



**MODERATING ROLE OF CSR STRATEGY AND SUSTAINABILITY
COMMITTEE ON BOARD ATTRIBUTES AND CORPORATE
SUSTAINABILITY PERFORMANCE IN THE ENERGY SECTOR**

By

SYEDA SABA NAZIR GARDAZI

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in
Fulfilment of the Requirements for the Degree of Doctor of Philosophy**

October 2023

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DEDICATION

I would like to dedicate my sincere effort to my beloved parents, Syed Nazir Hussain Shah, and Syeda Kaneza Khatoon. I would also like to extend my gratitude to my siblings, especially Dr Shaheen, who has supported and inspired me throughout my journey. Finally, I would like to express my appreciation to all those who believe in the transformative power of education and the never-ending pursuit of knowledge.



Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

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October 2023

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The 2030 agenda for sustainable development establishes a new global sustainability target, with corporations expected to significantly contribute by implementing sustainable practices. One strategy for engaging corporations in sustainable practice focuses on corporate governance (CG) mechanisms such as the board of directors (BOD). Many corporations have reshaped their corporate strategies and board structure due to environmental deterioration, depletion of natural resources, and societal problems. Based on the premise of strategic choice, agency and resource dependency theories, this study investigates the relationship between the determinants of the BOD attributes and corporate sustainability performance (CSP), with a specific focus on investigating whether the presence of CSR strategy and distinct attributes of standalone board-level corporate sustainability committees strengthens this relationship. The study used Thomson Reuters sustainability performance scores and a sample of 335 energy sector corporations from 44 countries. Utilizing a two-step system generalized method of moment (GMM) estimation, the findings show a positive and significant relationship between CSP and board size, different positions for CEO and chairperson roles, and interlocking directors on board. The findings also show that having more independent directors on a board lowers CSP, while board gender and cultural diversity do not affect CSP. The findings of this study also confirmed that BOD attributes positively affect CSP with the moderating role of CSR strategy. Furthermore, the corporate sustainability committee size and frequency of corporate sustainability committee meetings strengthen the relationship between BOD attributes and CSP in the energy sector. This study adds to the body of knowledge on CG attributes, such as the BOD's role, by explaining how BOD affect the CSP of the energy sector. The implications of these findings to policymakers on the energy sector corporations are not limited to improving CSP via formulating and implementing specific CG strategies and policies that are beneficial but also provide explicit information on how corporate energy sectors may adopt sustainable projects and appropriate governance structure to solve social and environmental issues.

Keyword: Corporate Sustainability Performance, Board Attributes, CSR Strategy, Sustainability Committee Attributes, Energy sector

SDG: GOAL 5: Gender Equality; GOAL 7: Affordable and Clean Energy; GOAL 8: Decent Work and Economic Growth; GOAL 13: Climate Action



Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

**PERANAN PENYEDERHANAAN JAWATANKUASA STRATEGI CSR DAN
KEMAMPAHAN MENGENAI ATRIBUT LEMBAGA DAN PRESTASI
KEMAMPAHAN KORPORAT DALAM SEKTOR TENAGA**

Oleh

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Agenda pembangunan mampan 2030 telah menyasarkan syarikat global menyumbang dengan ketara melalui pelaksanaan amalan mampan baharu. Salah satu strategi untuk melibatkan syarikat dalam amalan mampan tertumpu kepada mekanisme tadbir urus korporat (CG) iaitu lembaga pengarah (BODs). Banyak syarikat telah membentuk semula strategi korporat dan struktur lembaga mereka disebabkan oleh kemerosotan alam sekitar, kehabisan sumber asli dan masalah masyarakat. Berdasarkan premis pemilihan strategik, agensi dan teori pergantungan sumber, kajian ini mengkaji hubungan antara penentu sifat lembaga pengarah dan prestasi kemampanan korporat (CSP). Hubungan ini dilihat sama ada ia diperkukuh oleh strategi CSR dan lembaga peringkat korporat itu sendiri. Berdasarkan skor prestasi kemampanan Thomson Reuters dan 335 sampel sektor syarikat tenaga dari 44 negara, pengkaji menggunakan anggaran kaedah momen umum sistem dua langkah (GMM). Penemuan menunjukkan hubungan yang signifikan antara CSP dan saiz lembaga, kedudukan yang berbeza untuk Peranan Ketua Pegawai Eksekutif dan pengerusi, dan pengarah yang saling berkaitan. Penemuan juga menunjukkan bahawa ramainya pengarah bebas dalam lembaga akan merendahkan CSP, manakala jantina lembaga dan kepelbagaian budaya tidak menjejaskan CSP. Dapatan kajian ini mengesahkan bahawa atribut BODs memberi kesan positif kepada CSP dengan peranan penyederhanaan strategi CSR. Selain itu, saiz jawatankuasa kemampanan korporat dan kekerapan mesyuarat jawatankuasa kemampanan korporat mengukuhkan hubungan antara atribut BODs dan CSP dalam sektor tenaga. Kajian ini memberi implikasi terhadap penggubal dasar bahawa syarikat sektor tenaga tidak terhad kepada penambahbaikan CSP melalui penggubalan dan pelaksanaan strategi dan dasar CG tertentu, namun memberikan maklumat yang jelas tentang bagaimana sektor tenaga korporat boleh menerima pakai projek yang mampan dan struktur tadbir urus yang sesuai untuk menyelesaikan isu sosial dan alam sekitar.

Kata Kunci: Prestasi kemampuan korporat, Pengurusan nilai, Tanggungjawab sosial korporat (CSR), Tadbir urus kelestarian, sektor tenaga

SDG: Matlamat 5: Kesamarataan Jantina; Matlamat 7: Tenaga berpatutan dan Bersih; Matlamat 8: Kerja dan Pertumbuhan ekonomi yang baik; Matlamat 13: Kecekapan tenaga



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LIST OF ABBREVIATIONS

(%)	Percentage
ADNOC Takreer Refinery	Abu Dhabi National Oil Company
BCD	Board Cultural Diversity
BGEND	Board Gender Diversity
BI	Board Independence
BOD	Board of Directors
BS	Board Size
CDP	Carbon Disclosure Project
CEO	Chief Executive Officer
CEOD	Chief Executive Officer Duality
CEP	Corporate Environmental Performance
CFP	Corporate Financial Performance
CG	Corporate Governance
CO ₂	Carbon dioxide
CR	Corporate Reputation
CS	Corporate Sustainability
CSP	Corporate Sustainability Performance
CSR	Corporate Social Responsibility
CSRS	Corporate Social Responsibility Strategy
Cum	Cumulative Percentage
DI	Directors Interlocks
EM	Environmental Management
ESG	Environmental, Social and Governance

FE	Fixed effect model
Freq	Frequency
FV	Firm Value
GHGs	Green House Gases
GMM	Two-step System Generalised Method of Moments
GRI	Global Reporting Initiative
HLSF	Harvard Law School Forum
IEA	International Energy Agency
ISO	International Organization of Standardization
KPMG's	Klynveld Peat Marwick Goerdeler
LEV	Leverage
LFS	Firm Size
PA	Performance Assessment
PE	Performance Evaluation
POLS	Pooled ordinary least square
RE	Random effect model
SCM	Frequency of Corporate sustainability committee meetings
SCS	Corporate sustainability committee Size
SDGs	Sustainable Development Goals
TBL	Triple Bottom Line
UK	United Kingdom
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate change

USA	Unites States of America
USEIA	United State Energy Information Administration
WCED	World Commission of Environmental Development
WHO	World Health Organizations



CHAPTER 1

INTRODUCTION

1.1 Background of the Study

The issue of corporate sustainability performance (CSP) has become increasingly significant on a global scale as the effects of climate change and environmental degradation become more evident. This has sparked considerable discussion among businesses, regulators, and academics due to the public's growing interest in the issue. Sustainable development is a term that has been defined in numerous ways. Still the most known definition comes from the World Commission of Environment and Development WCED (1988), which defines it as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The relationship between sustainable development and corporate activities is commonly referred to as corporate sustainability (Lourenco et al., 2012).

Sustainable development has become more crucial on a global scale due to the international megatrends of increased population, depletion of natural resources, and global warming. The United Nations' establishment of the sustainable development goals (SDGs) in 2015 has further emphasised the significance of sustainable development in today's world. This global initiative calls equally upon government, civil society, and business actors to pursue a more sustainable path to achieve 17 SDGs and 169 targets for sustainable development.

Furthermore, global corporations are also being urged to integrate the SDGs into their business models, consumption and production strategies that promote sustainability to meet the goals of the 2030 agenda for sustainable development. The general public, corporate sector, and community are now more engaged in the concerns of climate change mitigation and sustainability in order to accomplish the 2030 Agenda for sustainable development.

Particularly, sustainability is a crucial challenge for the corporate sector for sustainable growth and competitive advantage and corporations are focusing on integrating sustainability efforts into their operations in response to stakeholder demand because doing so strengthens the alignment of their vision, mission, goals and practices in a way that will enable them to achieve sustainable growth. For example, according to McKinsey (2020), around 60% of corporations already implementing sustainability practices in their business model, became more curious about their corporate social and environmental performance to gain a competitive advantage. A more recent global yearly survey by HSBC (2020) revealed many opportunities for businesses to adopt sustainability into their business model. According to the survey, most corporations estimated adopting sustainability will increase sales by up to 86%, and about 28% expect sales growth to improve by 5% to 10% over the next year. Additionally, most businesses feel that sustainability will help attract investment. Thus, integrating corporate

sustainability initiatives into business models and strategies is crucial for all industries but critical for the energy sector.

The energy sector, which serves as the industrial economy's core, is crucial to the longevity of many other sectors (Gillingham et al., 2020). On the one hand, the energy sector uses a lot of electricity and fossil fuels, but on the other hand, many downstream sectors, including those in construction, agriculture, electronics, cosmetics, textiles and among others, rely heavily on the products of the energy sector as their feedstock. To achieve sustainable energy production on a global scale, it is essential to support the energy sector's sustainable operations because constant increase in GHG emissions is one of the biggest risks to society. Irrespective of the widespread understanding that GHG emissions should be eradicated by 2050 in order to fulfil the Paris Agreement and keep temperature rise worldwide to a minimum of 2 °C (UNFCCC, 2015), the burning of fossil fuels is rising across all energy sectors (IEA, 2019). Even a 2°C goal could go beyond reach because big countries are not meeting their GHG reduction targets, which has severely complicated the situation. In various locations around the globe, there is increasing evidence of significant impacts of climate change, such as temperature deviations (Schellnhuber et al., 2016), imploding marine and terrestrial ecosystems (Hughes et al., 2018), and anomalous monsoons. This process is expected to continue if instant and appropriate action is not taken (Hickman et al., 2021), and it is anticipated to speed up over time. In order to achieve the common aims of lowering GHG emissions, combating climate change, and preserving social and environmental well-being, more effective action from all countries, communities, corporate sectors and institutions is required.

The current study focuses mainly on CSP in the energy sector because the energy sector operations and activities are primary sources of GHG emissions, which are significantly responsible for global warming and climate change (Mezher et al., 2010). The energy sector's environmental and social effects increase with the increasing demand for global energy which harms the environment and people, with about 60% of GHG emissions being generated by activities of oil and gas corporations (Bishoge et al., 2019). Global, sector-wise, anthropogenic GHG emissions in 2016 are shown in Figure 1.1.

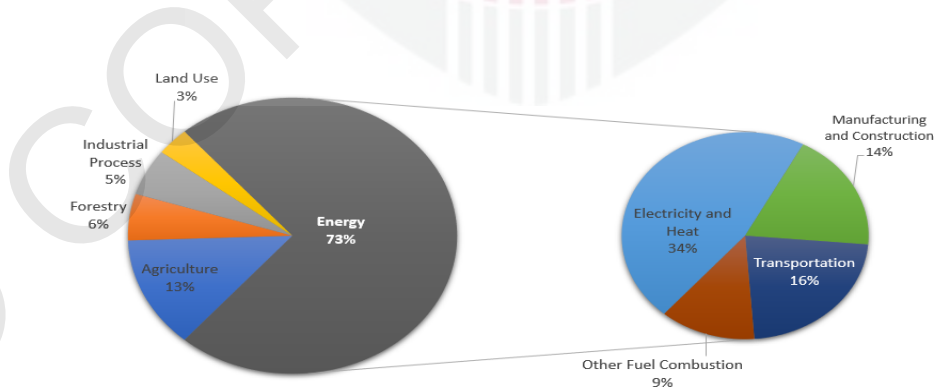


Figure 1.1: A sector-wise global human-made greenhouse gas emission in 2016
(Source: ClimateWatch, 2020)

It is important to recognise that the greatest source of GHG emissions worldwide is energy consumption, accounting for 73% of total GHG emissions.¹ Therefore, clean, efficient, and affordable energy services play a significant role in promoting sustainable economic growth (Sathya et al., 2023).

Furthermore, the Indigenous Rights Risk Report has drawn attention to concerns regarding the social sustainability performance of energy sector (Lempinen et al., 2019). This report discloses alarming patterns in the ethics and social responsibility of energy sector corporations in the US. The findings reveal a notable deficiency in the dedication to safeguarding the interests of communities affected by development initiatives: a mere 6% of publicly traded oil and gas corporations said to employ adequate risk management protocols. This highlights a lack of efficacy in the implementation of measures that identify and reduce potential dangers (Cheney, 2015).

In addition, it is worth noting that only 8% of oil and gas corporations have adopted policies pertaining to human rights and community relations, highlighting the absence of well-established approaches to community engagement and human rights protection. The aforementioned results emphasise the critical nature of heightened corporate accountability and the expeditious implementation of more stringent measures to safeguard indigenous rights and community well-being.

Moreover, the economic viability of energy sector depends on their commitment to incorporating sustainable practices into their operations. The absence of prioritizing sustainability can result in significant financial consequences, as evidenced by prominent occurrences like the BP Deepwater Horizon oil leak and the Exxon Valdez oil spill (Murawski et al., 2023). These calamities led to substantial financial damages, encompassing expenses for cleaning up, compensating affected parties, resolving legal matters, and tarnishing the reputation. The Volkswagen emissions scandal and PG&E's role in California wildfires serve as recent instances that emphasize the financial perils linked to environmental irresponsibility, thereby emphasizing the significance of proactive sustainability endeavours to alleviate such risk (Pettus, 2021).

In addition, the rigorous implementation of environmental restrictions by governments and regulatory agencies presents additional economic difficulties for energy corporations that neglect sustainability criteria. Environmental infractions can result in substantial financial penalties and harm a corporate brand, leading to negative impacts on its market standing and investor trust (Jin et al., 2020).

In this respect, energy companies are expected to support environmental sustainability by improving efficiency, air quality, investing in renewable energies, addressing climate change, protecting biodiversity, and reducing carbon emissions (Gasparatos et al., 2017).

¹ The top energy sectors responsible for these emissions are electricity and heat (34%), transportation (16%), and industrial manufacturing processes (14%). Other sectors contributing to GHG emissions include agriculture (13%), deforestation (6%), and other land use, such as wastes and landfills (3%).

Likewise, they are expected to contribute to social sustainability by certifying healthy workplaces, protecting employee and customer rights, and implementing fair wage policies (Lambrechts et al., 2019). Despite these expectations, the implementation of sustainable business practices in the energy industry is often hindered by a number of internal and external factors. For instance, internal factors, including board composition, board ownership, and board activity, are pivotal in bolstering CSP. However, this study is particularly focused on examining internal corporate factors, notably governance mechanisms such as the Board of Directors (BODs), CSR strategy, and attributes of corporate sustainability committees. The selection of these variables is justified by their critical roles in shaping internal corporate governance and, consequently, influencing CSP. The BODs contribute to strategic decision-making, CSR strategy guides the corporate approach to social responsibility, and attributes of corporate sustainability committees provide insight into the corporate commitment to sustainable practices. By focusing on these internal factors, the study aims to understand how governance mechanisms within the corporation impact its ability to implement and enhance sustainable business practices.

A thorough investigation of these factors can provide more insight into their impact on CSP in the energy sector. Thus, this study considers BOD attributes such as board size, board independence, separate positions for CEO and chairperson roles, interlocking directorship, and gender and cultural diversity as independent variables representing board attributes. The selection of board attributes of relevance is due to the importance placed on these variables to improve the CSP.

Furthermore, it explores the crucial significance of CSR strategy in promoting sustainable practices and strengthening business reputation. CSR strategy has a vital role in moderating the relationship between BOD attributes and CSP. Implementing a CSR strategy promotes sustainable business practices, enhances corporate reputation, and fosters trust and loyalty, leading to tangible financial advantages. It aids corporations in promoting ethical practices, minimizing environmental footprint, supporting social equality, and helping local communities. Implementing this strategic approach is essential for achieving sustainable development by aligning, social, and environmental goals, benefiting both the corporation and society. The study also examines how the attributes of corporate sustainability committees influence the connection between BOD attributes and CSP. Sustainability committees are crucial for supervising sustainability projects and ensuring they are in line with the overall corporate strategy. By doing this, they play a crucial role in incorporating sustainability practices into corporate operations, which ultimately promotes long-term success. These committees are actively involved in supervising and working together with management to address difficulties like risk management and compliance. The following section is devoted to clarifying the motivating factors for this study.

1.2 Motivation of the Study

When we examine sustainable business practices, it is clear that both human activity and corporate operations contribute significantly to global issues like climate change, environmental degradation, pollution, greenhouse gas emissions, and global warming.

To address these challenges, it's crucial for corporations to integrate sustainable practices into their business models. This study is inspired by global reports and surveys that highlight the impact of human activities and corporate operations on climate change, pollution, and related issues. The goal is to promote sustainability practices in corporate business models by protecting the natural environment and promoting social well-being, with the promise of positive returns.

Pollution is a significant environmental factor that affects human life and well-being. In 2015 alone, pollution was responsible for 9 million premature deaths, which accounted for 16% of all global fatalities (Roy, 2017). Land degradation is another consequence of pollution, which results in 29% of annual welfare losses amounting to \$4.6 trillion, impacting the livelihoods of 1.3-3.2 billion people (Landrigan et al., 2018). Additionally, 2.8 million individuals depend on unclean biomass for their sustenance (Baker et al., 2019).

Incorporating sustainability into business models is essential, especially with regard to climate change caused by greenhouse gas (GHG) emissions. In 2019, the global average temperature exceeded the twentieth-century average, making it the second-hottest year on record (Dahlman, 2020). Climate change has a negative impact on natural habitats and species, potentially leading to the disappearance of 30% to 50% of marine species by the end of this century (Center for biological diversity 2014). The excessive burning of fossil fuels, which has led to a 41% increase in annual GHG emissions since 1990, has resulted in global warming, acid rain, and compromised air quality (Michaelides, 2018). It is therefore crucial to understand corporations' perspectives on the necessity of corporate sustainability performance to proactively address environmental and social challenges in the energy sector.

This study is motivated by global sustainability surveys that seek to integrate sustainability practices into business models and strategies. According to a 2021 Deloitte Global survey, over 80% of chief executive officers express concerns about climate change, but significant initiatives have been hindered by the pandemic and economic downturn (Deloitte, 2021). However, despite CEOs' concern about climate change, more than 30% of executives acknowledge resource constraints and operational impacts from climate-related disasters. Similarly, a 2017 Boston Consulting Group survey shows that while 90% of CEOs view sustainability as crucial for sustainable performance, only 60% of corporations had a sustainability strategy, and only 25% incorporated sustainability into their business models (Unruh et al., 2016). Furthermore, KPMG's 2017 Survey of Corporate Responsibility Reporting indicates that only a fraction of the 4,900 corporations in 49 countries and regions disclosed overall corporate responsibility and sustainability performance (KPMG, 2017). These surveys collectively highlight that a significant proportion of corporations have yet to fully integrate sustainability into their business models.

1.3 Statement of Problem

The importance of CSP has become a crucial issue in the current corporate world, driven by a growing recognition of the significant impact of protecting the environment, human health, and social well-being. The need for sustainability arises from multiple sources, such as the pursuit of SDGs, globalization, technological progress, and increased competitiveness in the consumer market. Although CSP is a universal challenge across industries, the energy sector faces unique obstacles in implementing robust sustainability initiatives, given its exploration and production activities in challenging environments and its substantial contribution to GHG emissions. The UN Emission Gap Report 2020, underscoring that the energy sector was responsible for 37% of total emissions, highlights the pressing need for the industry to prioritize sustainability initiatives. Major countries, such as China, the United States, the European Union (EU27), India, Russia, and Japan², are urged to implement resolute measures to decrease carbon dioxide (CO₂) emissions from fossil fuels. Oil and gas corporations, specifically ExxonMobil, Chevron, BP, and Shell, are responsible for a significant 70% of greenhouse gas emissions in the last thirty years (Herzog-Hawelka et al., 2023). Hence, the significant increase in greenhouse gas emissions is a crucial matter that requires urgent consideration in the energy sector.

As corporations in the energy industry grapple with the imperative to align their strategies with stringent sustainability standards, the need to integrate environmentally and socially friendly practices into daily operations becomes increasingly apparent. The urgency is undeniable and aligning corporate strategies with sustainability standards is not just a matter of compliance, it is paramount to address the critical environmental and social issues associated with GHG emissions (Baldini et al., 2018; Liu et al., 2019). Recent concerns over the environmental and societal effects of the energy sector have escalated, especially considering the predicted rise in global energy consumption. The worldwide energy crisis triggered by Russia's invasion of Ukraine has added a layer of historical depth and complexity to the challenges faced by households, businesses, and entire economies. This crisis underscore the critical importance of reliable, clean, and affordable energy services for the long-term prosperity of economies³ (Hepburn et al., 2021).

The effectiveness of corporate sustainability efforts depends on corporate board. BODs lacking sustainability awareness, diversity, and competency, makes it difficult to guide and incorporate sustainability activities into corporate strategy. The gap between corporate claims of environmental and social consciousness and actual implementation is mostly due to BOD limited engagement in rigorous sustainability strategy design (Forbes, 2021). Furthermore, despite the presence of ISO 26000 International Standard,

² All six countries increased their fossil CO₂ emissions in 2021 compared to 2020, with India and Russia experiencing the biggest percentage increases (10.5% and 8.1%, respectively) (European Commission. Joint Research Centre., 2022)

³ Surge in energy prices, with natural gas purchases exceeding \$250 per barrel of oil, and coal and oil prices reaching \$100 per barrel in mid-2022 before a subsequent decline. Natural gas and coal, accounting for 90% of global energy price increases. To uphold consumers from energy shortages and high prices, governments have invested over \$500 billion, primarily in developed economies (IEA, 2022)

corporations struggle to invest in CSP (Marti et al., 2015). In this respect, corporate leaders worldwide care about sustainability, but resource restrictions prevent them from adopting sustainability standards (Deloitte, 2021). Moreover, Forbes found that 90% of CEOs recognize importance of sustainability strategies and policies, but only 60% have a sustainability plan and 25% successfully integrate it into their business models due to resource constraints (Forbes, 2021).

The repercussions of this shortfall are evident in substantial losses incurred by corporations, for instance the 2010 Gulf Coast Macondo Blowout highlighted the lack of sustainable practices costing US\$65 billion (Acheampong et al., 2022). This pattern of corporate failure is further exemplified by incidents like the ADNOC Takreer Refinery fire in 2017 (\$1 billion loss) (Mazrouei et al., 2020), and the recent BP refinery explosion in 2022, leading to fatalities and extensive property damage (NCB, 2022). This highlights the urgent need to examine CSP issues in the energy sector (Pfajfar et al., 2022).

The strategic use of CSR strategy by corporations aims to shape a perception of environmental and social responsibility, establishing credibility with stakeholders (Khuong et al., 2021). However, some firms engage in surface-level environmental and social efforts for publicity, their proclaimed commitments. For instance, major energy corporations like ExxonMobil, Chevron, Shell, and BP use CSR to explain environmental and social violations (Bagheri, 2023). Also, Shell faced accusations of misrepresenting its green projects to authorities in 2023⁴ (Chan et al., 2023), with the 2021 annual report revealing a discrepancy as it allocated 12% of capital expenditure to renewable solutions, while in reality only 1.5% of this allocated budget spent on renewable projects (Oseme, 2023). This mismatch casts doubt on the corporations' environmental and social sustainability efforts and emphasizes the necessity of integrity and openness in CSR initiatives to maintain public trust. Therefore, CSR activities must be legitimate to solve sustainability issues while helping corporations achieve their long-term goals (Elalfy et al., 2020). For example, Post et al. (2015) observed that strategic sustainability action leads to higher environmental awareness and performance of oil and gas corporations in the USA. Similarly, Shaukat et al. (2016) found that comprehensive CSR plans improve CSP. Despite the competitive advantage of CSR strategy, corporations are reluctant to adopt practical CSR due to inadequate managerial cooperation. In this respect, Rangan et al. (2015) identifies CEO planning is lacking in CSR initiatives. Therefore, adopting corporate's proactive CSR strategy is a viable sustainability solution.

Additionally, one of the critical roles played by the corporate sustainability committee is moderating between the BODs attributes and CSP. Since, board-level sustainability committees are not required under existing corporate governance, most corporations do not have them on corporate board (Ludwig et al., 2022). In this context, a 2017 Harvard Law School Forum on Corporate Governance survey found that just 10% of publicly

⁴ A legislative probe in the US revealed that oil and gas leaders just lip serviced the Paris Agreement despite their international obligations.

listed US companies have a corporate sustainability committee that improves CSP⁵. This committee is a viable solution for corporations to handle sustainability risks and opportunities (Zhang, 2017).

Several studies have linked BODs attributes to CSP. Corporate boards influence legislation, CSR programs, and sustainability committees due to their direct relationship with CSP. In past studies, BOD attributes have been linked to financial performance, CSR reporting, sustainability disclosure, CSR committee attributes, but few studies have examined their relationships with CSP (Tjahjadi et al., 2021; Zaid et al., 2020), leading to conflicting results. Although CSR initiatives have been extensively studied for their effects on sustainable corporate development and financial performance, the moderating role of CSR strategy in CSP has been overlooked, potentially jeopardizing future competitive advantage and corporate growth. While CSR committee attributes have been thoroughly studied in corporate reporting and disclosure, the role of the corporate sustainability committee attributes in CSP has not been studied, exposing a huge study gap. To fill this gap, this study examines how CSR strategy and corporate sustainability committee attributes moderate BOD attributes and CSP in the energy sector.

1.4 Research Questions

This study's main question is, "What factors would encourage corporate governance attributes such as the BODs attributes in achieving CSP among the energy sector?". Specifically, the research questions of the study are:

1. Is there a significant relationship between the BODs attributes and CSP in the energy sector?
2. Does the corporate social responsibility (CSR) strategy's moderating effect strengthen the relationship between the BODs attributes and CSP in the energy sector?
3. Does the moderating effect of the corporate Sustainability Committee Attributes strengthen the relationship between BODs attributes and CSP in the energy sector?

1.5 Research Objectives

This study aims to understand the factors that encourage corporate governance attributes, such as the BOD attributes, to achieve CSP in the energy sector. Specifically, to answer the questions mentioned above, this study has developed the following objectives:

⁵ Another interesting finding from this survey was that just 12 companies (or around 42% of all companies) have a formal board committee to manage sustainability issues 2 (HLSF, 2017).

1. To investigate the relationship between the BOD attributes and CSP in the energy sector.
2. To examine the moderating effect of corporate social responsibility (CSR) strategy in strengthening the relationship between the BOD attributes and CSP in the energy sector.
3. To examine the moderating effect of corporate Sustainability Committee Attributes in strengthening the relationship between the BOD attributes and CSP in the energy sector.

1.6 Significance of the Study

The significance of this study rests in its attempt to tackle the crucial problem of CSP in the energy sector, which is filled with distinct obstacles that hinder the successful execution of comprehensive sustainability initiatives. Recognizing the significant role of the sector in generating GHGs emissions, as emphasized in the latest UN Emission Gap Report, the study highlights the immediate need for the sector to prioritize sustainability efforts. The increasing levels of GHGs emissions, primarily driven by major oil and gas corporations, emphasize the crucial role these entities have in implementing environmentally and socially acceptable policies. The study aims to address pressing environmental and social challenges intertwined with GHG emissions.

This study addresses a notable gap in the existing body of literature by investigating CSP in the energy sector. It goes beyond conventional studies that mostly focus on financial performance and CSR reporting (Furlotti et al., 2019; Giannarakis et al., 2020). Through the analysis of data collected from 335 corporations spanning 44 countries, this study highlights the key factors that drive CSP within energy sector. The findings provide valuable insights that are essential for promoting sustainable development. In addition, this study combines various theoretical frameworks, such as agency theory, resource dependency theory and strategic choice perspective, to offer a thorough comprehension of the relationship between BODs attributes and CSP. The study specifically emphasizes the moderating Impact of CSR strategy and attributes of the corporate sustainability committee. The study improves credibility by using objective sustainability performance scores and employing advanced statistical techniques such as static and dynamic panel regression and the two-step system generalized moments (GMM) method. This contributes to methodological advancements in CSP domain.

The primary focus of the study revolves around scrutinizing the influence that corporate board have on the development of sustainability initiatives. This study sheds light on the shortcomings in corporate board, representation, and expertise regarding sustainability, which impede the provision of effective direction for sustainability initiatives. Furthermore, the disparity that exists between the claims made by corporations and the ways in which they are practicalized further compounds complications, resulting in substantial financial setbacks and occurrences within the energy sector. A critical facet explored in this study is the strategic CSR strategies by corporations. Emphasizing the

paramount importance of authenticity and transparency in these initiatives, the study reveals the challenges posed by superficial CSR engagements undertaken for publicity, often contradicting proclaimed commitments. It underscores the significance of maintaining public trust through authentic CSR strategies, offering a viable solution for addressing environmental and social challenges while aligning with long-term corporate objectives.

This study has significance for professionals and practitioners in the energy sector as it provides practical insights on how to improve CSP through specific board governance practices. The study offers a practical framework for motivating CEOs to prioritize stakeholder welfare and implement sustainable initiatives. This is achieved by highlighting the significance of maximizing board dimensions, establishing clear roles between the CEO and Chairperson, and effectively overseeing interlocking directorships. The findings provide a valuable resource for energy corporations striving to align their strategy with SGDs, delineating concrete measures to enhance CSP engagement. The study acknowledges the unique challenges faced by the energy sector, including environmental catastrophes and operational risks. It suggests proactive CSR strategies to regulate, reduce, or eradicate possible risks. The study provides practical guidelines for the energy sector to efficiently manage and reduce risks by incorporating environmentally friendly, health, and safety considerations into their daily operations. This promotes sustainable practices and ensures long-term corporate success.

The policy significance of this study is important, as its findings support the idea of aligning corporate objectives with sustainability goals to promote improved CSP. The findings have significant ramifications for several parties involved, such as decision-makers, researchers, lawmakers, regulators, managers, and investors, all of whom have crucial responsibilities in influencing the course of corporate sustainable practices. Policymakers and regulators can utilize the findings of study to develop and enhance policies that encourage corporations to give priority to sustainability in their operations. Furthermore, investors can utilize study findings to make well-informed choices, acknowledging that a company's dedication to sustainability not only improves CSP but also leads to higher profitability and market worth. In essence, the study highlights the need of connecting corporate strategy with sustainability goals. It provides practical insights that can be used to shape regulations, policies, and corporate strategies that promote sustainable corporate performance.

Consequently, this study has an immense significance that goes beyond its empirical scope. It makes a considerable contribution to the comprehension of the sustainability challenges that are inherent to the energy sector. The study sheds light on the complex role of BOD, emphasizes the importance of authentic CSR policies, and elaborates on how corporate sustainability committees might moderate the relationship between BOD attributes and CSP. The findings have the potential to significantly impact the development of policies, practices, and strategies inside energy corporations, promoting a paradigm shift towards more sustainable and responsible corporate conduct.

1.7 Definition of Terms

This section provides the definitions of several terms intermittently used in the study. However, a more detailed explanation is discussed in the following chapters.

1.7.1 Corporate Sustainability

“The process of focusing on the achievement of economic sustainability performance in creating shareholder value while recognising the importance of environmental, social, and governance performance in protecting the interest of other stakeholders” (Rezace, 2017).

1.7.2 Board of Directors Independence

An independent director is a BOD’s member with no material connection with a corporation, is not on its management team, and is not involved in its daily operations (Masulis et al., 2019).

1.7.3 Board Gender Diversity

The balanced or fair representation of individuals of various genders is known as gender diversity (Benavent et al., 2020; Zaid et al., 2020).

1.7.4 Board Cultural Diversity

Numerous ethnic and cultural groups within a community are referred to as cultural diversity (Segerstedt et al., 2019; Zaid et al., 2020).

1.7.5 Board Size

“Board size is the total number of directors, including the CEO and chairman, that sit on the board of each corporation for each accounting year” (Cheng, 2008; Tulung et al., 2018).

1.7.6 CEO Duality

CEO duality is a corporate practice in which the corporation's CEO also serves as board chairperson (Tang, 2017).

1.7.7 Interlocking Directorship

Interlocking directorates is a corporate practice in which a member of one corporation's BODs also serves on the board of another corporation or in the management of some other corporation (Lamb, 2017; Mizuchi, 1996).

1.7.8 Board-Level-Sustainability Committee Size

The total number of members on the sustainability committee board is referred to as board-level sustainability committee size (Eberhardt-Toth, 2017; Hoitash et al., 2009).

1.7.9 Frequency of Board-Level-Sustainability Committee Meeting

The number of meetings held annually by the sustainability committee members is known as the frequency of the board-level sustainability committee (Eberhardt-Toth, 2017; Eberhardt-Toth et al., 2019).

1.7.10 Corporate Social Responsibility (CSR) Strategy

CSR strategy is all about the natural environment and support for solutions to community and societal issues. It shows how corporations use sound management practices to evade risk and exploit environmental and social opportunities (Ali et al., 2020; Clarkson et al., 2008).

1.8 Organisation of the Study

This study is divided into six chapters. Chapter one has provided a research background, motivation, problem statement, objectives, research questions, scope, the definition of terms and contribution. The critical literature review is presented in chapter two, beginning with a thorough explanation of sustainability and the necessity of CSP in the energy industry. This chapter also includes an empirical analysis of board attributes, corporate sustainability committee attributes, and CSR strategy related to CSP. Following this, chapter three discusses the theories that underpin the current research, particularly the strategic decision viewpoint, agency theory, and resource dependency theory. A description of the formulation of the hypotheses, including board attributes

variables and moderating variables, is offered, after which the research framework is presented.

The fourth chapter is the methodology chapter, which begins with a debate on alternative research philosophies and is followed by the research approach, methodological choice, and strategy used in this study. The chapter also contains an explanation of the method employed. This chapter includes the study population, sampling methodology, sample size, data collection tools, data analysis methods and research models. Following this, chapter five begins with the descriptive statistics of the data used in this investigation. The acquired panel data is analysed using econometric approaches in this study. Thus, the chapter includes findings from static panel data analyses, which focus on identifying the determinants of CSP, followed by a test for the moderating impacts of CSR strategies and board-level corporate sustainability committee attributes on the degree of CSP. Following that, the subsequent section concentrates on the robustness of models under dynamic GMM regression analysis. Finally, chapter six summarises the main conclusions, significant contributions, major limitations, and recommendations for further investigation.

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