and creating positive social change.

The remainder of the paper is organized as follows. Section 2 reviews the literature and research hypotheses formulation. Section 3 describes the study's research methodology. The fourth and fifth sections summarize and explain the research findings. Finally, Section 6 summarizes the results and suggests additional investigation for future research.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. Firm life cycle

The theory of the firm life cycle is derived from the organizational scientific literature (Hansen, Hong, & Park, 2018). Penrose (1959) developed a comprehensive view of corporate development based on the assumption that corporate growth is dependent on the availability of resources and abundance of opportunities. According to Wernerfelt's (1984) resource-based theory, business resources are the primary approach to building and retaining a competitive advantage. In subsequent research, Helfat and Peteraf (2003) proposed a "resource-based dynamic theory", asserting that a resource-based method should be used to track the formation, growth, and progress of a business's resources and capabilities through time (Habib & Hasan, 2019). They show how the mix of a firm's resources, talents, and characteristics varies over time through various phases of the firm's lifespan. Muller's (1972) life cycle theory examines the growth, expansion, and decline of a business. The "life cycle" of a business is distinct from that of a "product" or "industry" since the "firm" views the "life cycle" as a collection of "many overlapping, but distinct, product life cycles" (Dickinson, 2011, p. 3). Life cycle research aims to use fundamental analysis to group businesses at similar life stages together and then use these groups as a framework for establishing a relationship between a range of factors and their effect on a company's success.

According to Black (1998), a company's life cycle is a well-established concept utilized to achieve the optimal dynamic structure of the business. As an analytical tool, the theory of dividends' life cycle proxy is frequently used, such as payment of dividends and allocation of capital (Black, 1998). According to Bulan and Yan (2010), accounting data can be used to predict the future and to explain business failures and financial distress, financial constraints, expected cash flows, and capital structure among other things. Other research tried to assess the link between different firm life cycle stages and several organizational characteristics via the use of various firm life cycle proxies. These studies look at the significance of these proxies in identifying life cycle stages and assess the relationship between them and independent factors such as organizational effectiveness and power, strategic human resources, product innovation, R&D investment, board size, and governance structure, among others (Dewasiri et al., 2019; Beaver, 1966; Altman, 1968; Fazzari, Hubbard, & Petersen, 1988; Fama & French, 1995; Fama & French, 2002; Subramanyam, 1996; DeAngelo, DeAngelo, & Stulz, 2006; Brochet, Nam, & Ronen, 2008; Denis & Osobov, 2008; Owen & Yawson, 2010; Cardoso, Mendes, Mário, Martinez, & Ferreira, 2010; Coulton & Ruddock, 2011; Warusawitharana, 2013; Demonier, 2013).

2.2. Corporate sustainability performance (CSP)

CSR is synonymous with corporate citizenship, philanthropy, entrepreneurship, corporate involvement, social connections, social concerns, corporate accountability, social development, corporate obligation, and global citizenship (Kotler & Lee, 2005). Earlier interpretations of CSR stressed the company's role in achieving Elkington's triple bottom line (Elkington, 2006; Gray, 2006) through ESG goals (SEC, 2001b). The definition of CSR varies greatly across the literature. Dahlsrud (2008) investigated 37 definitions of CSR published between 1980 and 2003 for patterns in their application and found a high degree of agreement on the term "corporate social responsibility". Thus, Dahlsrud (2008) stressed the significance of volunteers and referrals to all stakeholder groups in addition to the three ESG aspects (environmental, social, and governance). According to Dahlsrud (2008), a more broadly accepted definition of corporate social responsibility is accountability for the corporation's society impact (European Commission, 2011). Additionally, Dahlsrud (2008) explained that corporate social responsibility, environmental stewardship, and ethical and human rights concerns should be included in core business and strategic planning processes. Thus, corporate social responsibility requires management to address all stakeholder concerns (Freeman, Harrison, Wicks, Parmar, & de Colle, 2010). However, this position does not necessarily contradict the traditional shareholder wealth strategy (Blyth, Friskey, & Rappaport, 1986).

Stakeholder satisfaction is considered a way to advance shareholder interests (Freeman et al., 2010). Stakeholder satisfaction also improves decision-making focus, addressing corporate governance challenges. It is a means of controlling management practices when ownership and control are separated (Larcker, Richardson, & Tuna, 2007). Sustainability was recently acknowledged as a CSR focus by Korhonen (2002), Amaeshi and Crane (2006), Bansal (2005), and Kenneth, Bongo, and Olufemi (2010). According to them, the three phrases "corporate", "social", and "responsibility" encompass the whole area of CSR. The social duties of a corporation

(or any for-profit entity) are called CSR. These duties include enhancing social links, empowering employees, and showing more concern for the community (Arsoy, Arabaci, & Çiftçioğlu, 2012; Beauchamp & O'Connor, 2012). However, CSP is derived from CSR, governance, and sustainability efforts and assesses stakeholder outcomes (Hafsi & Turgut, 2013). As stated by Salazar, Husted, and Biehl (2012), CSP should be used for true CSR.

In addition, CSR considers the influence of company activities on the economy, society, and environment. CSR is a hot topic in developed countries in Europe and North America (Egri & Ralston, 2008). However, a recent spike in interest in the dynamics and particularities of CSR dimensions in emerging nations is recently noticed (Azizi & Jamali, 2016; Blowfield & Frynas, 2005; Newell & Frynas, 2007; Amos, 2018; Idemudia, 2011; Jamali & Sidani, 2011; Jamali & Neville, 2011; Visser, 2008). They stated that firms in underdeveloped nations approach CSR differently, with philanthropy and charity playing a major role (Amos, 2018; Blowfield & Frynas, 2005; Visser, 2008; Dobers & Halme, 2009; Muthuri & Gilbert, 2011).

2.3. CSP in the Egyptian context

CSR has traditionally meant corporate philanthropy to non-profit or public organizations in Egypt. However, the phrase "corporate social responsibility" is increasingly construed broadly. As a result, the idea (CSR) has evolved into an unintentionally authorized activity that is not entirely governed by formal laws or legal authorities but rather encompasses a practice that one should follow and adhere to (Abd Rahim, Jalaludin, & Tajuddin, 2011). Typically, CSR and sustainability are split into three classifications: environmental, social/community, and corporate governance standards. The S&P/EGX ESG index is one of Egypt's most widely used methodologies for assessing corporate social responsibility and corporate social performance. This index, created in 2010, evaluates the most environmentally, socially, and governance-conscious enterprises and precisely chooses the stocks that most closely represent the Egyptian stock market in terms of size and liquidity. Therefore, the index is presumptively composed of companies who demonstrate good corporate citizenship and CSR commitment.

2.4. CSP and firm life cycle

Firms that want to maintain their competitive advantage must use dynamic tactics and innovate. Increasingly important as a company's activities grow, the problem of agency becomes more prevalent (Fama, 1980). CSR's governance influence is expected to be more apparent later in the firm's lifetime, to the degree that it helps decrease agency conflicts by enhancing information sharing and diminishing opportunistic behavior. While some new companies practice CSR to comply with rules, most do it to build an excellent reputation (Zhao & Xiao, 2019). Effective CSR may help growing companies access a more extensive financing base and boost their market value. The slack resource theory by Waddock and Graves (1997) states that businesses' propensity to invest in sustainability initiatives

may be affected by resource constraints. Early-stage companies aim to retain flexibility in their business strategies since few choices restrict future expansion (Elsayed & Paton, 2009). However, the absence of a solid client base and real income and cost estimations curb the potential for many strategic options (Elsayed & Paton, 2009).

Substantial early investments have become increasingly crucial for establishing barriers to entry to potential competitors (Winn & Angell, 2000; Sharma, 2000). Early-stage enterprises are often hampered by resource availability and have considerable survival hurdles (Waddock & Graves, 1997; Preston & O'Bannon, 1997). Wahba and Elsayed (2014) assert that this places significant limits on investment in sustainability projects (Galbraith 1982; Quinn & Cameron, 1983; Wahba & Elsayed, 2014; Jawahar & McLaughlin, 2001). Profit margins typically rise during the growth stage, but businesses must continue spending to discourage competitors and capitalize on expansion possibilities (Black, 1998). Concerns about survival and uncertainties about future economic outcomes are reduced in comparison to the inception stage, but they persist (Quinn & Cameron, 1983). Additionally, businesses in the growth stage need assistance from stakeholders to ensure access to external resources. One strategy for obtaining funding is to show CSR engagement via the use of sustainability metrics (Withisuphakorn & Jiraporn, 2016).

The mature stage occurs when sales stabilize. Firms that have reached this stage may no longer require extensive funding. As a result, CSR activities become affordable and mature firms tend to participate in this type of activities more eagerly. Nonetheless, Withisuphakorn and Jiraporn (2016) and Badulescu, Badulescu, Saveanu, and Hatos (2018) argue that mature enterprises have a steady stream of cash flows in contrast to younger businesses that must build their image and performance, necessitating less CSR participation. To this degree, the influence of CSR activities on company value may be negligible for established businesses. Profit margins and liquidity levels peak at the mature period of a business's lifetime, and growth opportunities become limited (Quinn & Cameron, 1983). Companies typically invest more at this stage, not to expand, but to improve production efficiency to offset price increases (Dodge & Robbins, 1992). However, given the high liquidity, long-term investments tend to be sought. Regardless of how beneficial the investment might be, it will be affordable for the mature firm to pursue it. At this stage, CSR initiatives tend to be implemented for a variety of reasons. First, CSP can be leveraged as a sustainable strategic differentiator. Thus, managers might develop corporate social responsibility measures to control a firm's finances (Jensen, 1986). Second, higher profitability leads to higher engagement in CSR activities (Habib & Hasan, 2017). Motivated by the resource-based approach, mature organizations may invest more in CSR activities than other life cycle phases since their resource base, and competitive advantages are more significant than those of younger enterprises (Habib & Hasan, 2017).

According to Jawahar and McLaughlin (2001), when a business is reliant on its environment for resources, the significance of stakeholders is determined by the number of the organization's

goals and the degree to which the business depends on this stakeholder for resource access (Salancik & Pfeffer, 1978). Specific stakeholders will always be more critical than others in this regard. As a business grows and matures through the phases of start-up, growth, maturity, and transition, the relative importance of stakeholders' changes and evolves. Businesses are not held responsible to a single stakeholder; instead, they are held accountable to all their stakeholders (Rowley, 1997). Organizations need to use several management practices to deal with the variety of stakeholder groups making at the same time allowances for the relative importance of each stakeholder. It is critical to establish a unique strategy that can be used throughout the firm's life cycle to satisfy a firm's important stakeholders at each stage of development.

Jawahar and McLaughlin (2001) draw on prospect theory to explain stakeholders' needs as these can serve as a reference point for decisions regarding resource allocation and selection of relevant stakeholder groups. In other words, companies get a competitive advantage as they mature by making better use of resources, by efficiently managing capacity, and by consistently performing routine upkeep (Gray & Ariss, 1985; Helfat & Peteraf, 2003). Therefore, if management has access to more resources, including maturity-related experience, it can better serve all stakeholders by focusing on sustaining a high reputational capital (Jovanovic, 1982; Habib & Hassan, 2017). This reputational capital is likely to lead to higher earnings per share, higher profits/total retained assets, higher profits/total equity, and higher returns on operational net investments. This superior performance is evident even while older corporations continue to pay bigger dividends than younger enterprises (DeAngelo et al., 2006; Dickinson, 2011).

Firms' resources in recovery and decline are diminishing. External obstacles and a lack of innovation have slowed the market's development and profitability. As a result, several of the markets' weakest performers may have been delisted. These are the most likely firms to be in a downturn. Firms are now more inclined to engage in CSR initiatives to create reputational capital and use it to weather future performance dips (Zhao & Xiao, 2019). Stakeholder theory states that organizations can acquire the trust and cooperation of stakeholders by merging firms' interests with the interests of legitimate parties, building, therefore, deep bounds with the surrounding environment (Jones, 1995). In the aftermath, the company's worth is expected to rise. Additionally, it is critical to emphasize that stakeholders' CSR expectations vary as per the firm's life cycle stage. Thus, any CSR strategy of a business should be suited to the specific firm life cycle stage in which it operates.

In the early stage or during decline/revitalization, companies may prioritize the interests of specific stakeholders (Gioia, 1999). The selection of these stakeholders depends on companies' reliance on stakeholders' resources to survive. At these stages, companies attempt to meet the primary stakeholders' economic and non-economic needs, albeit they take on the duties towards each stakeholder at different levels. Companies may be urged to invest in sustainability programs. However, the availability of resources will impose constraints on the level of investment allocated to corporate social responsibility initiatives (Miller & Friesen, 1984). Bhattacharya, Korschun, and Sen (2009) provide indirect support for this argument by finding a negative relationship between risk and CSP. Companies are likely to have different CSP focus to varying periods of their life cycle because the availability of resources and the level of threats and opportunities alter during the life cycle. Against this theoretical background, we developed the following hypothesis:

H1: Growing firms rather than mature firms tend to be more willing to commit resources into CSR initiatives (proxied by S&P/EGX ESG index).

3. RESEARCH METHODOLOGY

3.1. Population and sample

A research sample of Egyptian enterprises from the S&P/EGX ESG index of corporate responsibility from 2013 to 2018 was used to test the relationship between CSP and firm life cycle. This index has previously been used for ranking Egyptian firms in terms of CSR efforts (Elsayed, 2013; Wahba, 2014; Eldomiaty, Soliman, Fikri, & Anis, 2016; El-Hindawy, Shousha, & Rady, 2020; Aboud & Diab, 2018; Otaify, 2021; Ismail, Elhamy, & Eltamboly, 2021; Hassouna & Salem, 2021; Ibrahim & Wahba, 2013; Elafify, 2021; Hassaan, 2018; Mohamed & Rashed, 2021; Genedy & Sakr, 2017; Hamdy, Elsayed, & Elahmady, 2018; Alber, 2013). According to Wahba and Elsayed (2014), the CPS index data is drawn from three databases: Standard & Poor's, CRISIL, and KLD. Standard & Poor's has aided the Egyptian Institute of Directors (EDPS) in developing, calculating, publishing, and maintaining an index consisting of a capitalization-weighted list of the most socially responsible firms publicly trading on the Egyptian Stock Exchange. The index combines quantitative and qualitative data (ECRC, 2012). Every year, the S&P/EGX ESG index rates the top 30 Egyptian companies as per their CSR and ESG plans, initiatives, and activities. We started by identifying the 30 firms with higher market capitalization and stronger influence on the S&P/EGX ESG index for each of the six years analyzed. The research sample is then aggregated, taking into account data availability constraints. After excluding banking sector firms and those firms lacking ESG data, we obtained a sample made up of 63 Egyptian firms out of a sample of 70 companies for the six years. Panel data series was built for these 63 companies across the six years. The allocation of the data sample throughout industrial sectors is presented in Table 1. Table 1 shows that the Basic materials sector, the Real estate developments sector, and the Industrials sectors dominate our research sample.

Table 1. Distribution of the sample according to industrial sectors

Sector	*Number of companies*	*Percentage*
Basic materials	13	21%
Consumer goods	7	11%
Consumer services	4	6%
Real estate developments	17	27%
Health care	1	2%
Industrials	14	22%
Oil & Gas	1	2%
Technology	2	3%
Telecommunications	3	5%
Utilities	1	2%
Total	63	100%

Source: The authors' elaboration, 2021.

3.2. Sample size

According to Wahba (2013), a sample size of 63 enterprises may limit a study's representativeness and generalizability. In this paper, our research sample comprised 28.63% out of the 220 listed firms on the EGX in 2018. This percentage is consistent with earlier CSR research for the Egyptian setting (Wahba, 2008, 2014; Wahba & Elsayed, 2015). Furthermore, to determine if the sample is representative of the population of businesses listed on the EGX from 2013 to 2018, the average total market capitalization for all firms and the sample firms were calculated. As a result, the sample had an average market capitalization of LE 204 billion, whereas all listed firms had LE 581.28 billion. As our research sample reported being 41.8% of the total market capitalization of all EGX components between 2013 and 2018, one can reasonably say that the sample correctly represents the characteristics of the population. This result is also consistent with prior research conducted by Abdel Shahid and Shahira (2003), who analyzed the 90 most active Egyptian firms. According to Abdel Shahid and Shahira (2003), the sample reported 44% of the total market value and 87% of the stock market transaction volume.

3.3. Research variables

3.3.1. Firm life cycle

Like in Wahba and Elsayed (2014), Wahba and Elsayed (2015), and Elsayed and Paton (2009), this research makes no assumptions about the amount of life cycle phases. According to Lester and Parnell (2008), the reason for this lies in the disagreement that exists about the definition and classification of firm life cycle stages where five-stage, four-stage, and three-stage models are equally defensible (Adizes, 1979; Hanks et al., 1993; Pundziene, Kundrotas, & Lydeka, 2006; Lester & Parnell, 2008; Quinn & Cameron, 1983; Wahba & Elsayed, 2014; Elsayed & Wahba, 2016; Miller & Friesen, 1984). To address this issue, we follow Yan and Zhao's (2009) methodology that only depicts the final four stages, relying on IPO date to define the start of a firm's growth period. In a few cases, this classification can be overcome because some firms have been industry leaders for a long time and are "mature". However, in most cases, IPO represents a fundamental change in the company's development strategy. Thus, this study considers the IPO date

a pivotal event in the company's history (a starting point for growth or new growth stage).

Wahba and Elsayed (2014) explained that according to Miller and Friesen's (1984) theory of firm life cycle, the progress of firm life cycle stages does not evolve in a deterministic approach, i.e., companies may move from one stage to another without a pre-defined pattern. The time spent at each stage is also not expected to be the same (Wahba & Elsayed, 2014; Elsayed & Wahba, 2016; Quinn & Cameron, 1983; Elsayed & Paton, 2009). To examine the firm's dynamic environment, this study uses the firm life cycle model, which divides companies into four life cycle phases based on their age, assets growth rate, sales growth rate, dividend payout ratio (DVP) (Grullon, Michaely, & Swaminathan, 2002) and capital intensity ratio (Mueller, 1972; Quinn & Cameron, 1983; Miller & Friesen, 1984; Anthony & Ramesh, 1992; Hanks et al., 1993; Black, 1998; Yan & Zhao, 2009; Elsayed & Paton, 2009; Wahba & Elsayed, 2014; Elsayed & Wahba, 2016). According to Elsayed (2014), this methodology for life cycle classification is typically used in management literature to categorize organizational growth (Van de Ven & Poole, 1995; Elsayed & Paton, 2009; Wahba & Elsayed, 2014).

Proxies for firm life cycle

According to Wahba and Elsayed (2014), Elsayed and Wahba (2016), and Elsayed and Paton (2009), critical factors should be employed to categorize the phases of a firm's life cycle to show organizational life as a multidimensional phenomenon. As a result, three contextual factors are used: total asset growth (AGR) is the percentage change in total assets between two fiscal years, calculated as the difference between prior year sales and current year sales divided by prior year sales (Wen, Chen, & Chen, 2008; Wahba & Elsayed, 2014), sales growth rate (SAG) is the difference between prior year sales and current year sales divided by last year's sales, and organizational age is the time from the date of incorporation to the year of analysis (Wahba & Elsayed, 2014). The dividend payout ratio (DVP) is the dividend-to-earnings ratio before extraordinary items and discontinued operations (Grullon et al., 2002; Wahba & Elsayed, 2014). As a control variable, the capital intensity ratio (CAP) is employed (Rust & Rothwell, 1995; Grabowski & Mueller, 1975; Galbraith, 1982; Miller & Friesen, 1984; Kazanjian & Drazin, 1989; Anthony & Ramesh, 1992; Wahba & Elsayed, 2014; Elsayed & Wahba, 2016; Hanks et al.,

1993; Elsayed & Paton, 2009; Chiang, Lee, & Anandarajan, 2013). CAP is calculated by dividing total assets by the fraction of fixed assets (Wahba, 2015; Anthony & Ramesh, 1992).

3.3.2. Corporate sustainability performance (CSP)

CSP includes metrics for the environment, workers, employees and communities, and shareholders. The key determinants of CSR are ESG aspects. CSP often refers to the measurement of such CSR activities and results (Diebecker et al., 2017). In this paper, the term "CSP" refers to the outcome of such CSR efforts and activities in the Egyptian context. Sustainability considers all three aspects: economic, environmental, and social. We use ESG data from the S&P/EGX ESG index to rank the sampled companies in terms of CSP outcomes. The composite ESG weights for each sampled company were obtained from the EGID (Wahba, 2008; Ibrahim & Wahba, 2013; Wahba & Elsayed, 2015; Eldomiaty et al., 2016; Ahmed, 2017; Genedy & Sakr, 2017).

3.4. Data analysis and hypothesis

This study's estimating method is based on version 24 of the statistical package for the social sciences (SPSS). Descriptive statistics, stationery, normalcy tests, and correlational and robustness tests were used to investigate the relationship between CSP and the firm life cycle using raw data from financial statements and the S&P/ESG EGX index.

3.5. Cluster analysis

The sample firms were divided into groups based on their features employing a two-step cluster analysis. According to Han, Kamber, and Pei (2011), cluster analysis tries to promote homogeneity within groupings while decreasing heterogeneity among groups. Furthermore, we avoid depending on arbitrary sorting criteria by employing cluster analysis (Steinbach, Karypis, & Kumar, 2000; Kaufman & Rousseeuw, 2009). The two-step cluster analysis technique is an exploratory strategy to identify hidden natural groupings (or clusters) inside a dataset (Chiu, Fang, Chen, Wang, & Jeris, 2001; Ng, Li, Huang, & He, 2007). This technique has some benefits over previous clustering approaches. As a result, it can handle continuous data (continuous variables were assigned a combined multinomial-normal distribution). It also determines the best number of clusters by comparing a model selection criterion to a set of different clustering solutions (Koskenmies et al., 2008).

This paper uses a two-step cluster analysis to define the correct number of firm life cycle stages in the research sample (Kolodiziev, Chmutova, & Biliaieva, 2016). It is a cross between hierarchical cluster analysis and k-means clustering. Two-step clustering can handle both scaled and numeric data in the same paradigm. Furthermore, the Akaike information criterion (AIC) (Akaike, 1974, 1987) is utilized to identify the sample's best number of firm life cycle phases. Following the research done by Elsayed and Wahba (2016), we used a one-way ANOVA and a T-test for each clustering variable (dependent variable) and firm life cycle stage (independent variable). As indicated in Tables 3–8, the F-statistics from ANOVA and the t-value from the T-test demonstrate significant differences in the means for the four clustering variables (firm age, assets growth, sales growth, and capital intensity).

3.6. The relationship between CSP and firm life cycle

The direction and significance of the relationship between CSP (proxied by ESG index) and firm life cycle are assessed using cross-tabulation analysis, chi-square test, and contingency coefficient test. The cross-tabulation analysis is explicitly utilized to determine the relationship between the CSP and the firm life cycle. In addition, because our data is categorical and assessed on a nominal scale, the chi-square test of independence (Fasoulis & Kurt, 2019) is utilized to determine the degree of statistically significant correlation between the ESG index and business life cycle (Fasoulis & Kurt, 2019). Finally, the contingency coefficient is used to quantify the link between the ESG index and the business life cycle.

4. RESEARCH RESULTS

This portion of the paper analyses data from many sources and applies the various statistical methodologies employed in the research to assemble crucial descriptive statistics on the CSP (both strengths and weaknesses) and firm life cycle clustering attributes. The first subsection illustrates and discusses descriptive statistics for all study variables, as well as their conclusions. The second subsection examines the results of the cluster analysis of the final sample of 420 valid firm-year data.

4.1. Descriptive statistics for all research variables

After eliminating outliers, a final panel-data sample of 420 valid firm-year observations was produced, spanning 63 businesses and six years (2013–2017). Table 2 below displays the descriptive statistics for the relevant research variables. The ESG index has a mean value of 13.83, suggesting that most firms in the S&P/EGX ESG index spend substantially on CSR activities. The standard deviation for this statistic, on the other hand, is 7.625708, demonstrating substantial variation in CSR spending among the sampled firms.

Table 2. Descriptive statistics for CSP and firm life cycle variables from 2013 to 2018

	SAG	*Ln_Size*	*IND*	*ESGRANKING*	*AGE*	*TAG*	*DVP*	*CAP*
Mean	0.193034	21.60583	44.01439	13.82993	26.36071	0.036745	0.484402	1.947262
Median	0.169684	21.55748	37.00000	13.00000	21.00000	0.027159	0.441027	1.619330
Maximum	0.575989	25.34328	87.00000	30.00000	64.00000	0.235500	1.080000	4.858117
Minimum	0.016600	16.95100	1.000000	1.000000	0.000000	-0.158025	-0.088816	-0.360000
Std. Dev.	0.133309	1.781157	20.45221	7.625708	15.20059	0.079005	0.256019	1.182212
Skewness	0.654833	-0.041511	0.009125	0.335258	0.738135	0.232533	0.357587	0.851689
Kurtosis tool	2.579891	2.479148	1.864268	2.152241	2.646324	2.740878	2.308030	2.797502
Jarque-Bera	33.10505	4.868138	22.41757	20.44499	40.32801	4.960031	17.33018	51.49381
Probability	0.000000	0.087679	0.000014	0.000036	0.000000	0.083742	0.000173	0.000000
Observations	420	420	417	420	420	420	420	420

Source: Own calculation (2019) from firm's financial statement data and ESG index.

4.2. Firm life cycle classification

The phases of a standard life cycle model are defined in terms of contextual, strategic, or structural elements. According to Miller and Friesen's (1984) organization quantum theory, the examination of configurations or clusters of data indicating interdependencies is helpful. The interdependence of context, strategy, and structural variables is also recognized by organizational theory (Galbraith, 1986).

Accounting and financial variables are often used to forecast and explain a business's life cycle phases since they exhibit distinct patterns throughout the business's existence (Grabowski & Mueller, 1975; Galbraith, 1983; Miller & Friesen, 1984; Kazanjian & Drazin, 1989; Hanks et al., 1993; Anthony & Ramesh, 1992; Elsayed & Paton, 2009; Anandarajan, Chiang, &

Lee, 2010; Elsayed & Wahba, 2016). Thus, the following clustering factors were used to identify firm life cycle stages: dividend payment ratio, sales growth ratio, total assets growth, capital intensity, and firm age. Earlier research included comparable factors (Elsayed & Wahba, 2016). As previously stated, we used the two-step cluster analysis to classify the companies in the research sample into different firm life cycle clusters based on their attributes. Pre-clustering techniques are used first in a two-step cluster analysis, followed by hierarchical algorithms to discover groupings. It can handle large data sets than single hierarchical cluster approaches since it employs a tight cluster algorithm from the start. The two-step cluster approach integrates hierarchical cluster analysis with k-means clustering (Wiese & Humbani, 2020).

Table 3. Akaike's information criterion

No. of clusters	Akaike's information criterion (AIC)	AIC change[a]	Ratio of AIC changes[b]	Ratio of distance measures[c]
1	25699.831			
2	26196.210	496.379	1.000	1.484
3	27496.954	1300.744	2.620	1.581
4	29408.642	1911.688	3.851	1.226
5	31514.048	2105.406	4.242	1.046
6	33657.567	2143.519	4.318	1.316
7	35998.264	2340.697	4.716	1.438
8	38528.693	2530.430	5.098	1.013
9	41064.668	2532.975	5.109	1.010
10	43604.967	2540.299	5.118	1.001
11	46145.808	2540.840	5.119	1.013
12	48692.251	2546.444	5.130	1.016
13	51245.165	2552.913	5.143	1.624
14	53956.089	2710.924	5.461	1.161
15	56702.101	2746.012	5.532	1.008

Notes: a. The changes are from the previous number of clusters in the table; b. The ratio of chandes are relative to the change for the two cluster solution; c. The ratios of distance measures are based on the current od clusters against the prrvious number of clusters.

Two-step clustering is judged acceptable for this research because it simultaneously models scale and ordinal data and automatically determines the appropriate number of clusters, making it perfect for use in extensive sample size investigations (> 300). As previously stated, AIC goodness-of-fit tests (Akaike, 1974, 1987) are used to define the correct number of firm life cycle stages of firms in the research sample. According to Table 3, the minimum AIC values show that the optimal number of firm life cycle clusters in the sample is 2 clusters, with the lowest AIC change being equal to 496.379. AIC is used to assess alternative models and to find the one that fits the data the best (Tsounis & Vlachvei, 2020). However, it will not be able to determine absolute quality. After selecting the optimal number of clusters, ANOVA and T-tests offered internal and external validation for the firm life cycle categorization.

4.2.1. Quick cluster

Agglomerative clustering, like k-means, was done after specifying the number of clusters into two clusters according to the AIC test and updating cluster centers iteratively. K-means clustering technique is a faster, more reliable, and arbitrary nonhierarchical clustering technique than other hierarchical clustering techniques (Jain, 2010; Davidson, 2002).

Table 4. K-means clustering

Iteration	Change in cluster centers	
	1	*2*
1	17.562	18.558
2	0.154	0.300
3	0.000	0.000

According to Table 4, convergence was achieved due to no or minimal changes in the cluster centers of the samples. The absolute coordinate change for each center is restricted to .000 in the k-means clustering test. The current iteration is the third, and the smallest distance between the two initial centers is 64.030.

Table 5. Number of cases in each cluster

Cluster	1	284.000
	2	136.000
Valid		420.000
Missing		0.000

As shown in Table 5, the two-step cluster methodology aggregates 284 firm-year observations into cluster one, representing 68% of the total sample and 136 firm-year observations, the second cluster representing 32% of total sample size.

Table 6. Final clusters centers

Variables	Cluster	
	1	*2*
FirmAge	17	45
AssetsGrowth	0.0440	0.0215
SalesGrowth	0.2017	0.1749
DividendPayout	0.4931	0.4661
CapitalIntensity	2.0403	1.7531

Source: The authors' elaboration.

The descriptive statistics for each firm life cycle stage is summarized in Table 6 along with the descriptive statistics for all clustering variables by giving the final cluster centers values. The values shown in the table are the means for each clustering variable within each final cluster. The final clusters centers reflect the prototypical attributes of each cluster. Thus, internal, and external validation tests provide robustness to the classification of the data into clusters. The mean values of four clustering factors were used to identify and name the clusters, as shown in Table 6: cluster 1 represents the growth stage of the firm's life cycle (284 firm-year data), and cluster 2 represents the maturity stage of the firm's life cycle (138 firm-year data).

4.2.2. Robustness check-in life cycle classification

Before identifying the two significant clusters of the life cycle of firms in the research sample, the statistical significance of the variables was compared amongst the two groups using a one-way ANOVA to measure the degree of non-similarity between the two clusters. As per the research done by Elsayed and Wahba (2016), the one-way analysis of variance (ANOVA) and T-test were used to determine the degree of dissimilarity between the two clusters for the five firm life cycle proxies. Table 7 shows the F-statistics of ANOVA that indicates a significant difference between mean values for four out of five clustering variables, i.e., firm age, assets growth, sales growth, and capital intensity.

Table 7. ANOVA F-test

Variables	Cluster		Error		F	Sig.
	Mean square	*df*	*Mean square*	*df*		
FirmAge	71038.588	1	61.662	418	1152.067	0.000
AssetsGrowth	0.047	1	0.006	418	7.603	0.006
SalesGrowth	0.066	1	0.018	418	3.727	0.054
DividendPayout	0.067	1	0.066	418	1.023	0.312
CapitalIntensity	7.584	1	1.383	418	5.484	0.020

Notes: The F-test shoud be used only for descriptive purposes because the clusters have been chosen to maximize the differences among cases in different clusters. The observed significance livels are not corrected for this and thus cannot be interpreted as tests of the hypothesis that the cluster means are equal.

According to Devitt et al. (2009), the F-tests should only be used for descriptive reasons since the clusters were designed to maximize the differences between observations within each cluster. Because of this uncertainty, the observed significance levels cannot be used to test the hypothesis that cluster averages are equal (Devitt et al., 2009). The difference in the mean values of the clustering variable: dividend payout ratio, is insignificant. Nonetheless, since the test yields statistically significant differences in the mean values of the remaining four clustering variables, the differences between clusters are statistically significant. Table 8 shows the T-test results for the five clustering variables across the two clusters. Like the ANOVA F-test, the T-test results show significant variations in the means of four of the five clustering variables and confirm the cluster categorization's correctness for this data sample.

The T-test mean-variance analysis reveals several fascinating patterns that ought to be explored further. The average age of growth companies is lower than the average age of mature companies. Firm size (in both assets and sales) is decreasing as the firm moves over its life cycle from growth to maturity stages as the market typically attaches a premium to the growth opportunities of younger life cycle compared to mature firms. According to Habib and Hassan (2017), the economic theory posits that growing businesses make early investments to ward off competition. Therefore, product innovation and diversification are critical drivers of development for growing firms (Kazanjian & Drazin, 1989; Liao, 2013). To design, sell, and launch a product, companies need to build production capacities, acquire fixed assets, and produce extensive inventories. In the first stage, once accepted in the market, growing companies are likely to achieve higher levels of performance (Dickinson, 2011).

Table 8. T-test (Independent samples test)

| | | Levene's test for equality of variances | | T-test for equality of means | | | | | | | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean difference | Std. error difference | 95% confidence interval of the difference | |
									Lower	Upper
FirmAge	Equal variance assumed	57.807	0.000	-33.942	418	0.000	-27.793	0.819	-29.403	-26.184
	Equal variance not assumed			-30.100	201.108	0.000	-27.793	0.923	-29.614	-25973
AssetsGrowth	Equal variance assumed	1.83	0.277	2.757	418	0.006	0.0225399	0.0081744	0.0064718	0.0386080
	Equal variance not assumed			2.802	277.402	0.005	0.0225399	0.0080436	0.0067055	0.0383742
SalesGrowth	Equal variance assumed	2.379	0.124	1.931	418	0.054	0.0267515	0.0138563	0.0004852	0.0539882
	Equal variance not assumed			1.985	285.910	0.048	0.0267515	0.0134769	0.0002249	0.0532781
DividendPayout	Equal variance assumed	8.463	0.004	1.011	418	0.312	0.0269995	0.0266966	0.0254769	0.794759
	Equal variance not assumed			0.955	230.998	0.341	0.0269995	0.0282809	0.0287220	0.827211
CapitalIntensity	Equal variance assumed	27.872	0.000	2.342	418	0.020	0.2871754	0.1226252	0.0461366	0.5282143
	Equal variance not assumed			2.606	350.255	0.010	0.2871754	0.1102066	0.0704255	0.5039254

According to Chen, Wang, Nevo, Benitez, and Kou (2017) and Habib and Hassan (2017), when a business enters the mature stage of its life cycle, the depreciation rate rises as a proportion of new investment, resulting in a decrease in investment (Jovanovic, 1982; Wernerfelt, 1985). In addition, Richardson (2006) demonstrates, although a growing firms' investments are more likely to be much bigger and expansion-oriented, its mature stage investments are more strongly skewed towards asset maintenance (Habib & Hassan, 2017). Additionally, the data imply that capital expenditure is the biggest for growth enterprises since a higher capital intensity ratio is required to generate sufficient revenue in growth phase organizations. Mature firms need less capital to operate a well-established and stable corporation. As a result, growing companies have a fast sales growth. However, when the business matures, sales begin to decrease and capital investment slowly. Due to the agency problem, cash dividend payouts show no significant difference between the two life cycle stages. If management holds a substantial amount of the company's stock, capital providers may keep a close eye on them to avoid value-destroying actions. On the other hand, large-company CEOs seldom own a significant part of the company's stock.

Furthermore, ordinary shareholders' ability to influence management is limited by big companies' dispersed ownership structure. According to Mueller (1972), large-company managers may be less driven than entrepreneur-managers to maximize shareholder profit. He hypothesizes that large-company executives will spend more and pay fewer dividends than executives who maximize shareholder value. Additionally, Dickinson (2011) explained that once a company chooses to pay dividends for its first time, the overall dividend payout ratio is generally stable and exhibits little fluctuation. Moreover, several companies either stopped or have never resumed dividend payments. As a result, the dividend payout ratio is not really a suitable metric for distinguishing companies in this situation. These results corroborate those previously published in the literature (Dickinson, 2011; Spence, 1977, 1979, 1981; Mueller, 1972; Anthony & Ramesh, 1992; Black, 1998; Jovanovic, 1982; Wernerfelt, 1985).

4.3. The relationship between CSP and firm life cycle

Cross-classified category data analysis is commonly utilized in analysis and assessment, according to Franke, Luders, May, Wilke, and Gaser (2012). One of the most often used statistical strategies for resolving correlations or differences between categorical data is Karl Pearson's chi-square tests. The chi-square test is a statistical significance test for hypotheses on nominally measured variables where the null hypothesis is rejected when the p-value is less than 0.05 ($\alpha = 0.05$), but the alternative hypothesis is kept (McHugh, 2013). Accordingly, the chi-square test of independence used in data analysis is chosen as the most productive data analysis technique due to the quality and type of the obtained research data due to the category structure of our data, which is measurable on a nominal scale. In this regard, we employed the chi-square test of independence to establish a statistically significant relationship between research variables CSP and firm life cycle.

Furthermore, the contingency coefficient (C) is utilized to quantify the strength of previously observed correlations between research variables.

According to Mirkin (2001), the C-values range from zero to one. Closer to one value imply a strong inverse association, while values closer to zero imply no inverse relationship. Closer to zero values indicate no association between the variables under study (Mirkin, 2001).

4.3.1. Cross-tabulation of CSP and firm life cycle stages

Our paper attempted to examine the relationship between CSP and firm life cycle by cross-tabulating ESG ranking as a proxy for CSP with firm life cycle data, namely the maturity stage cluster and the growth stage cluster. Additionally, the businesses' position in the ESG index has been translated to a relative result, with a maximum value of 30 being assigned to the index's finest company. The second-best firm receives a rating of 29, and so forth. According to our findings, CSP appears to have reasonably significant association power with the firm life cycle, especially companies in the growth stage (67.6% out of the 420 firm-year observations).

Table 9. Cross-tabulation of CSP and firm life cycle stages

		Cases					
		Valid		*Missing*		*Total*	
		N	*Percent*	*N*	*Percent*	*N*	*Percent*
*ESGR_1*QCL*		420	100.0%	0	0.0%	420	100.0%

*ESGR_1*QCL Cross-tabulation*

			QCL		Total
			0	*1*	
ESGR_1	1–9.99	Count	19	61	80
		% within ESGR_1	23.8%	76.3%	100.0%
		% within QCL	14.0%	21.5%	19.0%
		% of total	4.5%	14.5%	19.0%
	10–19.99	Count	65	103	168
		% within ESGR_1	38.7%	61.3%	100.0%
		% within QCL	47.8%	36.3%	40.0%
		% of total	15.5%	24.5%	40.0%
	20+	Count	52	120	172
		% within ESGR_1	30.2%	69.8%	100.0%
		% within QCL	38.2%	42.3%	41.0%
		% of total	12.4%	28.6%	41.0%
Total		Count	136	284	420
		% within ESGR_1	32.4%	67.6%	100.0%
		% within QCL	100.0%	100.0%	100.0%
		% of total	32.4%	67.6%	100.0%

In general, the results in Table 9 show that companies growing companies had a higher involvement in CSP and thus a higher ranking for ESG score (76.3% of the firm-year observations that were clustered in the growth stage had a higher ranking in the S&P/EGX ESG index than those mature firms that ranked in the first, second, and third 10th percentile of the S&P/EGX ESG index. According to the findings, growing firms were more active in CSR efforts and were more open and transparent about their ESG and sustainability practices. The higher a firm's rating in the index, the higher its ESG score. This indicates that the best-performing ESG participants in the growth cluster have attracted a more significant number of index tracker products.

4.3.2. Chi-square test of association

In Table 10, the Pearson chi-square statistic is 6.139, the p-value is 0.46, the likelihood chi-square statistic is 6.207 and the p-value is 0.45. Thus, these results reject the null hypotheses of independence between CSP and firm life cycle providing evidence of a significant level of association between these 2 variables. Thus, accurate identification of the firm life cycle is likely to determine the expected value of CSP.

Table 10. Pearson's chi-square test

Tests	*Value*	*df*	*Asymp. Sig. (2-sided)*
Pearson's chi-square	6.139[a]	2	0.046
Likelihood ratio	6.207	2	0.045
Linear-by-linear association	0.202	1	0.653
No. of valid cases	420		

Notes: a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 25.90.

As shown in Table 10, the asymptotic significant values of Pearson's chi-square and the generalized likelihood-ratio tests are less than the stipulated alpha significance level 0.05. Thus, there exists a statistically significant relationship between the ESG ranking variable and the firm life cycle stages of growth and maturity exists. However, this does not indicate the strength or direction of the relationship.

4.3.3. Contingency coefficient test

The contingency coefficient metric ranges from 0 to 1, with values closer to 1 suggesting a more significant positive relationship between the variables, 0 showing no relationship, and values closer to negative 1 suggesting a significant negative relationship (Mirkin, 2001). According to Table 11, the projected C-value is 0.12. As a result, the relationship between variables is statistically significant at $p < 0.05$.

Table 11. Contingency coefficient test

Tests	Value	Approx. Sig.
Nominal by nominal contingency coefficient	0.120	0.046
No. of valid vases	420	

Notes: Not assuming the null hypothesis; Using the asymptotic standard error assuming the null hypothesis.

Following in the footsteps of Lee and Choi's (2018) research, our findings reveal a statistically significant positive association between ESG rating and firm life cycle. Even though most of the previous research indicates that mature businesses are more involved in CSR, our sample shows the reverse. Mature companies in the research sample had a lower ESG score than growing firms. Our findings corroborate those of Lee and Choi (2018). Our research findings are also in line with the research findings of Cochran and Wood (1984), who discovered that growing enterprises had higher CSR ratings than firms in other firm life cycle stages, suggesting that they are more motivated to undertake CSR initiatives and sustainability pursuits. Using a similar research period from 2012 to 2017, Rezazadeh and Yarahmadi (2019) researched the relationship between firm life cycle and CSR in Iran, concentrating on the role of financial resources. Their data reveal a positive and beneficial association between CSR and the firm life cycle, supporting our results. Unfortunately, the literature on this subject is scarce. The latest work of Hasan and Habib (2017) is closely related to this paper since they both examine the amount of CSR actions across a firm's lifespan. However, inferring the remaining phases, transitions between stages, or causes of CSP beyond the maturity stage is impossible since they exclusively concentrate on the maturity stage. In the same manner, Lee and Choi (2018) discovered that while firms are in the growth stage, affiliated groups companies are more active in corporate social responsibility than non-affiliated groups companies. Given that affiliates may use the resources of other group member companies, this supports the theory of slack resources. In general, their findings suggested that businesses had distinct CSR strategies depending on their life cycle stage. The other papers that indirectly address the relationship between CSP and the firm life cycle: First, Withisuphakorn and Jiraporn (2016) indicate that the CSP of the mature companies is more significant than the CSP of firms in other firm life cycle stages. The time necessary to proceed through the life cycle varies depending on the industry and firm. They also find that the influence of company maturity varies among CSR categories. As corporations mature, they become significantly more responsible in terms of diversity and environmental awareness, but the influence on human rights and product safety is much less. Moreover, not all businesses follow a linear life cycle pattern (Dickinson, 2011; Elsayed & Paton, 2009). Second, Al-Hadi, Chatterjee, Yaftian, Taylor, and Monzur Hasan (2019) show that CSP decreases financial distress, increasing this effect for mature companies. Unfortunately, these researchers did not offer much detail regarding CSP development in the firm life cycle.

5. DISCUSSION OF THE RESULTS

According to the findings, organizations will have varied CSR strategies based on their life cycle stage, and the firm's life cycle stage determines the CSP of a company. Our study adds to the substantial empirical CSR research by analyzing how CSR efforts fluctuate over the firm life cycle for Egyptian commercial organizations. Because each company's business resources differ, so does the amount spent on CSR. Larger corporations have more significant financial resources and, presumably, more influence over CSR projects than smaller ones. On the other hand, CSR activities incorporated into business operations become critical when firms develop in size. After all, CSR should not be used only to seem "good" but should be incorporated into day-to-day company operations and, eventually, develop into a crucial business growth strategy as organizations expand in size. This explains why expanding organizations had the most significant level of CSP in our research sample. Growing firms must build trust with their external stakeholders. Furthermore, a company's longevity and operational sustainability are dependent on the satisfaction of numerous stakeholders, such as investors, internal personnel, customers, and governmental agencies, depending on which stakeholders are more essential at each point of the firm's life cycle.

Even though most prior research implies that mature organizations are more active in CSR, our sample reveals the opposite. The ESG score of mature enterprises in the study sample was lower than that of emerging firms. Since mature businesses generate significant cash flows, they would be less likely to enhance their business performance selectively. Furthermore, many companies' operational strategies have shifted in the "correct" direction, disincentivizing CSR engagement. Given the high cost of CSR investment, the value provided by CSR activities must be balanced against the firm's financial restrictions and boundaries. Nonetheless, the results of the study suggest that CSR may have a dynamic impact on the development of a firm's life cycle and that developing businesses can efficiently employ financial resources to achieve long-term goals. CSR policies are expected to aid in the reduction of information asymmetry, the reduction of idiosyncratic risk, and the enhancement of a firm's long-term sustainability.

6. CONCLUSION

Most of the research in the CSR field focuses on the degree of social engagement at a particular time, rather than on how CSR changes with a firm's operating, investing, and financing capacities. The dynamics of the firm's life cycle will affect its CSR strategy in the long run. A significant association exists between CSP and each step of the firm life cycle, as demonstrated by our findings, explained by the firm life cycle, slack resources, and stakeholder theories. Furthermore, growing firms had the highest degree of CSP, showing that organizations in the growth stage require not only a high financial performance to be successful but a better ethical reputation as well. As such, our findings indicate that the firm life cycle stage is a key predictor of a firm's CSR disclosure, sustainability measures, and related impact. Our findings corroborate those of Lee and Choi (2018). Our findings can be justified by the empirical and theoretical evidence that investments in CSR foster trust between a business and its stakeholders, as stated in Lins, Servaes, and Tamayo (2017). Thus, by engaging in CSR activities, a growing business may improve its reputation, increasing its commercial efficiency. Nonetheless, and very clearly, financial success is critical for companies that are just getting started. CSR is seen as an investment technique since the organizational goal of publicly traded companies should be to increase profits (McWilliams & Siegel, 2011). Businesses that invest in CSR may outperform their competitors (Waddock & Graves, 1997). However, the counter-intuitive argument that a start-up has much more pressing duties than CSR will always exist.

Although earlier research has examined various organizational issues associated with CSR participation, this research is to the best of our knowledge, the first that demonstrates a robust relationship between the theory of firm life cycle and CSR engagement. This study provides a comprehensive analysis of the theories of firm life cycle and firm's life cycle's ESG implications and disclosure. These life cycle theories and CSR implications have been largely unexplored especially regarding the lack of investigation of CSR-drivers in the context of developing economies. As such, our paper contributes to the existing literature by providing substantial empirical evidence for the relationship between business life cycle and CSP in an Egyptian setting.

The major limitations of this study are in Egypt's ESG information availability may be limited, and certain needed information may be unavailable or inaccessible. At times, reliable CSR information other than that supplied by the S&P/ESG EGX index may be challenging to acquire. The study's limitation is also that it does not differentiate between firms and sectors throughout the selection process. However, it does allow for the use of social tools to choose which companies to pick based on social responsibility requirements. Additionally, research is constrained by time and scope. The 2011 Egyptian Revolution resulted in a shorter time frame for the research sample as the index was incepted in 2010 but the years 2011 and 2012 were excluded from the analysis due to the implications of the revolution on the data. The sample size constrains the number of organizations investigated. As a result, it is not easy to gather adequate, reliable, and truthful data about businesses and social responsibility initiatives. For future research, substituting an alternative proxy for company size (natural log of total assets) for the existing one may enhance test results and assure robustness. The focus of the sample selection is obtained only for firms listed in the Egyptian stock market Therefore, small- and medium-sized enterprises (SMEs) that are not listed on the stock exchange could not be included in the study. Future research should broaden the sample to these companies so that the analysis of the correlation between CSR and firm life cycle can be generalized.

In addition, future research may seek to confirm the magnitude and strength of the association between CSP and a business's firm life cycle as a strategy for efficient resource use while focusing on a single concept of CSR, such as corporate governance or the environmental aspect of the ESG dimensions and correlate them to the different stages of the firm's life cycle. Since firm characteristics are more than likely to differ across different life cycle stages, available resources, economic strength, risk tolerance, expert knowledge, and company's reputation concerns are likely to differ with these firm life cycle stages as well. Further research in this field can help investors, stakeholders, and business organizations gain a better understanding of CSR and ESG factors, the benefits of socially responsible behavior and contribute to the reduction of socially irresponsible behaviors in today's society. As there is a dearth of research examining CSR practices, how they change with the firm life cycle, and their subsequent impact on firm performance in the Middle East and North Africa (MENA) region.

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