

T.C.
İSTANBUL KÜLTÜR UNIVERSITY
INSTITUTE OF GRADUATE STUDIES

**THE IMPACT OF SUSTAINABILITY IN ENHANCING
THE PERFORMANCE OF CONSTRUCTION COMPANIES**

MASTER'S THESIS

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2300010278

Department: Industrial Engineering

Program: Engineering Management

Supervisor: Assistant. Prof. Ibrahim Ethem Tarhan

July 2025

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In the name of Allah, the most gracious, the most merciful.

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ABBREVIATIONS

CS	Corporate sustainability
CP	Corporate performance
TBL	Triple Bottom Line
OECD	The Organization for Economic Cooperation and Development
CSR	Corporate social responsibility
ESG	Environmental, social and governance
PLS	Partial Least Squares
SEM	Structural Equation Modelling
RS	Random Sampling
VIF	Variance Inflation Factor
AVE	Average Variance Extracted
CR	Composite Reliability
HTMT	The Heterotrait Monotrait Ratio of Correlations
VAF	Variance Accounted For
SMEs	Small and medium-sized enterprises

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ÖZET

İNŞAAT ŞİRKETLERİNİN PERFORMANSINI ARTIRMADA SÜRDÜRÜLEBİLİRLİĞİN ETKİSİ

Amatarahman Lec'hvien

Bu çalışma, kurumsal sürdürülebilirliğin kurumsal performans üzerindeki etkisini incelemektedir. Araştırma, inşaat sektöründeki 3.612 yöneticiyle yapılmış olup, rasgele örnekleme (RS) yöntemi uygulanmıştır. Gerekli minimum örneklem büyüklüğü 347 yönetici olarak belirlenmiştir. Toplamda 400 anket dağıtılmış, bunlardan 346'sı geri alınmış, 54 anket ise geri alınamamıştır. Sonuç olarak, 319 anket geçerli kabul edilmiştir ve bu da %79,75'lik bir yanıt oranına tekabül etmektedir.

Sonuçlar, kurumsal sürdürülebilirliğin sosyal, çevresel ve ekonomik boyutlarının kurumsal performans üzerinde anlamlı bir pozitif etkiye sahip olduğunu göstermektedir. Özellikle, kurumsal sosyal sorumluluk, çevresel sorumluluk ve ekonomik sorumluluğun her biri, kurumsal performans üzerinde anlamlı bir pozitif etkiye sahiptir.

Çalışma, gelecekteki araştırmaların kurumsal sosyal, çevresel ve ekonomik sorumluluklar ile kurumsal performans arasındaki ilişkiyi aracılık eden veya moderatörlük yapan faktörleri incelemesi gerektiğini önermektedir. Örgüt kültürü, liderlik tarzları, paydaş katılımı ve teknolojik benimseme gibi faktörler, bu ilişkileri etkileyen dinamikler hakkında daha derinlemesine içgörüler sağlayabilir.

Anahtar Kelimeler: Kurumsal sürdürülebilirlik, Kurumsal sosyal, Çevresel, Ekonomik sorumluluk, Kurumsal performans, İnşaat şirketleri.



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ABSTRACT

THE IMPACT Of SUSTAINABILITY IN ENHANCING THE PERFORMANCE OF CONSTRUCTION COMPANIES

Amatarahman Lec'hvien

This study explores the impact of corporate sustainability on corporate performance. The research involved 3,612 managers working in construction companies, and the random sampling (RS) method was applied. The minimum required sample size was 347 managers. A total of 400 questionnaires were distributed, 346 of which were returned, while 54 were not returned. Ultimately, 319 questionnaires were usable, yielding a response rate of 79.75%.

The results showed that corporate sustainability, in its social, environmental, and economic dimensions, has a significant positive effect on corporate

performance. Specifically, corporate social, environmental, and economic responsibility all have a significant positive impact on corporate performance.

The study suggests that future research should examine factors that mediate or moderate the relationship between corporate social, environmental, and economic responsibilities and corporate performance. Factors such as organizational culture, leadership style, stakeholder engagement, and technological adoption could provide further insights into the dynamics influencing these relationships.

Keywords: Corporate sustainability, Corporate social, Environmental, Economic responsibility Corporate performance, Construction companies.

1. INTRODUCTION

1.1 Background and Context

Corporate Sustainability (CS) has become an integral part of the global business lexicon, with its origins traced back to the Brundtland Report (1985). This report defined the concept of sustainable development as the integration of the triple bottom line—economic prosperity, social equity, and environmental performance—into a company's operational practices and management (Bansal, 2005).

The value of sustainability extends beyond mere rhetoric, as it indirectly impacts enterprises at various levels. Consumers who align with sustainability principles may be willing to pay more for products that adhere to these principles. However, the benefits of sustainability extend beyond consumers to shareholders, employees, and even supply chain workers who prefer to engage with institutions that share their values and principles (Rankin et al., 2018).

Sustainability issues such as global warming, resource depletion, hazardous waste generation, pollution, deforestation, population growth, unemployment, and poverty have garnered significant international and national attention, driving the concept of sustainable development forward. The growing concerns about the social and environmental impacts of organizational activities have underscored the importance of measuring and disclosing environmental and social performance (Guthrie & Farneti, 2008; Beck et al., 2010; Hopwood et al., 2010).

Sustainability performance encompasses a broad spectrum of activities beyond financial measures found in traditional financial accounts. These include natural resource conservation, emission levels, environmental initiatives, employment practices, occupational health and safety, community relations, stakeholder engagement, and the economic impact of the organization (Hoque & Adams, 2014).

The construction industry plays a crucial role in shaping our built environment, but it also has significant environmental and social impacts (Baumgartner & Ebner, 2010). In recent years, there has been a growing recognition of the need for sustainability in construction practices to mitigate these impacts and ensure long-term viability (Antolin-Lopez et al., 2016).

This introduction aims to provide an overview of the impact of sustainability on enhancing the performance of construction companies. It will explore how integrating sustainable practices into construction processes can lead to cost savings, improved efficiency, and better outcomes for both the environment and society.

As sustainability becomes increasingly important in the construction sector, companies are facing pressure to adopt more environmentally friendly and socially responsible practices (Hörisch et al., 2014). This pressure comes from various stakeholders, including clients, investors, regulators, and the general public, who are demanding greater transparency and accountability from construction companies.

In response to these pressures, many construction companies are embracing sustainability as a core part of their business strategies. By implementing green building techniques, using renewable materials, and minimizing waste, construction firms can reduce their environmental footprint and contribute to a more sustainable future (Kaur & Lodhia, 2014).

Furthermore, sustainability can also bring economic benefits to construction companies. Cost savings from energy efficiency measures, reduced waste, and improved resource management can enhance profitability and competitiveness in the market (Milne & Gray, 2007; Ball & Bebbington, 2008).

However, integrating sustainability into construction practices is not without its challenges. It requires changes in mindset, investment in new technologies, and collaboration across the industry. Additionally, measuring and reporting on

sustainability performance can be complex, requiring the development of new metrics and standards.

Despite these challenges, the benefits of sustainability in construction are clear. By adopting sustainable practices, construction companies can improve their performance, reduce their environmental impact, and contribute to the creation of healthier, more resilient communities.

In this paper, we will explore the various ways in which sustainability can enhance the performance of construction companies. We will examine case studies, best practices, and emerging trends in sustainable construction, providing insights into how companies can successfully integrate sustainability into their operations and achieve positive outcomes for both themselves and the broader society.

This study aims to explore the impact of corporate sustainability on the performance of construction companies by analyzing the effects of three core dimensions: social, environmental, and economic sustainability. The research seeks to fill a gap in the literature by providing sector-specific insights into how sustainability practices influence organizational outcomes in the construction industry, particularly in emerging markets where sustainability adoption is still evolving.

1.2 Problem Statement

The construction industry in Turkey, as in many other countries, faces significant challenges related to sustainability. With growing concerns about environmental degradation, social responsibility, and economic viability, there is an increasing need for construction companies to adopt sustainable practices. Despite the acknowledged importance of sustainability, many Turkish construction companies have yet to fully integrate comprehensive sustainability strategies into their operations.

While there is a growing body of literature on corporate sustainability, specific research focusing on the Turkish construction industry is limited. There is a need for detailed studies to understand the unique challenges and opportunities for sustainability within this context and to develop tailored strategies that can effectively address these issues.

In developed countries, Over the past 50 years, managers have viewed corporate sustainability as an added value rather than a necessity (Baumgartner 2009; Bonn & Fisher 2011; Fairfield et al., 2011 and Maletič et al., 2014). However, in developing countries, managers' perceptions of corporate sustainability are unclear and do not imply responsible management of internal practices (Al-Obaidi et al., 2016; Awad, 2017). Managers play an important role in sustainable development. This role is evident in developed countries. Managers in developing countries are still lagging behind in terms of understanding the importance of sustainable development, including SCR. Managers prioritize long-term decisions in order to maintain long-term development performance (Skorstad et al., 2018). They also play an important role on the board of directors in making operational and strategic decisions for the organization, which leads to increased corporate sustainability. The debate about corporate sustainability still not solved between the scholars, researchers about the value added (Salzmann et al., 2005; Bäckström et al., 2015).

Over the past decade, research has focused on understanding the adoption of sustainability practice (Berrone & Gomez-Mejia, 2009; Ba & Galik, 2022). Other relevant aspects of corporate sustainability, such as corporate sustainability performance measurement, remain underexplored despite its prominence in business (Chelli & Gendron, 2013; Maas & Reniers, 2014; Schaltegger et al., 2022). Although corporate sustainability performance measurement has been a subject of growing interest both in academia and practice, yet there is no consensus among related parties in what measurement aspects should be considered and what aspects should not. (Antolin-Lopez et al., 2016). However,

the corporate social and environmental disclosures were one of the common aspects used to measure the corporate sustainability.

Considering previous studies, there is a lack of literature on corporate sustainability performance exists because of the difficulty in identifying corporations that are exercising the three dimensions of sustainability, i.e. social, environmental and economic together (Labuschagne et al., 2005). There is a lack of empirical studies (Zyadat, 2016; Awad, 2017). In addition, Baumgartner and Ebner (2010) and Antolin-Lopez et al. (2016) argued that items measuring the three dimensions of sustainability are still inconclusive.

The problem statement of this research is to investigate the impact of sustainability on enhancing the performance of construction companies. Specifically, it aims to address the following key questions:

- 1- What are the main sustainability challenges facing the construction industry, and how do these challenges impact the performance of construction companies?
- 2- What are the best practices and strategies for integrating sustainability into construction operations, and what are the key success factors for achieving sustainable outcomes?
- 3- Does corporate sustainability (social, environmental and economic) affect corporate performance?
- 4- Does corporate social affect corporate performance?
- 5- Does corporate environmental affect corporate performance?
- 6- Does corporate economic affect corporate performance?

1.3 Objective of the Paper:

This study is principally aimed to investigate the effects of corporate sustainability on the corporate performance. The specific objectives include the followings:

- 1- To investigate the effect of corporate social on corporate performance.

- 2- To investigate the effect of corporate environmental on corporate performance.
- 3- To investigate the effect of corporate economic on corporate performance.

1.4 Research Map

Creating a research map involves outlining the key components and structure of a research project or study. research map for investigating the impact of corporate sustainability on corporate performance

- 1) Introduction: Provide an overview of the research topic. Define corporate sustainability and corporate performance. State the research objectives and questions.
- 2) Literature Review: Review existing literature on corporate sustainability and its impact on corporate performance. Explore theories, frameworks, and models related to corporate sustainability and performance. Examine empirical studies and case studies that investigate the relationship between corporate sustainability and various dimensions of performance (financial, reputational, operational, etc.).
- 3) Methodology: Describe the research design (e.g., quantitative, qualitative, mixed methods). Explain the sampling strategy and data collection methods. Outline the analytical approach (e.g., regression analysis, case study analysis, content analysis). Discuss any ethical considerations and limitations of the study.
- 4) Data Collection and Analysis: Collect data on corporate sustainability practices and corporate performance indicators from relevant sources (e.g., company reports, surveys, interviews). Analyze the data using appropriate statistical or qualitative methods. Interpret the findings in the context of the research objectives and conceptual framework.
- 5) Results: Present the findings of the data analysis. Discuss the relationship between corporate sustainability and different dimensions of corporate performance. Highlight any significant correlations, trends, or patterns identified in the data.
- 6) Discussion: Interpret the results in light of the existing literature and theoretical frameworks. Discuss the implications of the findings for theory and practice. Identify areas for future research and potential policy implications.
- 7) Conclusion: Summarize the main findings of the study. Revisit the research objectives and questions. Offer concluding remarks and

recommendations for further action. 8) References: Provide a list of all the sources cited in the research paper according to the chosen citation style (e.g., APA, MLA). 9) Appendices: Include any supplementary material, such as survey instruments, interview transcripts, or additional data tables, that support the findings of the study.



2. LITERATURE REVIEW

2.1 Corporate Sustainability

Corporate sustainability has become a central issue of global concern, reflecting a growing awareness of the interconnectedness between economic progress, environmental stewardship, and social equity. The concept was initially introduced by the World Commission on Environment and Development (WCED) in the Brundtland Report, which defined sustainability as "meeting the needs of the present generation without compromising the ability of future generations to meet their own needs" (Brundtland, 1987). Expanding on this, the World Business Council for Sustainable Development (2002) defined corporate sustainability as the commitment of businesses to contribute to sustainable economic development while working collaboratively with employees, their families, the local community, and society at large to improve quality of life.

From a corporate perspective, sustainability refers to an organization's ability to adopt proactive strategies that address emerging challenges and opportunities stemming from economic, social, and environmental changes, including associated risks (Zyadat, 2016). This adaptive capacity strengthens organizational resilience, enhances innovation, and supports environmental and societal alignment. Sustainability has thus been conceptualized around three core pillars: social, environmental, and economic (Kocmanová & Dočekalová, 2014; Zyadat, 2016). The term "sustainability" gained formal recognition in the 1980s, where it became associated with efforts to safeguard the continuity of human life on Earth (UNEP, 2013). In 1985, the Brundtland Report further urged institutions to develop internal sustainability strategies, supported by management structures embedded within regulatory frameworks (Schaltegger & Wagner, 2006).

The integration of sustainability within corporate governance frameworks influences reputation, stakeholder trust, and strategic opportunity management. It fosters organizational creativity and the ability to respond effectively to internal and external environmental changes (Zyadat, 2016). Notably, investor interest in non-

financial performance indicators has grown substantially (Aggarwal, 2013). In response to increasing regulatory demands and stakeholder expectations, corporate sustainability has gained heightened importance across sectors. Governments and civil society actors are now placing more pressure on companies to demonstrate social responsibility, prompting the need for accurate and transparent data on corporate contributions to societal needs (Zuindeau, 2007).

Firms can analyze such data to implement sustainability initiatives that address critical social priorities through equitable and well-distributed interventions (Berger et al., 2007). Enhanced collaboration among governments, NGOs, and the private sector is essential for achieving broad-based societal benefits. These partnerships can strengthen ties between underrepresented populations, such as low-income communities and youth, and formal institutions by fostering inclusion, innovation, and employment generation, particularly in marginalized regions (DOS, 2011; Gao & Bansal, 2013). Though developing a national sustainability strategy is challenging, it remains a necessary and valuable endeavor.

Aggarwal (2013) emphasizes that corporate sustainability entails creating long-term shareholder value through the strategic management of risks and opportunities arising from economic, environmental, and social domains. According to the Mays Report, sustainable practices add business value, support image management, and shift focus from short-term profits to long-term organizational resilience. Sustainability is also strongly linked to transparency, which can be evaluated through indicators such as energy efficiency, community engagement, eco-design, product recyclability, and employee relations.

The academic exploration of corporate sustainability has deep roots in social science research dating back to the mid-20th century, with a particular focus on mitigating the adverse effects of industrial activity on human and environmental well-being. In the 1990s, sustainability reporting gained traction as companies sought to balance productivity with accountability to communities and ecosystems. This led to the emergence of Triple Bottom Line (TBL) accounting, which incorporates social, environmental, and financial performance. Although TBL

reporting has yet to reach full standardization, it marks an important evolution in corporate accountability practices.

In recent years, policymakers and regulatory bodies have increasingly recognized the role of corporate sustainability in promoting national economic resilience. For example, the U.S. Securities and Exchange Commission (SEC) has initiated requirements for the disclosure of environmental risks. However, the broader implications of corporate irresponsibility—both social and environmental—continue to be debated in legislative contexts (Aggarwal, 2013; Zyadat, 2016). Sustainable development, as defined by Brundtland (1987), serves as a call for current generations to meet their needs responsibly while ensuring future generations can do the same. This philosophy underlines the role of society in resource conservation and long-term environmental viability (Albu et al., 2011).

Organizations such as the Organization for Economic Co-operation and Development (OECD, 2002) have echoed this sentiment by defining sustainable development as economic growth that secures long-term returns while preserving social and environmental systems through flexible and adaptive interactions. More recently, attention has shifted to corporate social responsibility (CSR) disclosures, which reflect a growing commitment to sustainability reporting. However, studies indicate that environmental aspects remain the least disclosed compared to economic and social dimensions (Radhi, 2014). Despite limited sectoral and ownership-related variations in CSR disclosure, industrial firms have shown greater transparency due to their heightened environmental impact.

The evolution of corporate sustainability has been driven by increasing global awareness of environmental degradation, the demand for social equity, and the realization that unchecked economic activity can lead to significant ecological and societal harm. The financial crises of the past decades have prompted global collaboration among governments, industry leaders, and civil society to advocate for responsible economic behavior. These partnerships have fostered collective responsibility and renewed efforts to institutionalize sustainability through legislation and industry standards.

2.2 Corporate Performance

Organizational performance is a multifaceted concept that can be defined in several ways. It may refer to the fulfillment of obligations, the successful completion of tasks, or, from a financial or customer-focused perspective, achieving high firm or brand value (Takacs, 2014). In business practice, performance measurement serves as a tool to identify organizational shortcomings and enhance competitiveness relative to industry peers. Business performance is generally understood to comprise two main dimensions: efficiency and effectiveness. Effectiveness pertains to the degree to which customer requirements are satisfied, whereas efficiency refers to how economically the firm's resources are utilized in delivering customer satisfaction (Takacs, 2014). The present study concentrates specifically on efficiency analysis.

The fundamental objective of efficiency analysis is to distinguish well-performing production units from underperforming ones. In the literature, economic efficiency is often broken down into technical efficiency and allocative efficiency. However, this research focuses exclusively on technical efficiency, as the assessment of economic and allocative efficiency necessitates detailed price information in addition to input-output data, which falls outside the current scope (Bharti & Chitnis, 2016).

Performance measurement itself is defined as the process of evaluating both the efficiency and effectiveness of organizational actions (Neely, Gregory, & Platts, 1995). According to Lebas (1995), performance measurement involves translating the complex reality of organizational activity into organized symbols—metrics—that can be interpreted and communicated under comparable conditions. In contemporary management practices, performance measurement has moved beyond traditional accounting-based quantification, assuming a more critical role in organizational development (Koufopoulos, Zoumbos, & Argyropoulou, 2008). This view aligns with Bititci, Carrie, and McDevitt (1997), who describe performance management as a dynamic process through which organizations align their performance with strategic and functional objectives.

Moreover, corporate performance is closely tied to firm value, which can be defined as the benefits shareholders derive from their equity in the firm (Rouf, 2011). Performance is typically evaluated using indicators drawn from the firm's financial statements. A well-performing organization is more likely to engage in quality disclosure practices, reinforcing transparency and accountability (Herly & Sisnuhadi, 2011). The significance of performance measurement lies in its ability to provide vital information for monitoring progress, reporting outcomes, enhancing motivation, improving communication, and identifying areas of weakness (Waggoner, Neely, & Kennerley, 1999). Consequently, it is in an organization's best interest to systematically assess its performance. Despite its importance, performance remains a concept with varying interpretations and a lack of consensus regarding its definitive parameters. Cameron and Whetten (1983) suggest that business performance should be considered through three distinct lenses: the theoretical dimension, which provides conceptual understanding; the empirical dimension, which allows for measurement and analysis; and the managerial dimension, which connects performance with actionable strategy.

Furthermore, performance measurement is integral to effective performance management. As Lebas (1995) posits, measurement helps translate complex organizational realities into simplified numerical representations, facilitating communication and action. These measurements enable managers to assess prerequisites for successful performance. Supporting this perspective, Bititci et al. (1997) assert that performance measurement lies at the heart of the performance management process and is vital for ensuring that organizations function both effectively and efficiently.

2.3 Corporate Sustainability Performance and Corporate Performance

Corporate sustainability performance (CSP) has emerged as a crucial element in contemporary business strategy, aiming to increase the societal contributions of firms irrespective of their size, sector, or geographic location

(Schad, Bansal, & Hoffman, 2016). It is increasingly viewed as a key determinant in shaping stakeholders' perceptions, behaviors, and engagement with organizations (der Byl & Slawinski, 2015). Scholars argue that CSP plays a vital role in enhancing public welfare, particularly under conditions of socio-economic disequilibrium, often exacerbated by inadequate governmental and private-sector responses to persistent challenges such as unemployment, inflation, declining purchasing power, and austerity measures imposed by international financial institutions like the International Monetary Fund (IMF) (McWilliams & Siegel, 2011).

If the private sector actively participates in sustainability initiatives, it may help mitigate some of these adverse economic conditions (Hahn & Aragón-Correa, 2015). Although creating an entrepreneurial ecosystem remains difficult—primarily due to limited financial resources and monopolistic control in key industries such as information technology—CSP could serve as a catalyst to empower entrepreneurial individuals. This could be achieved by dismantling barriers such as lack of institutional support, financial aid, and encouragement (Nijhof & Jeurissen, 2010).

Corporate sustainability can also contribute to building cohesive and equitable societies by addressing social disparities and restoring public trust in both governmental institutions and corporations. A growing sense of disenchantment stems from unfulfilled governmental promises, such as empowering youth to contribute meaningfully to economic reconstruction (Maletič, Dahlgaard, & Dahlgaard-Park, 2015). In many Western and Asian contexts, CSP has fostered social cohesion and encouraged shared responsibility in driving societal progress through sustainable business practices (Carroll & Shabana, 2010). Such contributions become particularly important in times of national economic stress, highlighting the role of businesses in national development (Bäckström, Högberg, & Wiberg, 2015).

Modern firms are increasingly expected to go beyond maximizing shareholder profits. Engaging in CSP enhances long-term profitability, strengthens reputation, and creates a sustainable competitive advantage from the stakeholder's

perspective (Schreck, 2011). During economic crises, firms that demonstrate strong social performance not only support society but also become more attractive to potential employees, customers, suppliers, and strategic partners. These companies often benefit from reputational gains and may also qualify for government incentives designed to promote sustainability (Hahn et al., 2018).

Empirical literature further confirms the relevance of CSP to corporate performance. For instance, Das, Rangarajan, and Dutta (2020) suggest that in the case of small and medium-sized enterprises (SMEs), sustainability performance is influenced by collaborative operating models, supportive government policies, and organizational culture, all of which can enhance financial outcomes. Similarly, Orazalin (2020) found that the existence of board-level sustainability committees enhances the effectiveness of corporate social responsibility (CSR) strategies, which in turn lead to better environmental and social performance.

Other studies, such as that of Lokuwaduge and Heenetigala (2017), explored how environmental, social, and governance (ESG) practices influence firm performance. Zyadat (2016), however, found no significant relationship between the three sustainability dimensions—economic, environmental, and social—and the financial performance of banks in terms of return on equity (ROE). Although Zyadat's (2016) research shares similar variables with the current study, the methodologies differ, particularly in that the current study includes religiosity and organizational culture as moderating variables.

Tarmuji, Darus, and Zain (2016) concluded that social and governance dimensions significantly affect economic performance. The literature continues to debate the financial implications of CSR activities, with some scholars questioning their tangible economic benefits. Bäckström et al. (2015) created a sustainability index to study the impact of board diversity on sustainability and profitability, finding that only educational diversity had a significant influence. Likewise, Nicolăescu et al. (2015) emphasized the growing importance of environmentally sustainable practices, ESG concerns, and individual contributions to organizational transformation.

Maletič et al. (2014) proposed a conceptual model distinguishing between exploitative and explorative sustainability practices to explain their respective impacts on corporate performance. In a related context, Nevado-Peña (2015) examined how social and environmental sustainability dimensions affected European cities during economic crises, concluding that cities with stronger sustainability scores experienced better economic performance.

Eccles, Ioannou, and Serafeim (2014) compared high-sustainability firms with low-sustainability firms, finding that the former outperformed their peers in both stock market performance and accounting metrics over the long term. Abbade et al. (2014) investigated the effect of entrepreneurial orientation on sustainable organizational performance (social, economic, and environmental) in Brazilian industrial firms. Their findings demonstrated that all three dimensions of sustainability were positively correlated. However, while innovativeness influenced environmental performance, it had no significant effect on social or economic performance. Interestingly, social performance was found to enhance economic performance, whereas environmental performance did not.

Albatayneh (2014) studied the interrelationship between efficiency strategies, sustainability performance, and financial outcomes. The results revealed that sustainability performance partially mediates the relationship between efficiency strategies and corporate financial performance. The study contributes to the literature by emphasizing the managerial implications of incorporating sustainability practices into strategic decision-making to enhance firm performance.

In reviewing prior literature, studies can be grouped into two categories based on data usage: those utilizing secondary data (e.g., Zyadat, 2016; Eccles et al., 2014) and those addressing challenges in performance measurement and implementation. Some findings indicate a statistically significant relationship between sustainability dimensions and financial indicators such as Return on Assets (ROA) and Earnings per Share (EPS). Notably, high-sustainability firms often integrate sustainability into board responsibilities and executive compensation structures, linking incentives to sustainability outcomes.

2.4 Corporate Social Performance and Corporate Performance

Moehrle et al. (2012) investigated managerial behavior in relation to environmental and social performance and found that firms with higher financial performance tended to exhibit lower levels of environmental and social performance. This inverse relationship was attributed to managers reducing corporate contributions to environmental and social initiatives in order to enhance their own compensation packages. This behavior was later empirically validated by Report et al. (2018), highlighting a misalignment between financial incentives and sustainability objectives.

Conversely, Makovere and Ngirande (2016) proposed a framework suggesting a positive relationship between social performance and financial outcomes, relying on the social impact hypothesis. According to their view, greater social performance enhances organizational reputation and legitimacy, which, in turn, fosters improved financial performance. Supporting this perspective, Hakimi et al. (2016) found that corporate financial performance (FP) significantly influences corporate sustainability performance (CSP) and corporate environmental performance (CEP). Their empirical evidence supports the framework developed by Preston and O'Bannon, which asserts that organizations with stronger financial resources are more capable of engaging in sustainability-related activities.

However, the literature does not consistently demonstrate a uniform relationship between CSP and corporate performance. Kajackaite and Sliwka (2017) found no statistically significant correlation between social performance and financial outcomes. Similarly, Soana (2011), in a study conducted in the Italian context, concluded that there was no clear positive or negative correlation between CSP and performance, suggesting that the relationship might be context-specific or influenced by other moderating variables. Additionally, firms engaging at moderate levels of CSP exhibited lower levels of multinational expansion compared to firms that committed more comprehensively to CSP.

In contrast, Ionesco et al. (2016) reported positive abnormal stock returns for companies engaging in strong environmental activities, indicating that the market perceives robust environmental performance as a valuable corporate attribute. Supporting this, Choudhary and Singh (2012) argued that global expansion and international competitiveness are more likely to be achieved by firms demonstrating high levels of CSP, as it improves their reputation and enhances stakeholder trust.

From the perspective of stakeholder theory, CSP is evaluated by a firm's ability to satisfy the diverse expectations of its stakeholders (Freeman, 1984). Meeting stakeholder demands is often viewed as an inevitable cost of doing business. Freeman's framework emphasizes approaches that range from minimizing stakeholder-related costs to maximizing societal value. Building on this, scholars have proposed integrating stakeholder theory with Transaction Cost Economics (Williamson, 1975, 1985) and the Resource-Based View (RBV) of the firm (Wernerfelt, 1984; Ogbonna & Harris, 2000).

From the transaction cost perspective, firms that proactively engage stakeholders and signal cooperative intent may avoid future compliance costs associated with formal regulatory and contractual obligations. Meanwhile, the RBV suggests that satisfying stakeholder demands can be viewed as a strategic investment that yields competitive advantage through the development of inimitable capabilities, such as social legitimacy and innovation in stakeholder engagement (Choudhary & Singh, 2012). In both theoretical frameworks, improvements in CSP are expected to positively influence performance, either by reducing operational costs or by enhancing revenue potential.

Choudhary and Singh (2012) also invoked accountability theory, asserting that companies should report not only their financial performance but also their environmental, social, and economic outcomes. Corporate sustainability, thus, becomes a multidimensional concept that encapsulates a comprehensive view of firm performance. In this context, Zyadat (2016) highlighted the role of corporate sustainability components in enhancing performance across industrial, service,

and financial sectors.

The majority of scholarly literature supports a positive relationship between corporate social performance and overall firm performance. Seminal studies by Waddock and Graves (1997), Sun (2012), and Shahzad and Sharfman (2015) have consistently demonstrated that firms with higher CSP tend to outperform their counterparts financially. These findings are in line with the tenets of stakeholder theory, suggesting that responsiveness to stakeholder concerns is not only ethically sound but also financially beneficial.

H1: Corporate social has a significant positive impact on corporate performance.

2.5 Corporate Environmental and Corporate Performance

Although extensive research has been conducted on the relationship between environmental management and corporate performance, the findings remain inconclusive. Some studies report a positive association between environmental management practices and firm performance (Gonzalez-Benito & Gonzalez-Benito, 2005; Kagai, 2016; Chen et al., 2016), while others highlight negative (Schaltegger & Synnestvedt, 2002; Chen et al., 2016) or neutral relationships (Watson et al., 2004). Meta-analytic studies, however, suggest that a positive correlation is more likely, though such outcomes depend significantly on the methods of analysis, the specific variables used, the time period, and the geographic context of the data (Horváthová, 2010; Albertini, 2013).

Historically, environmental protection efforts have been viewed as costly obligations imposed by government regulations, potentially undermining a firm's competitive advantage and diverting managerial attention away from profit maximization (Friedman, 1970). Nonetheless, more recent studies reveal that investments in pollution reduction and sustainable practices can enhance competitiveness. These gains are realized through improved market access, product differentiation, the commercialization of environmental technologies,

improved stakeholder and risk management, and the reduction of operational costs (e.g., materials, labor, and capital) (Stefan & Paul, 2008).

Environmental performance is typically measured by evaluating a company's management commitment and operational effectiveness in reducing emissions, optimizing the use of natural resources, and supporting eco-innovation in product or service development (El-Garaihy et al., 2014). It reflects the firm's capacity to adopt best management practices that minimize environmental risk while capitalizing on environmental opportunities to boost economic performance (Epstein & Buhovac, 2014). In this context, stakeholder theory becomes especially relevant, as it emphasizes the importance of addressing the concerns of not only traditional stakeholders but also non-traditional ones—such as regulatory and environmental advocacy groups—in response to evolving societal expectations.

Eccles et al. (2014) developed and organized environmental performance metrics aimed at producing comprehensive corporate environmental disclosures. However, their framework was limited by its exclusive focus on environmental performance, neglecting the multi-dimensional nature of corporate performance. Similarly, Odipo et al. (2016) attempted to integrate environmental indicators into the Balanced Scorecard, but their model prioritized shareholder value over broader sustainability metrics. Epstein and Wisner (2001) also expanded the Balanced Scorecard to include social and environmental measures, yet their approach still emphasized shareholder wealth maximization as the primary objective.

According to instrumental stakeholder theory, examining the consequences of incorporating a diverse range of stakeholders in corporate strategy reveals profit- and wealth-enhancing opportunities. Thus, this theoretical lens is highly applicable in exploring and explaining the link between corporate sustainability and performance. Under this theory, firms are encouraged to engage stakeholders in the development of strategic decisions, including those related to environmental, social, and economic activities. Voluntary environmental disclosures and sustainability initiatives, when aligned with stakeholder expectations, are believed to reinforce the positive relationship between sustainability and corporate

performance.

Choudhary and Singh (2012) further support this notion through accountability theory, which posits that firms should transparently report their environmental, social, and economic outcomes—not just their financial performance. This comprehensive approach enables stakeholders to assess the full scope of a firm's sustainability efforts. As such, corporate sustainability should be regarded as a multi-level construct, encompassing environmental, social, and economic dimensions. Zyadat (2016) also emphasized that integrating these elements can enhance corporate performance across various sectors, including industry, services, and finance.

The prevailing literature largely supports a positive linkage between environmental performance and overall corporate performance (Gonzalez-Benito & Gonzalez-Benito, 2005; Kagai, 2016; Chen et al., 2016). These findings align with stakeholder theory, which suggests that meeting the expectations of a wide array of stakeholders—through proactive environmental strategies—can result in enhanced firm performance. Accordingly, the hypotheses developed within this framework are consistent with these theoretical assumptions and empirical findings.

H2: Corporate Environmental has a significant positive effect on corporate performance.

2.6 Corporate Economic and Corporate Performance

Despite the growing importance of sustainable development, most companies rarely adopt an integrated approach encompassing the environmental, social, governance, and economic pillars. Corporate sustainability expands the set of tools and actors engaged in environmental and economic policy implementation and aids governments in achieving strategic sustainability objectives. However, the use of classical or modern performance indicators to assess corporate economic performance in the context of sustainability often lacks sufficient informative value.

As Synek (2004) emphasized, the selection of non-financial indicators should be aligned with the company's long-term strategic objectives. These indicators must be designed in a way that allows for future evaluation—whether a desirable, undesirable, or neutral change has occurred. Nonetheless, measurability remains a key challenge, as many non-financial indicators lack standardized frameworks for accurate assessment.

The empirical research examining the relationship between corporate social performance (CSP) and overall corporate performance has yielded inconsistent findings, with much of the variance attributed to theoretical and methodological limitations. Cochran and Wood (1984), Wood and Jones (1995), and later Gadenne et al. (2012) and Eccles et al. (2014) identified several reasons for these discrepancies: (1) absence of a solid theoretical foundation; (2) lack of comprehensive and systematic measures of CSP; (3) methodological weaknesses; (4) inadequate sample size and composition; and (5) misalignment between the independent (social) and dependent (performance) variables. To address the theoretical gap, stakeholder theory is often applied as a foundation for hypothesis development. Methodologically, some studies have sought to overcome these limitations by using composite measures of CSP—aggregating multiple performance variables assessed over time and weighted according to stakeholder value preferences, particularly those of investors.

Within this theoretical framework, instrumental stakeholder theory provides a compelling lens for investigating the profit- or wealth-enhancing consequences of incorporating stakeholder interests into corporate strategy. This approach not only supports the exploration of the link between corporate sustainability and performance but also highlights how stakeholders actively influence strategic decision-making. In this context, voluntary disclosure of environmental, social, and economic practices serves to strengthen the positive relationship between sustainability practices and organizational performance. Companies that align their sustainability disclosures with stakeholder expectations are more likely to realize performance benefits in the long term.

According to accountability theory, firms are encouraged to disclose performance metrics beyond financials to include environmental, social, and economic dimensions (Goyal et al., 2013). This integrated reporting approach ensures a holistic understanding of corporate sustainability, reflecting its multi-level nature. In line with this view, Zyadat (2016) found that incorporating corporate sustainability elements can enhance overall corporate performance, particularly among firms operating in the industrial, service, and financial sectors.

Prior studies generally support a positive relationship between corporate economic sustainability and firm performance. The results consistently suggest that improvements in economic sustainability indicators—such as resource efficiency, innovation investment, and long-term financial planning—contribute to enhanced organizational performance. These findings reinforce the principles of stakeholder theory, which posits that addressing the needs and expectations of a broad stakeholder base leads to superior corporate outcomes. Accordingly, the hypotheses derived from this body of literature align with the theoretical assumptions and empirical evidence supporting the strategic integration of sustainability into corporate performance frameworks.

H3: Corporate economic has a significant positive effect on corporate performance.

2.7 Challenges In Implementing Sustainability Practices

The construction industry plays a critical role in promoting sustainable development due to its significant environmental, social, and economic impacts (Zuo & Zhao, 2014). Despite this importance, the sector continues to encounter substantial challenges in the effective implementation of sustainability practices. These challenges predominantly arise from financial constraints, insufficient technical expertise, limited awareness, regulatory ambiguities, and organizational resistance to change (Darko et al., 2017). Financial limitations often inhibit companies from investing in eco-efficient materials and advanced sustainable technologies. Simultaneously, the lack of technical knowledge and sustainability

awareness among stakeholders impedes informed decision-making and slows the adoption of environmentally responsible practices.

Moreover, inconsistent regulations and weak enforcement mechanisms contribute to ambiguity and non-compliance across the sector (Abidin, 2010). Institutional resistance, frequently rooted in conventional construction methods and a focus on short-term profitability, further exacerbates the challenge by impeding the transition toward sustainable models. The inherently fragmented structure of the construction industry—with multiple actors and supply chains—also complicates coordinated efforts and undermines stakeholder alignment on sustainability objectives (Zhang et al., 2012).

To effectively overcome these barriers, a multi-pronged strategy is essential. This includes targeted financial investments, capacity-building initiatives, robust policy frameworks, and a transformation in organizational culture that values sustainability as a strategic priority (Opoku & Ahmed, 2014). Through such comprehensive efforts, the construction sector can enhance its sustainability performance, stimulate innovation and competitiveness, and contribute significantly to long-term environmental protection and societal well-being.

2.7.1. Financial Constraints

The adoption of sustainability practices in construction often requires substantial financial investment, which poses a significant barrier, particularly for small and medium-sized enterprises (SMEs). Sustainable construction involves integrating eco-friendly materials, advanced technologies, and energy-efficient processes, all of which can increase initial project costs. For instance, green building materials and renewable energy systems often come with a higher price tag than conventional options. While these investments yield long-term benefits such as energy savings and reduced operational costs, the short-term financial burden can deter companies from embracing sustainable practices (Hwang et al., 2018). Moreover, limited access to green financing or government subsidies exacerbates this challenge. Many construction companies struggle to secure

funding for sustainability initiatives, which impacts their ability to invest in innovative solutions and meet sustainability goals.

2.7.2. Lack of Expertise and Awareness

Another critical challenge is the lack of expertise and awareness regarding sustainability in the construction industry. Many companies lack skilled professionals who can design, implement, and manage sustainable practices effectively. This gap is evident in both technical and managerial domains, where limited knowledge of green technologies and strategies hampers decision-making processes (Opoku & Fortune, 2020). Additionally, awareness of sustainability's importance and benefits remains low among stakeholders, including contractors, clients, and suppliers. This lack of awareness often leads to misconceptions about the complexity and feasibility of implementing sustainable practices. Furthermore, the absence of proper training programs and educational initiatives within the industry contributes to the slow adoption of sustainability measures. Addressing this challenge requires targeted efforts to build capacity and enhance awareness across all levels of the construction value chain.

2.7.3. Regulatory Barriers and Policy Gaps

The regulatory environment plays a pivotal role in driving or hindering the adoption of sustainability practices. In many regions, inconsistent or unclear regulations create significant challenges for construction companies. For example, a lack of standardized criteria for sustainable construction projects leads to confusion among stakeholders and impedes compliance efforts. Additionally, inadequate enforcement of existing sustainability regulations undermines their effectiveness, as companies may prioritize cost-saving measures over compliance. Policy gaps also pose barriers, particularly in emerging economies where sustainable construction is still an emerging concept. Governments often fail to provide sufficient incentives, such as tax breaks or grants, to encourage the adoption of sustainable practices (Darko et al., 2017).

To overcome these regulatory challenges, there is a need for comprehensive policies that align with global sustainability goals and provide clear guidelines for the construction industry.

2.7.4. Resistance to Change and Organizational Culture

Resistance to change within organizations represents another significant obstacle to implementing sustainability practices. This resistance is often rooted in traditional construction practices and a lack of willingness to adopt innovative approaches. Organizational culture plays a crucial role in shaping attitudes toward sustainability, and companies with a strong focus on short-term profits may view sustainability as a secondary concern. Furthermore, the fragmented nature of the construction industry, characterized by multiple stakeholders with differing priorities, adds complexity to implementing change. Collaboration and communication among contractors, architects, engineers, and clients are often limited, making it difficult to align sustainability goals. Overcoming resistance to change requires fostering a culture of innovation and collaboration, where sustainability is integrated into the core values and objectives of construction companies (Agyekum-Mensah et al., 2020).

Table (2.1): Key Challenges in Implementing Sustainability Practices

Challenge	Description	Proposed Solutions
Financial Constraints	High initial costs of sustainable materials and technologies, limited access to green financing	Green subsidies, affordable financing options, cost-benefit analysis.
Lack of Expertise and Awareness	Limited knowledge of sustainability practices and lack of training programs.	Capacity building, training, and educational initiatives.
Regulatory Barriers	Unclear regulations, inconsistent standards, and	Comprehensive policies, standardized criteria,

	inadequate enforcement	government incentives.
Resistance to Change	Traditional practices, fragmented industry structure, and focus on short-term profits.	Promoting innovation, fostering collaboration, cultural shifts

2.8 Conceptual Theories

Based on the context of this study, which investigates the effects of corporate sustainability performance on the corporate performance of companies, this study discusses a few theories, which have been used in the literature and relevant to this study. However, in this sub-section, these theories and concept will be explained and relate them to corporate sustainability and corporate performance.

2.8.1 Stakeholder Theory

Freeman (1984) is widely recognized as the originator of stakeholder theory, although the concept emerged earlier, with initial mentions dating back to 1963 (Falck & Heblich, 2007). Freeman defined stakeholders as "people and groups that can affect the achievement of the business's goals and are affected by those goals" (Mior, 2001, p. 19). According to Freeman, fostering strong relationships with stakeholders enhances a company's ability to achieve its strategic objectives. Stakeholder theory, therefore, serves as a strategic management tool aimed at strengthening these relationships to secure competitive advantage (Aktan & Börü, 2007). Stakeholders encompass a broad array of entities including individuals, institutions, society, and even the natural environment (Mitchell et al., 1997).

The stakeholder approach helps firms understand their operational environment, maximize profitability in alignment with stakeholder interests, and define their roles and responsibilities within society (Mitchell et al., 1997). Carroll emphasized two foundational principles of stakeholder theory: avoiding harm to others and assuming responsibility for damages caused by business operations (Tak, 2009). Freeman (1984) argued that managers

must comprehend stakeholder needs to develop corporate objectives that garner the support required for organizational survival. Stakeholder satisfaction, therefore, is both a strategic necessity and a managerial responsibility.

Freeman's original model categorized stakeholders into seven primary groups: employees, civil society, government, competitors, customers, suppliers, and shareholders. Subsequent revisions expanded this list to include external actors such as environmentalists, media, critics, financiers, and communities (Chen, 2015). The core objective of stakeholder theory, as further developed by Freeman and Reed (1983), is to achieve a strategic balance among the diverse needs of all stakeholders. This framework also integrates with corporate social responsibility and business policy models.

Stakeholder theory suggests that stakeholders influence and validate strategic business decisions. Voluntary environmental disclosure, as advocated by stakeholder theory, enhances the visibility of environmental activities, thereby reinforcing the relationship between environmental initiatives and firm performance. In this framework, regulation plays a secondary role, with stakeholder pressure often being more influential than government intervention in shaping corporate behavior (Gonzalez-Benito & Gonzalez-Benito, 2006; Rivera-Camino, 2007).

Donaldson and Preston (1995) categorized stakeholder theory into three branches: descriptive, normative, and instrumental. Descriptive theory focuses on how corporations manage stakeholder relationships; normative theory addresses the ethical obligations toward stakeholders; and instrumental theory examines how these relationships impact firm performance. The instrumental perspective posits that responsible stakeholder management can enhance financial performance (Freeman, 1984; Donaldson & Preston, 1995). In line with this, sustainability practices may serve self-interested objectives by improving profitability and shareholder value (Harjoto et al., 2015).

Instrumental stakeholder theory views the firm as a "nexus of contracts" (Jensen & Meckling, 1976) among stakeholders. Cultivating an ethical corporate culture can mitigate opportunistic behavior and enhance both internal cohesion and external reputation (Jones,

1995). From this perspective, ethical considerations are not a liability but a source of competitive advantage (Cornell & Shapiro, 1987).

However, stakeholder theory is not without its limitations. Critics argue that it neglects "silent" stakeholders such as the natural environment and "absent" stakeholders like future generations (Castelo et al., 2007; Phillips & Reichart, 2000). Others, like Buchholz (1991) and Branco and Rodrigues (2006), contend that only human actors can be considered legitimate stakeholders. Weiss (2014) noted that treating all stakeholders equally could dilute the power of organized groups such as labor unions and weaken corporate focus.

Despite these critiques, Freeman (1999) asserted that organizations must prioritize relationships that influence or are influenced by their objectives. Mele (2008) highlighted several strengths of stakeholder theory, including its ethical superiority over shareholder primacy and its practical applicability to long-term organizational success. The theory also addresses the theoretical vagueness of corporate social responsibility by delineating specific duties toward different stakeholder groups (Clarkson, 1995; Mele, 2008).

In practical governance, municipalities must consult multiple stakeholders—government bodies, regulatory agencies, and private sector actors—during environmental compliance procedures. The principles of stakeholder theory align with sustainable development by promoting equity and social justice (Mathew, 2008). Sustainable development expands the stakeholder base and emphasizes participation and solidarity, reflecting the interconnectedness of economic, social, and environmental responsibilities (Masyita et al., 2013).

In this context, stakeholder theory posits that enhanced social, economic, and environmental performance reflects stakeholder satisfaction. These dimensions, therefore, are expected to positively influence corporate performance. Accordingly, stakeholder theory serves as a robust explanatory model for understanding how corporate sustainability initiatives impact overall firm success.

Stakeholder Theory in the Context of Corporate Sustainability and Corporate Performance

Stakeholder theory offers a critical framework for understanding the interplay between corporate sustainability and corporate performance. This theory posits that organizations must account for the interests of a broad array of stakeholders, including employees, customers, suppliers, communities, and the natural environment, rather than focusing solely on shareholders. Freeman (1984) articulates the fundamental principle of stakeholder theory, emphasizing that businesses should strive to create value for all stakeholders. Such a comprehensive approach is increasingly acknowledged as vital for long-term corporate success, as it aligns corporate strategies with the escalating demand for sustainability in contemporary markets.

The integration of corporate sustainability within business operations can substantially enhance overall corporate performance, a relationship supported by stakeholder theory. Sustainable practices contribute to greater resource efficiency, waste reduction, and improved brand reputation, which collectively help attract and retain customers. Empirical evidence from Eccles, Ioannou, and Serafeim (2014) reveals that companies with well-developed sustainability initiatives tend to outperform their peers on various financial indicators. By proactively addressing stakeholder concerns, such as environmental impacts and social responsibilities, firms not only reduce risks but also open avenues for innovation and growth, thereby strengthening their competitive advantage.

Moreover, embedding stakeholder theory into corporate sustainability strategies fosters a long-term perspective, prompting organizations to consider the consequences of their actions for future stakeholders. Jensen (2001) highlights that firms prioritizing stakeholder interests are better equipped to adapt to shifting market dynamics and evolving societal expectations. This strategic foresight enhances corporate sustainability and supports improved corporate performance by enabling organizations to maintain relevance and competitiveness over time. Recognizing that corporate success is intrinsically linked to the welfare of all stakeholders allows companies to develop sustainable business models capable of enduring long-term challenges and opportunities.

2.8.2 Corporate Accountability Theory

Accountability is a multifaceted concept that has been defined by various scholars to capture its essence within organizational and societal contexts. Roberts and Scapens (1985) define accountability as “the giving and demanding of reasons for conduct in which individuals are required to explain and take responsibility for their actions.” This perspective emphasizes that individuals must justify their behavior, thereby fostering responsibility by ensuring that they are answerable for outcomes linked to their decisions. Consequently, accountability provides stakeholders with assurance that those in specific roles are responsible for their actions and performance.

A closely related definition is offered by Gray et al. (1997), who describe accountability as “the duty to provide an account—by no means necessarily a financial account—of those actions for which one is held responsible.” This implies that accountable individuals must clarify or rectify any shortcomings or errors in their responsibilities. Bovens (2007) further refines this concept, framing accountability as “a relationship between an actor and a forum, in which the actor has an obligation to explain and justify conduct, the forum can pose questions and pass judgment, and the actor may face consequences.” From a managerial viewpoint, Sinclair (1995) defines accountability as the responsibility of those delegated authority to produce outputs or utilize resources to achieve specific goals.

Corporate accountability is fundamentally grounded in the fiduciary model (Gray, Owen, & Maunders, 1988), which derives from Agency Theory and Agency Law (Tilakasiri & Kamal Tilakasiri, 2012). Agency theory delineates the relationship between managers (agents) and shareholders (owners), where managers are tasked with maximizing shareholders’ wealth, supported by owners who provide necessary financial resources (Shleifer & Vishny, 1997). However, accountability theory extends this relationship beyond financial interests, advocating for disclosure on social and environmental matters alongside traditional financial reporting (Elkington, 1998). Gray et al. (1987) reinforce this broader view by defining accountability as a responsibility to report on actions for which one is answerable, not limited to financial outcomes. The Institute of Social and Ethical Accountability (ISEA, 1999) similarly stresses that accountability involves explaining and justifying acts and omissions to stakeholders with legitimate interests.

Identifying these legitimate stakeholders is a critical organizational task, as companies must ensure accountability to those affected by their social and environmental impacts. Social contract theory empowers stakeholders to influence organizational behavior, while accountability theory clarifies the nature of the relationship between corporate managers and society (Management, 2014). Scholars such as Elkington (1998) argue that companies should report comprehensively on environmental, social, and economic performance, positioning corporate sustainability as a multidimensional construct that presents a holistic view of organizational responsibility.

Despite its broad application in sustainability and business reporting, accountability lacks a universally precise definition, posing challenges in its conceptualization (Cooper & Owen, 2007). Gray et al. (1996) offer a succinct description as “the duty to provide an account (not necessarily financial) or reckoning for actions for which one is held responsible.” Complementing this, stakeholder theory provides a normative lens on corporate governance and business ethics, emphasizing that managers must consider the interests of all stakeholders—ranging from shareholders to employees, customers, communities, and governments—when making decisions (Freeman, 1984; Clarkson, 1995; Donaldson & Preston, 1995; Mitchell et al., 1997).

The significance of corporate governance lies in its dual contribution to business prosperity and accountability. As Sir Adrian Cadbury articulated, corporate governance “is concerned with holding the balance between economic and social goals, and between individual and communal goals” (Husein & Ababneh, 2008). The governance framework aims to promote efficient resource use while demanding accountability for stewardship, aligning the interests of individuals, corporations, and society. Effective governance fosters a culture based on transparency, accountability, and participation, which underpins democratic and inclusive growth.

Therefore, organizations bear responsibility and accountability not only to shareholders but also to society and the environment. Corporations must enhance their social responsibility and manage resources ethically to fulfill economic obligations. In this context, accountability theory complements stakeholder theory by elucidating the relationships among a corporation’s economic, social, and environmental performance and its overall corporate performance. This integrated theoretical approach underscores the

importance of multidimensional accountability in achieving sustainable and responsible business outcomes.

Accountability Theory in the Context of Corporate Sustainability and Corporate Performance

Accountability Theory is fundamental to understanding the relationship between corporate sustainability and corporate performance. This theory underscores the responsibility of organizations to be answerable to their stakeholders for their actions and decisions, especially in relation to sustainability practices. Within the framework of corporate sustainability, accountability entails transparent reporting and responsible decision-making that address the environmental and social impacts of business operations. Roberts (2009) emphasizes that accountability extends beyond mere regulatory compliance to include ethical behavior and responsiveness to stakeholder expectations, which are vital for cultivating trust and credibility.

The connection between accountability and corporate performance is particularly pronounced in the context of sustainability. Organizations that embed accountability into their sustainability strategies often achieve superior performance outcomes. Eccles, Ioannou, and Serafeim (2014) demonstrate that companies with comprehensive sustainability reporting and strong accountability mechanisms tend to outperform their counterparts in both financial results and stakeholder engagement. Transparency in sustainability initiatives enables firms to build trust among stakeholders, which in turn fosters greater customer loyalty, enhances employee morale, and improves overall organizational performance. This synergy between accountability and performance supports the notion that sustainable business practices are not only ethically responsible but also economically advantageous.

Moreover, accountability mechanisms—such as performance measurement systems and stakeholder feedback processes—are critical in evaluating the effectiveness of corporate sustainability efforts. Firms that implement structured accountability frameworks are better positioned to monitor progress toward sustainability objectives and make data-informed decisions aligned with stakeholder expectations. Aerts, Cormier, and Magnan (2020) note that such frameworks facilitate the identification of areas requiring

improvement and promote the alignment of organizational practices with the concerns of stakeholders.

3. METHODOLOGY

3.1 Introduction

This chapter provides a comprehensive overview of your study's methodology, ensuring transparency and helping readers understand the rigor applied in research. Recap the key research questions or objectives. Specify whether your research adopts a positivist, interpretivist, or pragmatist philosophy. Provide reasons for choosing the particular research philosophy. Clarify whether it is a quantitative, qualitative, or mixed-methods design. Explain the rationale behind research choice of design. The study was explained the method used for selecting the sample. Justify the chosen sample size. Describe the tools used for data collection (e.g., questionnaires, interview guides). Explain the pilot testing process and any adjustments made based on the pilot. Summarize the key aspects of the methodology. Provide a seamless transition to the next chapter.

In empirical research, it is crucial to distinguish between variables and parameters, as each serves a unique function in the process of data collection, analysis, and interpretation.

A variable refers to any measurable characteristic or attribute that can change or vary across the subjects of a study. Variables can be independent (predictors or causes), dependent (outcomes or effects), or control variables that are kept constant to isolate the effect of the independent variables (Sekaran & Bougie, 2019). In contrast, a parameter is a fixed value that describes a characteristic of a population—for example, the population mean or standard deviation. Parameters are typically unknown and are estimated through sample statistics.

All study participants were provided with an informed consent form, which explained the nature of the research, its objectives, and their rights, including the right to withdraw at any time without any negative consequences. This procedure was conducted in accordance with research ethics to ensure the respect of participants' privacy and rights.

3.2 Research Philosophy

Research philosophy pertains to a researcher's fundamental beliefs about the nature of knowledge and the development of understanding. It plays a crucial role in guiding decisions related to research methods, data collection, and data analysis. Positivism emphasizes an objective and scientific approach to research. It assumes that reality is external, observable, and measurable. Positivist researchers aim for objectivity and seek to identify causal relationships. The choice of positivism or phenomenology influences the selection of data collection methods. Positivism often involves structured surveys and experiments, while phenomenology may use open-ended interviews and observations. (Easterby-Smith et al., 1991; Hussey, J. & Hussey 1997) Positivism is characterized by a scientific and objective approach to research. Quantitative methods, such as experiments and surveys, are commonly associated with positivism. Statistical analysis is often employed to identify patterns and relationships in quantitative data. The choice between positivism and phenomenology depends on the research questions, objectives, and the nature of the phenomena under investigation. While both paradigms have positive and negative impacts, the key concern is finding an appropriate method that aligns with the research goals and context.

3.2.1 Positivist Paradigm

Positivism emphasizes an objective and scientific approach to research. It seeks to uncover patterns, relationships, and regularities in observable and measurable phenomena. Numerical data, often obtained through quantitative

methods, is valued for its precision and objectivity. Data collected in numerical form can provide a basis for statistical analyses, allowing researchers to draw conclusions about the relationships between variables.. According to Hussey, J. & Hussey (1997), aim to establish empirical regularities and patterns through systematic observation and measurement. The positivistic paradigm is concerned with uncovering facts and identifying causes of social phenomena. Variables are measured and analyzed using statistical methods to derive meaningful insights. Hussey and Hussey (1997) aligns with their exploration of the positivistic paradigm. Burrell and Morgan (1979) proposed a sociological framework that included four paradigms, one of which is the functionalist paradigm. In this context, your reference aligns with the quantitative approach often associated with functionalism. The method involves searching for patterns, regularities, or consistent relationships within the data. According to Gilbert (2001), presents a viewpoint aligned with the positivist tradition, where the focus is on empirical observation, measurement, and statistical analysis for understanding social phenomena.

3.2.2 Phenomenological Paradigm

Phenomenological research is characterized as qualitative and subjective. It focuses on understanding human behaviors through descriptive data collection. The primary goal is to gain a deep understanding of human behaviors. Qualitative research seeks to explore and interpret people's values, interpretive schemes, and belief systems. Qualitative research delves into people's values, interpretive schemes, and belief systems, aiming to capture the complexity of their perspectives (Cavana et al., 2001). The distinctive nature of phenomenological research, which seeks a deep and subjective understanding of phenomena by exploring the lived experiences of individuals. This approach aligns with the qualitative paradigm, emphasizing the richness and complexity of human perspectives (Sharif 2004). This research paradigm attempts to descriptive richness, capturing the lived experiences of participants and emphasizing the meaningful aspects of human actions. The approach aligns with the phenomenological paradigm's goal of uncovering the depth and significance of

subjective realities (Sarantakos, 1993). By this method, with its interpretive orientation, offers an alternative paradigm to the more positivistic approaches. It highlights the flexibility in choosing research methods based on the underlying philosophical assumptions and goals of the study (Shah, 2009; Anonymous, 2003).

3.3 Research Approach and Design

Research can be defined as the systematic and purposeful nature of the investigative process, with the ultimate goal of creating new knowledge (Swanson and Holton, 2005). The selection of research methods is contingent on the researcher's intent, whether it involves pre-specifying the information to be collected or allowing it to emerge during the study. A research design is characterized as a map, blueprint, structure, and strategy that guides the observation process to address the study's statement of problems (Creswell, 2003). The metaphorical description of research design as a "map for researchers" suggests its role in providing guidance and direction in the overall research process. Research design is likened to a blueprint, emphasizing its function in outlining the overall structure and plan for conducting the study (Kerlinger et al., 1973; Davis, 1996).

The secondary data sources for the study include books and references, periodicals, articles, reports, research, and previous studies related to the subject. The researcher has also utilized information from various internet sites as part of the primary data sources. The aim is to use primary sources to identify foundations and sound scientific methods in writing the study. Additionally, the researcher aims to gain a general view of the latest developments in the subjects of the current study. A questionnaire has been developed for the study, and data collected through this questionnaire. The researcher will design and develop it to cover the hypotheses on which it is based. The sampling unit consisted of construction companies.

3.4 Research Population and Sample Selection

The sampling strategy employed was stratified random sampling, ensuring representation across different types of construction companies, including small and medium-sized enterprises (SMEs) and large multinational firms. This approach facilitated a comparison of sustainability practices across various organizational contexts. The survey questions were carefully crafted to ensure clarity, relevance, and alignment with the research objectives. For instance, respondents were asked to rate the importance of specific sustainability practices and assess their impact on various performance metrics.

Data from the surveys were analysed using statistical tools such as PLS to identify trends, correlations, and patterns. The findings provided a quantitative foundation for understanding the relationship between sustainability and performance.

The population of this study was based on the total managers of construction companies, including small and medium-sized enterprises (SMEs) and large multinational firms.

According to Gonz'alez (1999), the sampling frame can be regarded as the process for the research units as derived from the population of the study, in which it refers to the tangible portrayal of the research population. Louw & Zuber-Skeritt (2009) mentioned that the sample size must be sizeable for the study, in which it has to be sufficiently big to predict the aspects of the population in hopes of a valid result.

According to Louw & Zuber-Skeritt (2009), the choice of sample size is usually governed by: 1) the confidence that the researcher needs to have in the data, 2) the margin of error that the researcher can tolerate, 3) the types of analysis that the researcher is going to undertake, and 4) the size of the population from which sample is being drawn.

The selection of the simple random sampling method was employed as a sampling design. The reason simple random sampling was chosen is because this method enables the generalisation of the findings to population (Bryman and Bell 2015), as suggested by Saunders et al. (2009), based on the total population of 3612 managers work in the companies, the appropriate sample size for this study based on table Krejcie and Morgan (1970) it will be 350. However, to overcome the non-response rate in a mail survey that can be as high as 80% (Khan et al., 2016). The sample size determination formula of (Krejcie and Morgan 1970):

$$s = \frac{X^2 \cdot N \cdot P \cdot (1 - P)}{d^2 \cdot (N - 1) + X^2 \cdot P \cdot (1 - P)}$$

Where:

- s = required sample size
- X^2 = chi-square value for 1 degree of freedom at the desired confidence level (3.841 for 95%)
- N = population size (3612)
- P = population proportion (0.50, to maximize sample size)
- d = degree of accuracy (± 0.05)



$$s = \frac{3.841 \times 3612 \times 0.50 \times (1 - 0.50)}{0.05^2 \times (3612 - 1) + 3.841 \times 0.50 \times (1 - 0.50)}$$

Simplify the numerator and denominator step-by-step:

$$s = \frac{3.841 \times 3612 \times 0.50 \times 0.50}{0.0025 \times 3611 + 3.841 \times 0.50 \times 0.50}$$

$$s = \frac{3.841 \times 3612 \times 0.25}{9.0275 + 0.96025}$$

$$s = \frac{3.841 \times 3612 \times 0.25}{9.98775}$$

Calculate the numerator:

$$3.841 \times 3612 = 13873.392$$

$$13873.392 \times 0.25 = 3468.348$$

Therefore:

$$s = \frac{3468.348}{9.98775} \approx 347$$

Prior to participation, all individuals in the sample population were informed that the study was conducted solely for academic research purposes in accordance with established academic ethics and standards. Participants were assured that their responses would remain confidential, participation was entirely voluntary, and they had the right to withdraw from the study at any stage without any consequences.

Table (3.1) Sample size of Krejcie and Morgan

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size.
S is sample size.

Source: (Krejcie and Morgan 1970).

3.5 Data Collection

This study used a questionnaire sent to the management of construction companies to investigate the relationship between corporate sustainability and corporate performance. Sekaran & Bougie (2010) indicated that the survey questionnaire is the most common method of collecting data due to several advantages. Among them, firstly, it permits the researcher to use visual aids to clarify points; secondly, it is most useful in data collection when large numbers of people in different places are to be reached; thirdly, the researcher can obtain data fairly easy; fourthly, it can easily be sent to respondents in many ways; and finally, the questionnaire responses are easily coded.

3.5.1 Case Studies

Case studies were utilized as a qualitative data collection method to provide contextualized insights into how sustainability practices are implemented in real-world settings. This method allowed for an in-depth examination of specific construction projects or companies, highlighting best practices, challenges, and lessons learned.

Three case studies were selected, each representing a different context: an SME implementing sustainability practices for the first time, a multinational firm with an established sustainability program, and a public-sector project with strict environmental regulations. These case studies were chosen to reflect the diversity of the construction industry and provide comparative insights.

Data for the case studies were collected through document analysis, site visits, and interviews with key stakeholders. The analysis focused on identifying critical success factors, barriers, and the impact of sustainability initiatives on project outcomes. By triangulating data from multiple sources, the case studies offered a rich, detailed understanding of the research problem and validated the findings from surveys and interviews.

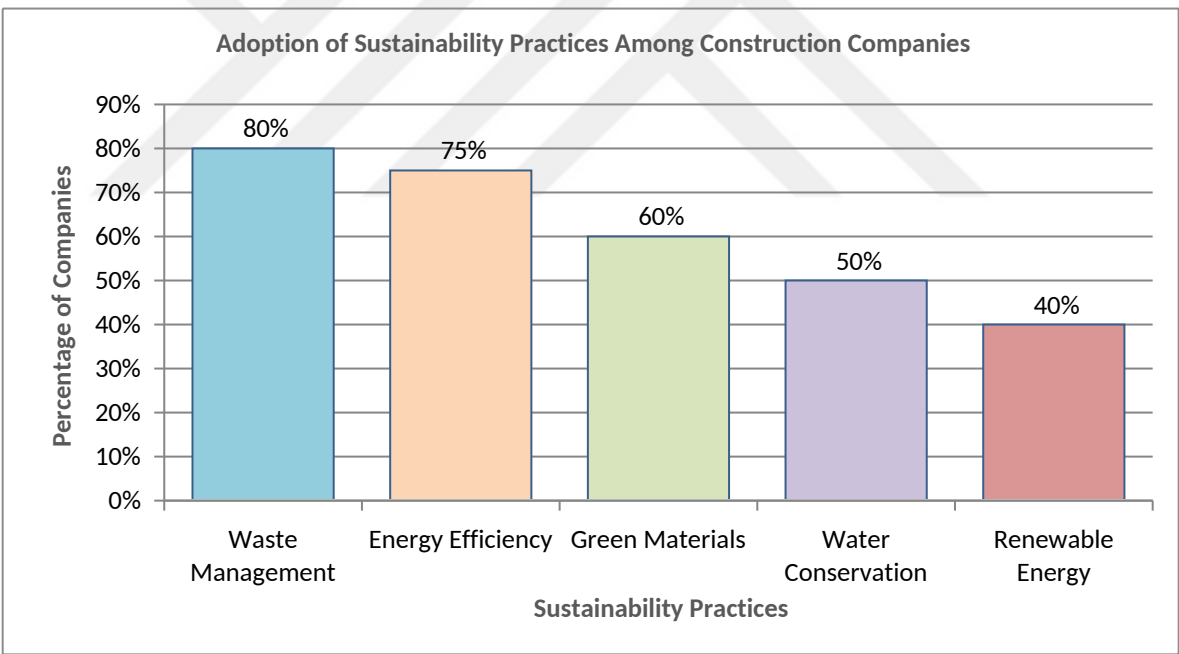


Figure 3.1: Sustainability practices among construction companies

Here is a histogram illustrating the adoption levels of various sustainability practices among construction companies. The x-axis represents the types of sustainability practices (e.g., waste management, energy efficiency), and the y-axis shows the percentage of companies adopting each practice. This visualization provides a clear overview of adoption trends.

3.6 Measurement and Instruments

As indicated in the hypotheses, this study has several variables, i.e. corporate sustainability (social, environmental and economic), and corporate performance. The following explains how these variables were measured.

3.6.1 Corporate sustainability

Table (3.2) Measurement and Instruments of Corporate sustainability

Dimensions	Statements	References
Social	The company provides financial assistance to educational and health programs for the community.	Shatnawi et al., (2022); Tuna & Besler (2014)
	The company supports the participation of employees in various social activities.	
	The company provides financial donations and assistance to charities and cultural and sports centers.	
	The company Employed of the disabled and the unemployed.	
	The company provides social and recreational services to its employees and their families.	

	The company provides transport, housing, health insurance and social security for its employees.	
	The company is interested in customers' suggestions and complaints.	
	The company develops product information that guides customers to social responsibility.	
	The Company improves life standards of its employees by offering them loans.	
Environmental	The company uses transport machinery to cause pollution of the environment.	Shatnawi et al., (2022)
	The company reduces waste of environmental resources and energy sources.	
	The company supports environmental protection and landscaping programs and landscaping.	
	The company uses the best ways to get rid of production waste.	
	The company has good potential for safe disposal of waste.	
	The company is committed to the means and procedures for production that ensure the conservation of environmental resources.	
	The company uses modern technological means to minimize the	

	negative impact on the environment.	
	The company seeks to use raw materials in the production process that is not harmful to the environment.	
	The company comply with environmental laws that will hinder profit target.	
	Environmental orientation is a social and moral responsibility in the company.	
	The company seeks to strengthen its competitive position through environmental orientation.	
	The company's green marketing philosophy contributes to increasing consumer loyalty.	
	The company strives to maintain its sustainability by applying the concept of green marketing.	
Economic	The company offer special programs to encourage tourism.	Shatnawi et al., (2022), Tuna & Besler (2014)
	The company develops many agreements to increase trade.	
	The company practice activities to attract new businesses.	
	The company develop appropriate infrastructure to meet demand.	
	The clarity and accuracy of the specifications and information in the correspondence that takes place before the contract.	

	Transparency and fairness of dealing with bidders.	
	The company provides ease and clarity of presentation and procedures.	

3.6.2 corporate performance

Table (3.3) Measurement and Instruments of corporate performance

Dimensions	Statements	References
Corporate Performance	For the last 5 years, our return on assets has been substantially better.	Tuna (2014)
	For the last 5 years, our sales growth has been substantially better.	
	For the last 5 years, our profit growth has been substantially better.	
	For the last 5 years, our return on investment has been substantially better.	
	For the last 5 years, our operating profits have been substantially better.	
	For the last 5 years, our cash flow from operations has been substantially better.	
	For the last 5 years, our earnings per share from operations have been substantially better.	
	For the last 5 years, our return on equity from operations has been substantially better.	
	For the last 5 years, our market share from operations has been substantially better.	

3.7 Pilot Test and Reliability Test

A pilot study is described as a small-scale investigation conducted to test various aspects of the research process, including protocols, data collection instruments, sample recruitment strategies, and other research techniques (Stewart, 2016). The primary purpose of a pilot study is to prepare for a larger-scale study by identifying and addressing potential issues or challenges in the research design. The pilot study plays a crucial role in refining and optimizing the research methodology before the main study, ensuring its effectiveness and validity. (Lancaster et al., 2014). A pilot study is beneficial for familiarizing members of the research team with the research protocols and procedures outlined in the study design. It aids in decision-making processes, allowing the team to choose between different study methods or tools, such as deciding between interviews and self-administered questionnaires (Kraemer et al., 2006).

The pilot study serves as a critical step in the process of refining and validating research protocols, data collection methods, sample selection, and test instruments. It helps identify any potential issues or challenges that may arise during the main study, allowing researchers to address and mitigate these concerns (Tashakkori et al.; Hassan et al., 2006). Pilot studies can encompass both quantitative and qualitative methods. Large-scale studies may benefit from multiple pilot studies to refine the research approach. The pilot study is often considered a trial run or a small-scale version of the main study (Polit et al., 2006). Pilot studies can involve pre-testing or trying out a research instrument. This process helps evaluate the effectiveness and appropriateness of the research instrument (Baker et al., 1994). The pilot study is conducted before the full implementation of the research project. Its purpose is to identify potential problems and shortcomings in research tools (Kraemer et al., 2006).

Offers valuable insights into the potential challenges and issues that might arise during the main study. It also helps in assessing whether the proposed research protocols are suitable for the specific context of the current study. Identifying and addressing these aspects beforehand contributes to the overall success of the research (Van Teijlingen et al., 2001). In the words of De Vaus

(2013), “Do not take the risk, pilot test first” (p. 48). A final pilot study that tests the entire research process is crucial for refining various elements of the study. This includes assessing the effectiveness of questionnaire distribution and collection methods, refining the wording and order of questions, and ensuring the appropriateness of answer options for multiple-choice questions. This final check helps enhance the overall quality and validity of the research (Lancaster et al., 2004). Pilot studies serve as valuable tools to identify and address potential challenges associated with local politics or other contextual issues. Uncovering such factors during the pilot phase allows researchers to make necessary adjustments, ensuring a smoother and more effective implementation of the main research study (Thabane et al., 2010).

A total of 30 questionnaires were however returned and therefore were not included in the main sample of the study. Respondents who participated in the pilot study were helpful in giving feedback about the questionnaire. Based on feedbacks, some modifications were made to the final version to improve the clarity and comprehensibility of survey instrument among the actual respondents. Table 3.4 shows that the reliability results of variables range from 0.73 to 0.88. This range is generally considered sufficient to be acceptable for research purpose and meets (Sekaran & Bougie, 2010, 2016) suggestion who stated that more than 0.70 is generally considered sufficient to be acceptable for research (Hair et al., 2010).

Table (3.4) Cronbach’s Alpha Coefficient for the Pilot Study

Variables	Number of items	Cronbach’s Alpha
corporate sustainability	29	0.738
corporate performance	9	0.882

3.8 Validity and reliability

3.8.1 Validity Test

The data analysis of this research is based on the research objectives. The research employed a combination of SPSS and PLS to conduct a thorough analysis aligned with the research objectives. SPSS was particularly emphasized for its role in initial data exploration, reliability testing, and addressing data quality issues, the use of SPSS for treating missing data and handling outliers is highlighted. This indicates a comprehensive approach to ensuring the quality and integrity of the dataset. while PLS may have been used for more complex structural modeling analyses. Descriptive statistics, such as Cronbach's alpha, were calculated using SPSS. Cronbach's alpha is a measure of internal consistency and reliability for the research instrument. SPSS was used to handle missing data in the collected dataset. PLS, a structural equation modeling (SEM) tool, was utilized for more advanced data analysis. The specific functions or analyses conducted using PLS are not explicitly mentioned in the provided text, but it is commonly used for path modeling and assessing complex relationships in research models. Hair et al. (2017) suggests that the researchers are drawing on existing literature and methodologies for data analysis.

On the other hand, the research draws on the works of Sekaran & Bougie (2010) and Zikmund (2013) to support the use of descriptive analysis, indicating a reliance on established literature and methodologies. The research conducted descriptive analysis on various statistical measures, including means, standard deviation, and variance. The focus was on interval-scaled variables, suggesting that the data had a quantitative nature with a consistent interval between values. Means, standard deviation, and variance were computed for both the interval-scaled independent variables and dependent variables. Descriptive analysis serves the purpose of making the data more interpretable, providing insights into the characteristics of the variables under investigation.

3.8.2 Modelling structural equations using least squares:

The study comprises (38) measurement items representing four concepts, measured through questionnaire statements. The analytical method used is Structural Equations Modeling (SEM) with the least squares method (PLS-SEM).

The program Smart PLS 3 is employed to validate the first type of model, known as the standard model. The analysis focuses on validating indicators and factors to ensure they effectively measure the intended concepts. Various types of validity are tested before proceeding to assess the overall quality of the model and test the study hypotheses. Two main types of validity are discussed: convergent validity and discrimination validity. These methods are commonly used in the benchmarking model stage. Understanding and applying convergent and discrimination validity methods are fundamental for establishing the credibility of a benchmarking model. It ensures that the model accurately reflects the relationships between different measures and concepts, contributing to the robustness of the research findings (Hair et al., 2017). The structural model is used to test the hypotheses of the study. The study utilizes partial least squares (PLS-SEM) for this purpose. The structural model, supported by PLS-SEM, serves as a powerful tool for hypothesis testing and assessing the overall validity of the research model.

To ensure the accuracy and validity of the scale used in this study, the confirmatory factor analysis was used, consisting of corporate sustainability, and corporate performance. Where (38) items were used for each scale, where the questionnaire was used as a tool for the study and for collecting information from the construction companies, where it is preferable to have a suitable sample for the analysis of the confirmatory factor and to test the standard model in order to describe the study model that includes measured latent variables Indirectly through a set of phrases distributed in order to test the variables of the study.

Table (3.5) "The distribution of the questionnaire items"

Independent Variable Corporate Sustainability	
Corporate Social	Items from (1 to 9)
Corporate Environmental	Items from (10 to 22)
Corporate Economic	Items from (23 to 29)

Dependent Variable Corporate Performance	Items from (30 to 38)
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4. DATA ANALYSIS AND FINDINGS

4.1. Introduction

The primary focus of the study is to examine the effects of corporate sustainability (CS) on corporate performance (CP) of construction companies. The primary focus of this chapter is to present the research findings obtained through quantitative analysis. The chapter includes a discussion of the implications and interpretations of the quantitative findings. This involves connecting the results to the research objectives and existing literature. The chapter includes a demographic profile of the respondents, providing insights into the characteristics of the sample. This may encompass gender, age, total experience, education, and position. The results presented in this chapter align with the research methodology and design described in earlier chapters, ensuring consistency and reliability. By addressing missing data, outliers, and other issues, the chapter ensures the quality and reliability of the data used for analysis. The chapter likely addresses the steps taken for data screening, including the handling of missing data, identification and treatment of outliers, assessment of normality, and evaluation of multicollinearity.

The research employed Partial Least Squares Structural Equation Modeling (PLS-SEM) for the assessment of the measurement model. PLS-SEM is a statistical method used for analyzing structural equations when dealing with complex models. The chapter covers various aspects of the analysis, including discriminant validity, goodness of fit, structural model assessment, and prediction relevance. This indicates a thorough evaluation of the research model.

4.2. Response Rates

The population consisted of managers in construction companies. As mentioned in chapter three, the total population of this research involved 3612 managers work in construction companies, using random sampling (RS) technique and the minimum of sample size based on (Krejcie & Morgan, 1970) was 347 managers. A total number of 400 questionnaires were distributed, while the returned questionnaires were 346 and 54 questionnaires were not returned as shown in Table 4.1. Only 319 questionnaires were useable, indicating 79.75% response rate.

"Table (4.1) Response Rate"

Response Rate	Respondents No
Questionnaires Distributed	400
Returned	346
Not Returned	54
Returned and Unusable	27
Returned and Usable	319
Response Rate	79.75%

4.3. Data Screening and Preliminary Analysis

The focus is on ensuring data accuracy through a comparison between the original data and the computerized data file in the data window, and reliance on established sources, possibly in the field of data analysis or research methodology (Tabachnik & Fidell, 2012). Therefore, after completing the process of distributing and collecting data, researcher began to check the raw data to ensure completeness. Editing includes checking data collection models for any errors and to ensure clarity and consistency in classification. Thus, the raw data were entered manually into SPSS. De Vaus (2013) stated that there are two main methods involved in this process, and post- coding. This study applied the preceding

way via numerical values for all items.

Next, data screening is carried out before pursuing any further statistical analyses. Since the data screening is a useful process to ensure that data were entered accurately, the research items were examined through SPSS statistical package to improve data accuracy. In this case, data screening was conducted to avoid the ambiguous data characteristics that might affect the results negatively, such as screening for missing data, outliers, normality, and multicollinearity (Coakes & Steed, 2009). Consequentially, the distribution of variables in the analysis was normal.

4.3.1 Missing Data

Missing data is described as occurring when respondents do not answer one or more items in the questionnaire. In social sciences studies, data are obtained through surveys in many institutions and communities (Hair et al., 2014). If less than 5%, a little amount of data is said to be missing. Cohen (1988) argued that up to 10% of missing data would not affect the interpretation of findings. However, that a small amount of missing data may not significantly affect the findings, recognizing the trade-offs involved in data collection methods (Hair et al., 2017). He suggested that removing observation from data as the amount of missing data exceeds 15% is common. In this research, nine cases were classified as missing data, and subsequent analyses were deleted because the respondents did not provide answers to items which accounted for more than 15% of the total questions. In the case where a number of missing data for each indicator is small (5% per item), the missing value treatment procedure could be applied to these data (Hair et al., 2010). The missing data was adjusted via SPSS (mean function) where the amount of missing data of this study was less than 5%.

4.3.2 Normality Test

The normality test assesses whether the distribution resembles the expected bell-shaped curve of a normal distribution. An assessment conducted to

determine whether the distribution of data for individual metric variables conforms to a bell-shaped curve (Hair et al., 2010). This research was conducted to ensure that the data collected were normally distributed. George and Mallery (2010) stated that the measure of central tendency that represents the average of a set of values. A skewness value between ± 2.0 is considered acceptable for relying on the arithmetic mean as a descriptor. A kurtosis value less than ± 7 is deemed acceptable for appropriate statistical interpretation (Byrne, 2013). Table 4.2 illustrates the assessment of data normality. In this study, the normality of main variables was checked, and the result showed that there was no violation. The result, however, achieved normality because all of the variables as shown in Table 4.2 did not have normality problem. Furthermore, the histogram in Figure 4.1 supports the result of the normality test.

"Table (4.2) Results of Skewness and Kurtosis for Normality Test"

	Mean	Std. Deviation	Skewness		Kurtosis	
			Statistic	Std. Error	Statistic	Std. Error
Corporate Sustainability	3.8796	0.574	-0.592	0.137	1.836	0.272
Corporate Performance	3.6984	0.769	-0.954	0.137	1.113	0.272

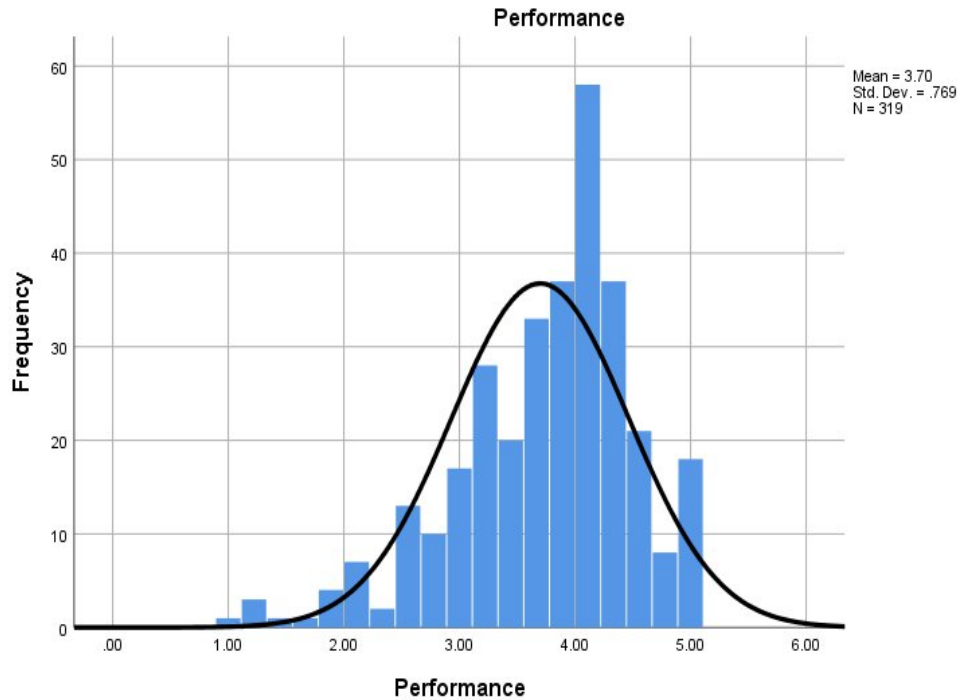


Figure 4.1: Normality Assumption

4.3.3 Multicollinearity

Multicollinearity occurs condition in which two or more independent variables in a regression model are highly correlated (Hair et al., 2010). This study used threshold is a VIF value of 10 or higher, indicating potential multicollinearity. High VIF values can lead to inflated standard errors and unreliable coefficients (O'brien, 2007). A measure used to assess multicollinearity in regression analysis. It is the proportion of variance in an independent variable that is not explained by other independent variables. Tolerance values close to zero indicate a high degree of multicollinearity. A common threshold is a tolerance value less than or equal to 0.10. A high VIF value (typically greater than 10) is indicative of multicollinearity (Denis, 2011; Hair et al., 2010; Sekaran & Bougie, 2010).

Recently, Hair et al. (2017) stated that multicollinearity occurs when the largest VIF is greater than five and tolerance value is less than 0.10. Table 4.3 shows that the concern about coefficients indicated that there was no high correlation among independent variables where the degree of VIF for all variables

was lower than 5 (2.401), while the tolerance was greater than 0.10 (0.688). Consequently, Table 4.4 illustrates that in this research, independent variables were not highly correlated, hence there was no evidence of significant multicollinearity where all VIF values were less than five and tolerance greater than 0.10.

Table (4.3): Multicollinearity Test (Inner VIF Values) Coefficients

Variable	Tolerance (>0.10)	VIF (<5)
Corporate Sustainability	0.688	2.401

4.4 Profile of the Respondents:

In order to provide an overview of the data collected and before proceeding to the multivariate analysis, the researcher summarized the demographic profile of respondents using basic descriptive statistics such as frequency and percentage through SPSS as shown in Table 4.4. The table shows the frequency and percentage of the research respondents' demographic profile, illustrating the gender, age, Total experience in years, Education, and Position. As mentioned previously, the total number of usable respondents in this research was 319 that includes the managers of construction companies. Table 4.4 shows that 206 male respondents (64.6%) and 113 (35.4%) female respondents were involved. The same table also shows four age categories in this research: (i) 19 respondents were Under 30 years (5.9%); (ii) 27 respondents were between 30- 39 years (8.5%); (iii) 167 respondents were between 40-49 years (52.4%); and (iv) 106 respondents were 50 years or more (33.2%). Next, regarding experience, 2.3% of the respondents were less than 5, 11.6% were experience between 5-9, 15.4% were experience between 10-14, and 70.7% were experience 15 or Above. In terms of classification category, the majority of respondents were Manager (36.7%), followed by Executive director (29.5%), Assistant manager (11.9%) and Other manager positions (21.9%). In total, education of bachelor's degree holders accounted for 75.5%, diploma holders accounted for 0.9%, master's degree holders accounted for 16.9%, and PhD degree holders accounted for only 6.7%.

Table (4.4): " Profile of Respondents (N=318)"

Variable	Level / category	Number	percentage %
Gender	Male	206	%64.6
	Female	113	%35.4
Age	Under 30 years	19	%5.9
	30- 39 years	27	%8.5
	40-49 years	167	%52.4
	50 years or more	106	%33.2
Experience	less than 5	7	%2.3
	5-9	37	%11.6
	10-14	49	%15.4
	15 or Above	226	%70.7
Education	Diploma or below	3	%0.9
	Bachelor degree	241	%75.5
	Master degree	54	%16.9
	PhD degree	21	%6.7
classification category	Manager	117	%36.7
	Assistant manager	38	%11.9
	Executive director	94	%29.5
	Other manager positions	70	%21.9
Total		318	%100

4.5 Descriptive Analysis:

The mean and standard deviation values for each item of the questionnaire related to the independent variable (CS), and the dependent variable (CP). The following tables show the obtained results.

4.5.1 Corporate Sustainability (CS)**Table (4.5): "The mean and standard deviations of independent variable (CS)"**

Variables	items	Mean	standard deviation	Rate
Corporate Social	The company provides financial assistance to educational and health programs for the community.	4.15	.667	1
	The company supports the participation of employees in various social activities.	3.81	.863	4
	The company provides financial donations and assistance to charities and cultural and sports centers.	3.84	1.027	3
	The company Employed of the disabled and the unemployed.	3.74	1.041	8
	The company provides social and recreational services to its employees and their families.	3.76	.960	7
	The company provides transport, housing, health insurance and social security for its employees.	3.78	1.037	5
	The company is interested in customers' suggestions and complaints.	3.77	1.024	6
	The company develops product information that guides customers to social responsibility.	3.90	.861	2
	The Company improves life standards of its employees by offering them loans.	3.37	1.229	9
	Total	3.793	.71020	High

Corporate Environmental	The company uses transport machinery to cause pollution of the environment.	3.39	1.220	9
	The company reduces waste of environmental resources and energy sources.	3.26	1.268	12
	The company supports environmental protection and landscaping programs and landscaping.	3.35	1.253	10
	The company uses the best ways to get rid of production waste.	3.23	1.245	13
	The company has good potential for safe disposal of waste.	3.29	1.214	11
	The company is committed to the means and procedures for production that ensure the conservation of environmental resources.	3.63	1.443	8
	The company uses modern technological means to minimize the negative impact on the environment.	3.95	.860	7
	The company seeks to use raw materials in the production process that is not harmful to the environment.	4.36	.694	2
	The company comply with environmental laws that will hinder profit target.	4.27	.734	4
	Environmental orientation is a social and moral responsibility in the	4.34	.695	3

	company.			
	The company seeks to strengthen its competitive position through environmental orientation.	4.38	.657	1
	The company's green marketing philosophy contributes to increasing consumer loyalty.	4.18	.737	5
	The company strives to maintain its sustainability by applying the concept of green marketing.	4.18	.806	6
	Total	3.831	.66676	High
Corporate Economic	The company offer special programs to encourage tourism.	4.09	.813	3
	The company develops many agreements to increase trade.	4.08	.814	4
	The company practice activities to attract new businesses.	4.10	.861	2
	The company develop appropriate infrastructure to meet demand.	4.22	.728	1
	The clarity and accuracy of the specifications and information in the correspondence that takes place before the contract.	4.01	.834	5
	Transparency and fairness of dealing with bidders.	3.79	.879	7
	The company provides ease and clarity of presentation and procedures.	3.80	1.047	6
	Total	4.013	.61429	High

Table (4.5) shows that the mean of respondents' answers to the "Corporate Sustainability" The first variable is (Corporate Economic) with an average of 4.01 and a high rating, then is (Corporate Environmental) with an average of 3.83 and a high rating, finally, (Corporate Social) with an average of 3.79 and a high rating. It indicates that the level of Corporate Sustainability dimensions is high among construction companies.

4.5.2 Corporate Performance (CP):

Table (4.6) demonstrates the description example dependent on the statistic factors of the sample.

Table (4.6): "The mean and standard deviations of independent variable (CP)"

N	Items	Mean	standard deviation	Rate
45	For the last 5 years, our return on assets has been substantially better.	3.64	1.118	4
46	For the last 5 years, our sales growth has been substantially better.	3.62	1.173	7
47	For the last 5 years, our profit growth has been substantially better.	3.63	1.177	5
48	For the last 5 years, our return on investment has been substantially better.	3.60	1.153	8
49	For the last 5 years, our operating profits have been substantially better.	3.42	1.228	9
50	For the last 5 years, our cash flow from operations has been substantially better.	3.63	1.198	6
51	For the last 5 years, our earnings per share from operations have been substantially better.	3.96	.957	1

52	For the last 5 years, our return on equity from operations has been substantially better.	3.93	.944	2
53	For the last 5 years, our market share from operations has been substantially better.	3.87	.954	3
	Total average	3.6984	.76907	High

Table (4.6) shows that the mean of respondents' answers to the " Corporate Performance " ranged from (3.42 - 3.96). The first rated item is (51), which states: " For the last 5 years, our earnings per share from operations have been substantially better." With an average of 3.96 and a high rating, while the last item (49), which states " For the last 5 years, our operating profits have been substantially better." with an average of 3.42 and a medium rating.

4.6 Assessment of Measurement Model

Structural Equation Modeling (SEM) is a versatile statistical technique used for testing and estimating complex relationships among variables. The two main approaches in SEM are Covariance-Based SEM (CB-SEM) and Partial Least Squares SEM (PLS-SEM) (Hair et al., 2017). The primary use of CB-SEM is to confirm or reject the theory, whereas the primary use of PLS-SEM is developing theory in exploratory research. In addition, smart PLS also provides researchers to perform advanced mediation analysis in terms of theory development in different research fields (Nitzl, Roldan, & Cepeda, 2016). It is because PLS-SEM focuses on interpreting the variance through dependent variables while examining the model (Hair et al., 2014). In this research, using Partial Least Squares Structural Equation Modeling (PLS-SEM), which is particularly suitable for complex models with multiple latent variables and indicators, attention to measurement and structural model assessment is crucial. Overall, model validation is a critical step in ensuring the reliability and validity of research findings. It's a process that involves assessing both the measurement and structural components of model to ensure they meet established criteria. This enhances the credibility of study and the trustworthiness of the results (Urbach & Ahlemann, 2010).

4.6.1 Internal Consistency Reliability

Hair et al. (2017) rightly emphasize its significance as the first measure to be evaluated when assessing reliability. Usually, in an organizational research setting, Cronbach's alpha and composite reliability are indeed the most commonly used estimators for assessing internal consistency reliability in organizational research and beyond (DE Gefen, Rigdon, & Update, 2011; McCrae, Kurtz, Yamagata, & Terracciano, 2011; Peterson & Kim, 2013). In this regard, this research adopted both methods of Cronbach's alpha and composite coefficients. Cronbach's alpha measures the reliability of each core variable in the measurement model and composite reliability coefficient determines the internal consistency reliability of the adapted measures.

Cronbach's alpha is indeed a commonly used measure to assess the internal consistency reliability of an instrument or scale. Albatayneh (2014a), it is consistent with the common interpretation of Cronbach's alpha reliability coefficients. Between 0.6 and 0.7 generally considered acceptable, especially in the early stages of scale development or for exploratory research. Above 0.7 typically considered good or high reliability, indicating a strong internal consistency among the items in the scale. The consistency of the study tool is the stability of the results, the extent of consistency or consistency in the results of the questionnaire if applied more than once and in similar circumstances. The consistency test was used in Cronbach's alpha. It measures the consistency of the responses of the respondents to all questions in the scale, and the alpha can be interpreted as the coefficient of internal stability between the answers, and indicates the height of its value on the degree of stability and the range between (0 and 1) and its value acceptable at (70%) and above (Sekaran and Bougie, 2010).

All study participants were provided with an informed consent form, which explained the nature of the research, its objectives, and their rights, including the right to withdraw at any time without any negative consequences. This procedure was conducted in accordance with research ethics to ensure the respect of participants' privacy and rights.

Table (4.7) “Internal Consistency Reliability- Cronbach’s Alpha”

Variables	Cronbach Alpha	No of items
Corporate Social	0.916	9
Corporate Environmental	0.864	13
Corporate Economic	0.912	7
Corporate Sustainability	0.925	29
Corporate Performance	0.861	9
Total of paragraphs	0.933	38

Table (4.7) discussing the results of a statistical analysis, possibly related to a questionnaire and its dimensions. The information provided indicates that the coefficients of the variables were higher than 70%, demonstrating internal consistency among the paragraphs. Specifically, mentioned a percentage of 93.3%, which is considered acceptable based on Sekeran (2010, p. 311), which indicates that the paragraphs of the questionnaire with their dimensions have internal consistency.

4.6.2 Indicator Reliability, Convergent Validity (AVE) and Composite Reliability

To avoid problems with validity, it is preferable for indicators to have values higher than 0.70. This likely refers to the threshold for factor loadings or other reliability measures in the context of structural equation modeling or a similar statistical analysis. Additionally, mentioned that consideration should be given to removing indices with values between 0.30 and 0.70. This might be referring to a range of factor loadings or indicators that fall below the desired threshold. However, removal should only be considered if it leads to an increase in both

composite reliability and Average Variance Extracted (AVE) above the suggested values (Leguina, 2015). The preliminary results showed that some indicators did not achieve the required level of saturation on the factors, (9) items were deleted from the Environmental, and (1) item was deleted from the Corporate Performance. as some of them (ev2, ev3, ev4, ev5, ev6, ev7, ev8, ev9, ev10, per9) showed weak consequences less than (0.40), and in such a case it is recommended to delete these items, especially with an average decrease The AVE is less than (0.50). The reason in this case may be attributed to the fact that some of these indicators may be incomprehensible or overlap with other measurement indicators for the same factor or with another factor.

The initial description of the study model, which includes the study variables, the number of its indicators, and the saturation of the indicators with its factors, using (Smart PLS). The preliminary results indicated that a number of items did not achieve sufficient saturation (>0.60), which in turn may significantly affect the results of the study, so these indicators will be deleted based on (Hair et al., 2014). As in figure (4.2).

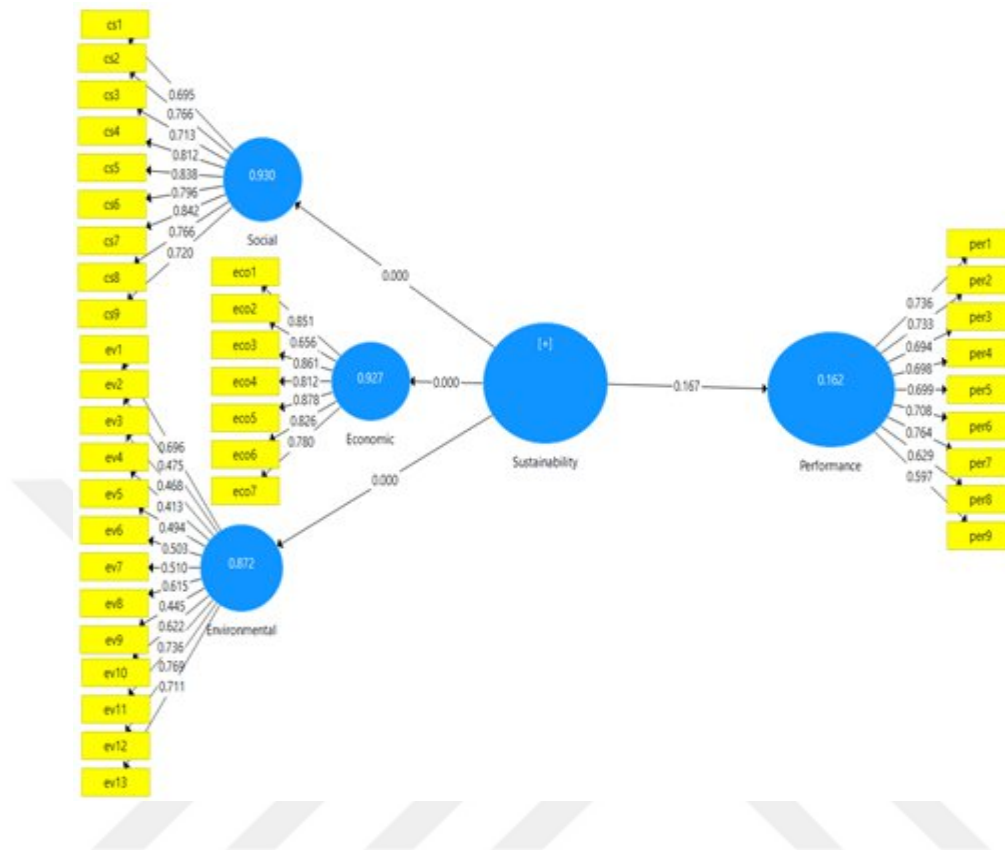


Figure (4.2) Factors Loadings model before deleting the weak indicators

After testing the initial model and exploring the saturation of the indicators on the factors, it was found that a number of indicators still affect the results of the convergent validity through the composite reliability and the AVE, which remained low. The final results of the standard model of the study, which was satisfied with this amount of deletion in order to preserve the structural form of the variables. As in figure (4.3)

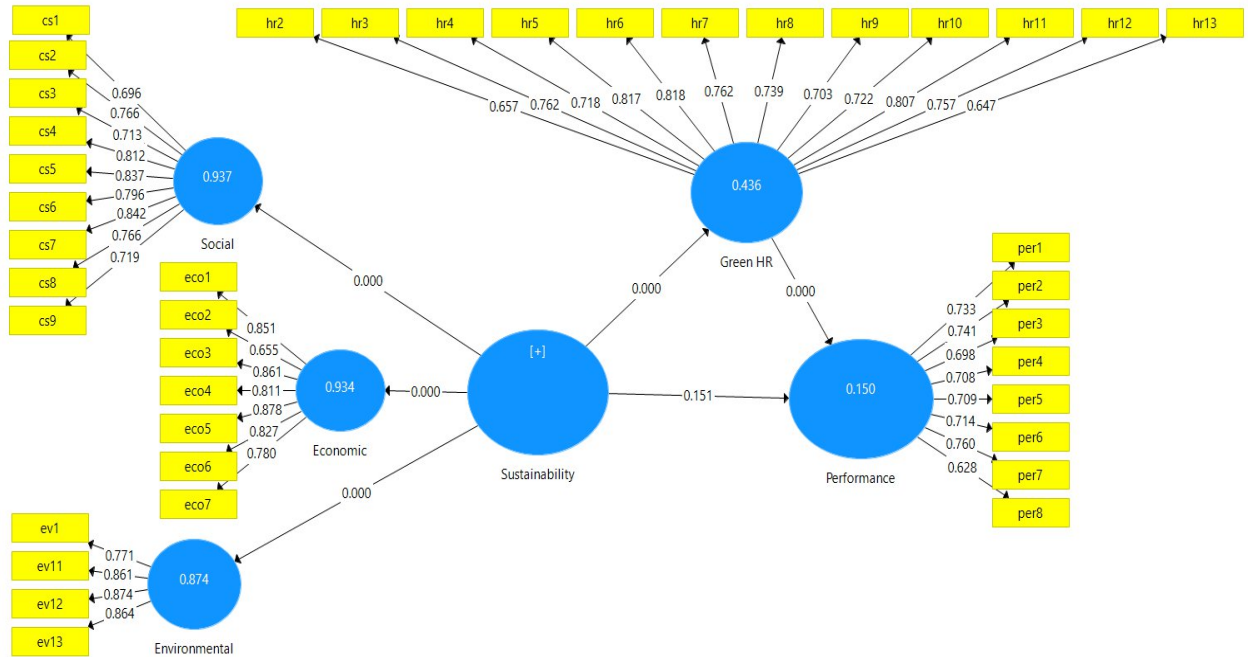


Figure (4.3) Factors Loadings model after deleting the weak indicators

The composite validity coefficient ranges between (0-1), and high values indicate high reliability, which all came within the acceptable limits, and this is a good indication of the validity of the factors, in addition to the saturation or loading of the items on their factors, which came greater than 0.60. As for the test of AVE, which indicates the variance in the error of the items instead of being explained by the same variable, and accordingly, the study has achieved the asymptotic validity tests for the variables. as in Table (4.8).

The study carried out this type of analysis in order to ensure the construction of the scale, constructive validity and discriminatory validity through a set of necessary tests such as the average of AVE and the composite reliability of the questionnaire items, the study conducted the confirmatory factor analysis of the standard study model, the statements were distributed each according to its variables, and the model was tested to find out the internal validity and the number of required factors within each variable and to determine the saturation or load of the items on each variable. In order to ensure sound and strong results for the standard model, questions with a weak load (less than 0.60) were excluded. The

standard model was also evaluated in order to know the correlation between these variables with their scale, through tests of validity and reliability of items and factors (Sarstedt et al., 2014).

"Table (4.8) factors loading, Average variance extracted, composite Reliability "

Variable	loading (≤ 0.60)	CR ($0.60 \leq$)	AVE ($0.50 \leq$)	Note
Corporate Social	0.695	0.930	0.599	
	0.766			
	0.713			
	0.812			
	0.838			
	0.796			
	0.842			
	0.766			
	0.720			
Corporate Environmental	0.696	0.908	0.712	
	0.475			Delete
	0.468			Delete
	0.413			Delete
	0.494			Delete
	0.503			Delete
	0.510			Delete
	0.615			Delete
	0.445			Delete
	0.622			Delete
	0.736			
	0.769			
	0.711			

Corporate Economic	0.851	0.931	0.660	
	0.656			
	0.861			
	0.812			
	0.878			
	0.826			
	0.780			
Corporate Performance	0.736	0.892	0.508	
	0.733			
	0.694			
	0.698			
	0.699			
	0.708			
	0.764			
	0.629			
	0.597			
				Delete

4.6.3 Discriminant Validity

Discriminant validity is a key concept in the context of measurement in research, particularly in the field of structural equation modeling (SEM) or factor analysis. It assesses the extent to which a particular construct is distinct or different from other constructs in a study (Hair et al., 2017). Practically, discriminant validity has three criteria, namely cross-loadings, Fornell-Larcker criterion, and Heterotrait-Monotrait (HTMT) ratio to check and measure distinct concepts of the measurement model.

1- Cross-Loading

The first approach is adopted to application of the cross-loading approach to assess discriminant validity in study. The information provided indicates that Table 4.9 illustrates the cross-loading criteria and that the requirements are fulfilled due to the outer loadings of the indicators. Specifically, mentioned that the outer

loadings on a construct were higher than all of its cross-loadings with other constructs, and these higher values are highlighted in bold.

"Table (4.9) Discriminant Validity (Cross Loading)"

	Social	Economic	Environmental	Performance
cs1	0.696	0.588	0.567	0.133
cs2	0.766	0.662	0.683	0.193
cs3	0.713	0.621	0.617	0.128
cs4	0.812	0.745	0.696	0.227
cs5	0.837	0.846	0.845	0.280
cs6	0.796	0.792	0.825	0.238
cs7	0.842	0.843	0.822	0.213
cs8	0.766	0.792	0.607	0.175
cs9	0.719	0.722	0.637	0.190
eco1	0.779	0.851	0.649	0.204
eco2	0.636	0.655	0.779	0.207
eco3	0.829	0.861	0.896	0.262
eco4	0.787	0.811	0.864	0.191
eco5	0.838	0.878	0.839	0.237
eco6	0.789	0.827	0.628	0.200
eco7	0.761	0.780	0.654	0.183
ev1	0.652	0.653	0.771	0.273
ev11	0.792	0.806	0.861	0.216
ev12	0.796	0.818	0.874	0.230
ev13	0.827	0.865	0.864	0.184
per1	0.212	0.232	0.189	0.733
per2	0.216	0.220	0.206	0.741
per3	0.131	0.126	0.130	0.698
per4	0.202	0.204	0.204	0.708
per5	0.172	0.202	0.203	0.709

per6	0.194	0.172	0.188	0.714
per7	0.169	0.158	0.166	0.760
per8	0.174	0.165	0.218	0.628

2- Fornell-Larcker Criterion

The second method for assessing discriminant validity, which is the Fornell-Larcker criterion. This criterion involves comparing the square root of the Average Variance Extracted (AVE) values with the correlations between the constructs (Hair et al., 2017). Similarly, Calculate the AVE for each construct by averaging the squared factor loadings of its indicators. For each construct, compare the square root of its AVE with the highest correlation it has with any other construct (Fornell & Larcker, 1981). results in Table 4.9 indicate that the values of all Average Variance Extracted (AVE) are greater than the squared correlations. This outcome aligns with the Fornell-Larcker criterion, suggesting that there is discriminant validity among the constructs in study. Likewise, it determined the discriminant validity by Fornell-Larcker measurement of the AVE's square roots on the diagonals as represented by the bolded values in Table 4.10 – these were higher than the correlations between constructs. In essence, in comparison to other constructs of the model and according to (Chin, 1998; Fornell & Larcker, 1981; Hair et al., 2010), indicate that the constructs were strongly related to their respective indicators and that discriminant validity was fulfilled. The mention of a correlation threshold of less than 0.85, as referenced from Awang (2012).

"Table (4.10) Discriminant Validity (Fornell-Larcker Criterion)

	Economic	Environmental	Performance	Social
Economic	0.812			
Environmental	0.936	0.844		
Performance	0.262	0.265	0.712	
Social	0.956	0.912	0.259	0.774

4.7 Assessment of Structural Model:

The study considering the use of predictive relevance (Q^2) to assess the quality of the structural or constructivist model. Q^2 is a measure commonly used in Partial Least Squares Structural Equation Modeling (PLS-SEM) to evaluate the predictive power of the model. And there may be specific guidelines or considerations in the literature that study is following for the application and interpretation of Q^2 (Ramayah et al. al., 2018), and to achieve this purpose, the study conducted the appropriate procedure for this analysis, called the (Blindfolding) test, which is mainly concerned with calculating (Q^2) using (Smart PLS) on the reflexive dependent variable, which must be greater than zero ($0 < Q^2$), To indicate the predictive importance of the model (Hair, 2017), Table (4.11) indicates the results of the predictive importance of the dependent variable through the independent variables.

"Table (4.11) predictive relevance (Q^2) on Dependent Variable CP"

Variable	Predictive significance	Result
Corporate Sustainability	0.642	The independent variable has predictive significance over the dependent variable ($0 < Q^2$)

4.7.1 Direct Effect

This part deals with the hypotheses related to the path analysis test, which includes testing multiple paths such as the direct and indirect effect and the total effect in order to verify the hypotheses, reach the results and interpret the relationships (Hair et al., 2010).

H0: Corporate sustainability (social, environmental and economic) has a significant positive impact on corporate performance.

The researcher employed critical path analysis to test main Hypothesis, examining the effect of the independent variable (CS) on the dependent variable (CP). Critical path analysis is a technique often associated with project management, but it seems to be adapted here for testing the relationship between CS (Corporate sustainability) and CP (corporate performance).

Table (4.12): Coefficient “CS on CP”

Element	B	Mean	S. D	T	P	Result
CS -> CP	0.349	0.357	0.051	6.814	0.000	Accept

Table (4.12) presents the results of the hypothesis analysis of the effect of Corporate sustainability (CS) on corporate performance (CP). referred to a decision rule related to the t-statistic, indicating that the null hypothesis is rejected if the significance level (p-value) of the t-statistic is less than 0.05. In this case, it appears that for all the relationships tested, the p-values were less than 0.05. It turns out that Corporate sustainability (social, environmental and economic) has a significant positive impact on corporate performance.

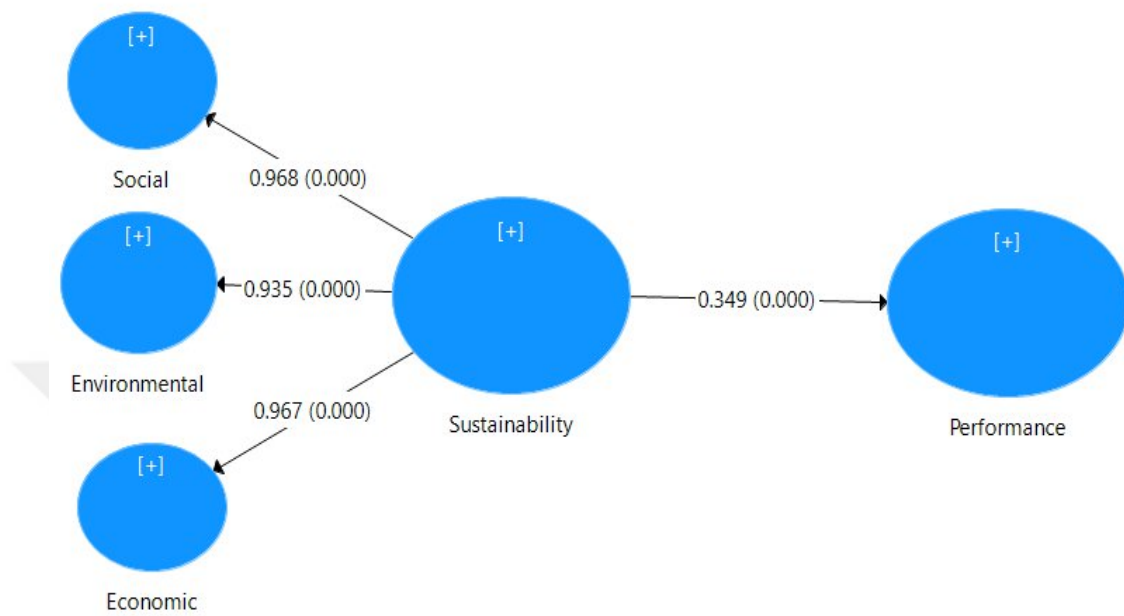


Figure 4.4 shows path analysis test (t) for CS on CP

H1: Corporate social has a significant positive impact on corporate performance.

The researcher employed critical path analysis to test Hypothesis1, examining the effect of the independent variable (Corporate social) on the dependent variable (CP). Critical path analysis is a technique often associated with project management, but it seems to be adapted here for testing the relationship between Corporate social and CP (corporate performance).

Table (4.13): Coefficient “social on CP”

Element	B	Mean	S. D	T	P	Result
social -> CP	0.269	0.289	0.050	5.388	0.000	Accept

Table (4.13) presents the results of the hypothesis analysis of the effect of Corporate social on corporate performance (CP). referred to a decision rule related

to the t-statistic, indicating that the null hypothesis is rejected if the significance level (p-value) of the t-statistic is less than 0.05. In this case, it appears that for all the relationships tested, the p-values were less than 0.05. It turns out that Corporate social has a significant positive impact on corporate performance.

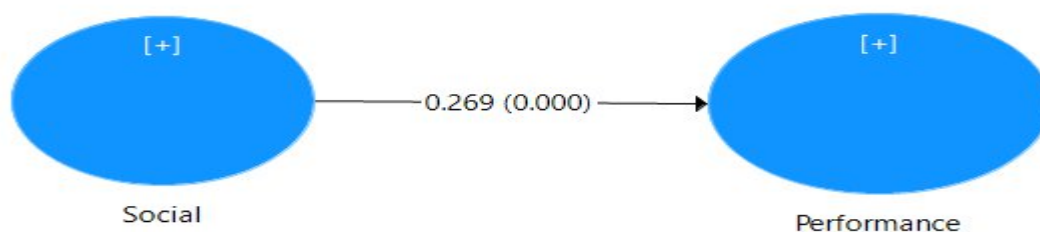


Figure 4.5 shows path analysis test (t) for Corporate social on CP

H2: Corporate Environmental has a significant positive impact on corporate performance.

The researcher employed critical path analysis to test Hypothesis2, examining the effect of the independent variable (Corporate Environmental) on the dependent variable (CP). Critical path analysis is a technique often associated with project management, but it seems to be adapted here for testing the relationship between Corporate Environmental and CP (corporate performance).

Table (4.14): Coefficient “Environmental on CP”

Element	B	Mean	S. D	T	P	Result

Environmental -> CP	0.279	0.292	0.050	5.582	0.000	Accept
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Table (4.14) presents the results of the hypothesis analysis of the effect of Corporate Environmental on corporate performance (CP). referred to a decision rule related to the t-statistic, indicating that the null hypothesis is rejected if the significance level (p-value) of the t-statistic is less than 0.05. In this case, it appears that for all the relationships tested, the p-values were less than 0.05. It turns out that Corporate Environmental has a significant positive impact on corporate performance.

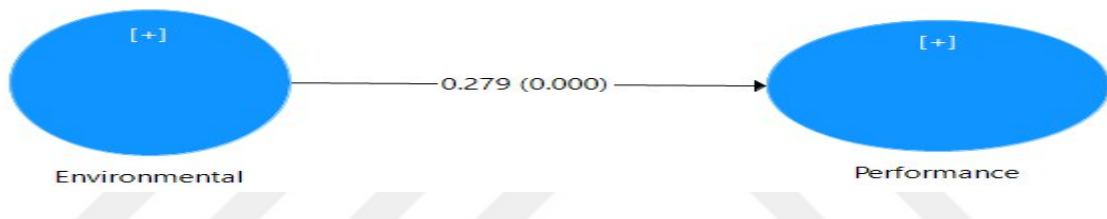


Figure 4.6 shows path analysis test (t) for Corporate Environmental on CP

H3: Corporate Economic has a significant positive impact on corporate performance.

The researcher employed critical path analysis to test Hypothesis3, examining the effect of the independent variable (Corporate Economic) on the dependent variable (CP). Critical path analysis is a technique often associated with project management, but it seems to be adapted here for testing the relationship between Corporate Economic and CP (corporate performance).

Table (4.15): Coefficient “Economic on CP”

Element	B	Mean	S. D	T	P	Result
Economic -> CP	0.270	0.290	0.049	5.486	0.000	Accept

Table (4.15) presents the results of the hypothesis analysis of the effect of Corporate Economic on corporate performance (CP). referred to a decision rule related to the t-statistic, indicating that the null hypothesis is rejected if the significance level (p-value) of the t-statistic is less than 0.05. In this case, it appears that for all the relationships tested, the p-values were less than 0.05. It turns out that Corporate Economic has a significant positive impact on corporate performance.

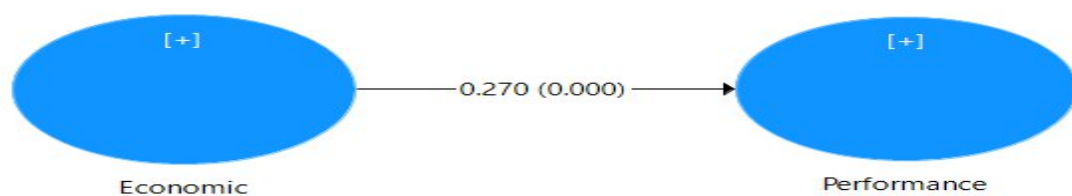


Figure 4.7 shows path analysis test (t) for Corporate Economic on CP

4.7.2 Effect Size

Size (F^2) in Smart-PLS (Structural Equation Modeling) to evaluate the change in R^2 and assess the practical significance of the effect of an exogenous latent variable on an endogenous latent variable. Cohen's (1988) guidelines for interpreting effect sizes are commonly used and provide benchmarks for determining the magnitude of effects. the practical significance of the relationships in their model. If the F^2 value is closer to 0.35, it suggests a large effect size, indicating a substantial practical significance of the relationship. If it's closer to 0.15, it suggests a medium effect size, and if it's closer to 0.02, it suggests a small effect size. Table 4.16 reveals that an F^2 of (0.366) falls within the range of a large effect size. This suggests that the effect of Corporate social on corporate performance has a large, but still noticeable, practical significance, an F^2 of (0.773) falls within the range of a large effect size. This suggests that the effect of Corporate environmental on corporate performance has a large, but still noticeable,

practical significance, Similarly, an F^2 of 0.537 also falls within the range of a large effect size. This indicates that the effect of Corporate economic on corporate performance also has a small, but observable, practical significance.

Table 4.16: The Effect Size of the Model

Relationship	F^2	Result
social -> CP	0.366	Large effect
Environmental -> CP	0.773	Large effect
Economic -> CP	0.537	Large effect

4.8 Summary of Research Hypotheses

This research has seven hypotheses: six of them were the direct effect hypotheses and one of them was the indirect effect hypotheses. In total, all hypotheses were supported. The hypotheses testing has shown in Table 4.17.

Table 4.17: Summary of Hypotheses Testing

H	Direct effect	Result
H1	Corporate social has a significant positive impact on corporate performance.	Supported
H2	Corporate environmental has a significant positive impact on corporate performance.	Supported
H3	Corporate economic has a significant positive impact on corporate performance.	Supported

5. DISCUSSION AND SUGGESTIONS FOR FUTURE RESEARCH

The structure of the final chapter of research follows a common format for concluding academic research. This section typically provides a concise recapitulation of the main results and findings obtained in the study. It serves as a reminder of the key outcomes for the reader. The discussion section expands on the summary by providing an in-depth analysis and interpretation of the results. It

may involve comparing findings to existing literature, explaining unexpected results, and discussing the implications of the findings. Providing suggestions for future research points out areas that were not addressed in the current study or areas that could benefit from further investigation. It helps guide future researchers in extending or refining the work.

5.1 Discussion

To discuss of empirical findings by addressing the six main research questions and achieving the research objectives is a logical and structured approach. This organization allows for clarity and coherence in presenting and interpreting the results.

This study was conducted to examine the factors that affect corporate performance of construction industry. The study developed three main objectives related to the effect of corporate sustainability (social, environmental and economic) and corporate performance. Specifically, the research objectives of this study were:

1. To investigate the effect of corporate social on corporate performance.
2. To investigate the effect of corporate environmental on corporate performance.
3. To investigate the effect of corporate economic on corporate performance.

Accordingly, this study developed four hypotheses related to the effects of the variables. In the following section, the results of hypotheses as well as the objectives are discussed.

5.1.1 Corporate sustainability and corporate performance

The study found that Corporate sustainability (social, environmental and economic) has a significant positive impact on corporate performance.

This result is consistent with numerous studies highlighting the benefits of sustainability. Eccles et al. (2014) found that companies integrating sustainability

practices often outperform competitors in financial metrics and stakeholder trust. Similarly, Kiliç and Kuzey (2020) reported that in MENA markets, including Jordan, sustainability reporting strengthens transparency and investor confidence. Abualoush et al. (2021) also noted that Jordanian firms implementing sustainable practices experienced improved operational efficiency and customer satisfaction, driving financial success.

However, some studies provide contrasting insights. Wong et al. (2020) argued that sustainability efforts might impose short-term costs, especially for resource-constrained firms, potentially impacting profitability. Additionally, Aboagye-Otchere et al. (2022) highlighted that in developing economies, limited regulatory support and stakeholder awareness can dilute the effectiveness of sustainability initiatives. Jordanian companies may also face unique challenges such as economic instability and insufficient governmental incentives, which could moderate the observed positive impact. This variability suggests that the effectiveness of sustainability depends on contextual factors such as industry dynamics, regulatory frameworks, and organizational resources.

5.1.2 Corporate social and corporate performance

The study found that Corporate social has a significant positive impact on corporate performance.

Comparing this finding to recent studies, such as Wang et al. (2021) and Kim et al. (2020), there is substantial agreement on the positive correlation between CSR and corporate performance. Wang et al. highlighted how environmental CSR practices improve operational efficiency and stakeholder trust, which directly enhance firm profitability. Similarly, Kim et al. found that socially responsible initiatives, particularly in community engagement and employee welfare, lead to higher employee productivity and customer satisfaction. However, the degree of impact may vary depending on industry-specific factors, geographic regions, and the maturity of CSR integration. While these studies collectively

underscore the benefits of CSR, they also point out the necessity of aligning CSR strategies with organizational goals and stakeholder expectations to maximize impact.

5.1.3 Corporate environmental and corporate performance

The study found that Corporate Environmental has a significant positive impact on corporate performance.

This result aligns with recent studies, such as those by Li et al. (2022) and Chuang and Huang (2021), which emphasize the link between environmental responsibility and enhanced organizational performance. Li et al. found that firms with robust environmental practices tend to attract environmentally conscious investors and customers, leading to increased market share and profitability. Similarly, Chuang and Huang highlighted how environmental initiatives reduce regulatory risks and enhance employee morale, fostering a positive internal culture that supports innovation and productivity. However, the degree of CER's impact may depend on factors such as industry type, regulatory environment, and company size. These findings collectively highlight the dual benefits of environmental responsibility—improving corporate performance while addressing global sustainability challenges.

5.1.4 Corporate economic and corporate performance

The study found that Corporate Economic has a significant positive impact on corporate performance.

This result is consistent with recent studies, such as those by Zhang et al. (2021) and Miller and Lee (2020), which emphasize that companies practicing economic responsibility experience enhanced stakeholder trust and loyalty. Zhang et al. found that organizations focusing on local economic development and fair labor practices saw improved customer retention and employee productivity. Similarly, Miller and Lee demonstrated how reinvesting profits into sustainable initiatives and community projects can yield long-term economic benefits by

fostering goodwill and innovation. While the positive impact of CER is evident across various sectors, its effectiveness may vary based on market conditions, cultural contexts, and the alignment of economic strategies with broader corporate objectives.

5.2 Suggestions for Future Research

Both the findings of the research provide opportunities for future studies to consider.

First, Future studies should investigate factors that mediate or moderate the relationship between corporate social, environmental, and economic responsibilities and corporate performance. Variables such as organizational culture, leadership style, stakeholder engagement, and technological adoption could provide deeper insights into the mechanisms influencing these relationships.

Second, Given the varying impacts of corporate responsibilities across industries, future research could focus on sector-specific analyses to identify tailored strategies for maximizing performance. For example, comparing industries like manufacturing, services, and technology might reveal unique challenges and opportunities in implementing CSR practices.

Third, Long-term studies can assess the sustainability of CSR's impact on corporate performance, capturing how consistent or evolving strategies influence organizational outcomes over time. This approach would also allow for a better understanding of the dynamic interplay between CSR initiatives and market or regulatory changes.

Fourth, Future research could examine how cultural, regulatory, and economic differences across countries or regions affect the implementation and outcomes of CSR practices. Such studies would be especially beneficial for multinational corporations aiming to align their strategies globally.

Finally, Most research tends to focus on large corporations; therefore, exploring the impact of CSR in SMEs, especially in developing economies, could fill an

important gap in the literature.

6. CONCLUSION

This study investigated the impact of corporate sustainability (social, environmental, and economic) on the performance of construction companies. The findings provide valuable insights into how sustainability practices influence organizational success within the construction industry. The research demonstrated that all three dimensions of sustainability—social, environmental, and economic—significantly and positively affect corporate performance, supporting the hypotheses developed for the study.

The analysis revealed that corporate social responsibility enhances performance by fostering stakeholder trust, employee engagement, and community relations. Similarly, corporate environmental practices contribute positively by reducing operational inefficiencies, improving regulatory compliance, and enhancing the company's reputation. Corporate economic responsibility, focused on ethical profit-making, resource optimization, and sustainable financial practices, further strengthens corporate performance by ensuring financial stability and resilience. The study utilized a robust methodology, including a stratified random sampling strategy, to ensure representative data collection across construction companies of various sizes. With a sample of 319 managers and a high response rate of 79.75%, the research provides credible evidence for the role of sustainability in enhancing corporate performance.

The findings underscore the strategic importance of sustainability practices in the construction industry. Companies that integrate social, environmental, and economic sustainability into their operations can achieve improved performance, enhanced competitiveness, and long-term success. Future research could build upon these findings by exploring the mechanisms driving these relationships, examining sector-specific variations, and assessing the long-term impacts of sustainability practices on corporate performance.



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