"ESG AND IT'S IMPACT ON INVESTMENT EFFICIENCY: MODERATING ROLE OF BOARD GENDER DIVERSITY"

By:

Kaneez Fatima ***01-321242-012***

MBA Finance (1.5 Years)

Supervisor:

Dr. Riaz Ahmed

HR and Management Department

Bahria University Islamabad

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Names of Student(s):

- **Kaneez Fatima Enroll # 01-321242-012**

Class: **MBA (Finance)1.5 Years**

Approved by:

_____

(Dr. Riaz Ahmed)

Supervisor

_____

Qurat Ul Ain Waqar

Research Coordinator

_____

Dr. Aftab Haider

Head of Department

ABSTRACT

This study investigates the impact of Environmental, Social, and Governance and ESG on Investment Efficiency in non-financial manufacturing firms of Gulf Cooperation Council (GCC) countries with a specific lens on the moderating role of Board Gender Diversity (BGD). The study seeks to establish the nexus through which corporate governance and sustainability practices can enhance financial performance as well as resource management among these industries. It finds its significance based on increased requirements for implementing aspects of sustainability and corporate governance as drivers of long-term growth while facilitating economic diversification in the region under such initiatives as Saudi Vision 2030 and UAE Vision 2021. Using secondary data of firms from Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE, this study elaborates on the direct effects of ESG on Investment Efficiency while moderating for Board Gender Diversity (BGD) between the nexus of ESG and investment outcomes. The results show that good corporate governance and social responsibility give higher Investment Efficiency to firms' resource allocation accompanied by better resource management. Moreover, it is found that the presence of gender-diverse boards intensifies the effect of ESG which means that inclusive leadership inspires more robust corporate governance and sustainability practices to create better financial performance. This study advocates robust ESG frameworks and gender diversity as crucial elements of sustainable economic growth and Investment Efficiency, offering insightful information to policymakers, business managers, and investors in the GCC countries.

Keywords

Environmental, Social & Governance (ESG), Investment Efficiency (IE), Board Gender Diversity (BGD), Panel Data Analysis, Leverage (LEV), Liquidity (LIQ), Tangibility (TAN) and Return on Assets (ROA)

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(Kaneez Fatima)

DEDICATION

This research work is dedicated to my beloved parents, family, teachers, and friends whose support has been extremely helpful to me. Their confidence in my abilities and their guidance during difficult times and which extended to all aspects of my academic and personal life has enabled me to attain this level. I appreciate their love and sacrifices as well as the steadfast support that without it, I could not have made this far.

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LIST OF ABBREVIATIONS

ESG	Environmental, Social, and Governance
IE	Investment Efficiency
BGD	Board Gender Diversity
LIQ	Liquidity
LEV	Leverage
TANG	Tangibility
ROA	Return on Assets
GCC	Gulf Cooperation Council
GMM	Generalized Method of Moments
RDT	Resource Dependency Theory
OLS	Ordinary Least Square
FEM	Fixed Effect Model
REM	Random Effect Model
VIF	Variance Inflation Factor
(BP-LM) Test	Breusch-Pagan Lagrange Multiplier Test
FDI	Foreign Direct Investment

CHAPTER 01

INTRODUCTION

1.1 Background of the Study

The Environmental, Social, and Governance (ESG) factors have attained renewed primacy in recent years because organizations across the world are becoming more concerned about sustainability and ethical business practices. What used to be merely an ethical decision is now a major determinant of corporate strategy, investment decisions, and financial performance. The ESG provides a broad framework on how organizations control their environmental risks, make social contributions, and design their governance structures to meet high standards of ethics (Grewal, Riedl, & Serafeim, 2020). From another perspective, as the world community became more concerned about the negative impacts that industrialization brought with it, companies adopted such frameworks as ESG in risk minimization, operational efficiency improvement, and enhancement of long-term investment return (Eccless, Ioannou, & Serafeim, 2014).

The non-financial manufacturing firms has been a main player in the economic diversification of the Gulf Cooperation Council (GCC), which includes (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE). This falls under the broader umbrellas of Vision 2030 in countries such as Saudi Arabia and the UAE where new policies encourage alternative exports to oil and focus on ancillary industries like manufacturing and renewable energy. While historically considered a pillar for economic development, this particular industry is experiencing massive changes. Greater integration of sustainability into this specific sector of manufacturing is part of those national development goals as more broadly articulated by efforts made by GCC countries toward economic diversification (Hussain, Al-Debi, & Malik, 2019).

The growing importance of ESG in the non-financial manufacturing sector by the encouragement of government initiatives is also compelled by external forces, particularly international investors who are increasingly placing their interests in sustainable and ethical investments. In recent years, sustainability has become a source of competitive advantage. Well-performing companies on the ESG dimensions tend to attract more long-term investments, lower their risks, and show better financial performance in the long run. Firms that prioritize such ESG factors as carbon emission reductions, labor condition improvements, and transparent governance are more likely to maximize Investment Efficiency and corporate reputation (Sullivan & Mackenzie, 2017). As a result, ESG is directly linked to a firm's Investment Efficiency, defined as the ability of companies to manage their resources efficiently and generate optimal returns for investors.

While ESG has gained traction in the GCC countries, there is wide variation in the level of adoption between countries. Saudi Arabia and the UAE have made significant progress towards corporate governance integration of ESG factors accounting for energy and construction, implying environmental sustainability, and green technologies (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024). The other three remaining members: Bahrain, Kuwait, and Oman lag about full-scale adoption of ESG practices in the manufacturing sectors. Even though some regulatory frameworks are being developed to govern certain aspects of environmental and social responsibility, these countries still need strong governance reforms and the infusion of sustainable practice standards into industrial activities (Zattoni & Cuomo, 2021). This discrepancy presents a critical gap in understanding how ESG adoption in the manufacturing sector can contribute to Investment Efficiency and long-term financial stability in these emerging markets.

One of the major factors that hinder ESG in the GCC countries is Gender Board Diversity (BGD) on corporate boards. In most companies across the GCC countries, corporate boards are still run

by males who mostly dominate family businesses. Such a scenario implies centralized governance structures; thus, they are less transparent. Gender Board Diversity (BGD) on corporate boards improves oversight and risk management, in general, decision-making of the board, and hence increases financial performance through better Investment efficiency (Adams & Ferreira, 2009). More diverse boards consider a wider range of perspectives which is critical in developing ESG strategies that must balance economic, environmental, and social issues. The GCC area must consider how Gender Board Diversity (BGD) may assist businesses in enhancing their ESG and, consequently, optimizing Investment Efficiency, given the growing importance of sustainability in the global business environment.

Though the advantage of Board Gender Diversity (BGD) is so apparent, the practice is not very frequent within the GCC region. Minimal studies can be found discussing gender diversity in the GCC countries due support to the fact that corporate governance practices are in a slow momentum of evolution where family businesses are dominant in the business landscape (Ali & Shastri, 2017). However, internationally oriented trends toward more gender-diverse boards and mounting evidence relating to such a practice positively with aspects of corporate governance suggest upgraded benefits for the GCC companies through diversification of their boards. Such studies have indicated that diversified gendered boards better respond to stakeholder sustainability demands by incorporating the ESG factors into corporate decision-making (Post & Byron, 2015). The moderating influence of Board Gender Diversity (BGD) in enhancing the link between ESG and Investment Efficiency has become a crucial topic of research as the GCC region continues to push toward more sustainable corporate practices.

This study attempts an exploration of the interaction between Board Gender Diversity (BGD), the relationship between ESG and Investment Efficiency in the non-financial manufacturing firms of

the GCC countries. By focusing on this less popular aspect, it will provide valuable insight into how Gender Board Diversity (BGD) can influence corporate governance for enhanced impacts from ESG practices on financial performance. As much as policymakers strive toward economic and environmental sustainability through corporate managers adopting ESG policies, thus enhancing Investment Efficiency with gender-diverse boards, such information is beneficial to them and other investors who want to maximize business performance with sustained growth over time in GCC.

1.2 Overview of the Industry

The manufacturing industry in the Gulf Cooperation Council (GCC), Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE) results from an evolution that took place between two completely opposite poles of heavy reliance on oil revenues up to diversified non-oil sectors within national strategies such as Saudi Vision 2030 and UAE Vision 2030. It then describes this sector comprised of petrochemicals, metals, food and beverages, automotive assembly besides construction materials developing during times of change in the world economy through value-added production reducing import dependency meanwhile increasing exports. As noted by the (World Bank, 2024), in 2023, manufacturing has been about 8-12% of GCC GDP with Saudi Arabia leading the world in petrochemical output exceeding 100 million metric tons per year by 2023. The UAE has developed a base for aluminum and steel as US$20 billion was exported in 2022 (Statista, 2024). The COVID-19 pandemic caused a contraction of supply-chain-driven output across the region by between 5 and 10 percent in 2020. Recovery was quick, led by government spending on infrastructure increasing to between four and six percent post-2021 (World Bank, 2024). Foreign Direct Investment (FDI) in manufacturing has exceeded US$50

billion in free trade zones like Jebel Ali in Dubai since 2015, despite ongoing challenges including the lack of trained workforce and high energy prices.

Environmental, Social, and Governance (ESG) integration, in recent years, has gained a significant place within the GCC manufacturing discourse as a part of the global sustainability agenda and net-zero commitments across the region. From 2015 onwards, ESG adoption began to pick up pace due to investor pressure and regulatory driven impetus. This was accompanied by mandatory ESG reporting for listed entities in the UAE from 2020 besides Saudi Arabia coming up with its Green Initiative in 2021. Manufacturing high ESG performers are observed to garner greater operational efficiency benefits besides easier access to green financing avenues raising average ESG scores from around 50 in 2015 to 70 by 2023 among leading firms (GCC Board Directors Institute, 2022). Many small and private firms have low ESG ratings, averaging below 50. Their most immediate risks relate to regulatory penalties as well as reputational damages (APCO Worldwide & GCC BDI, 2022). For example, in the petrochemicals space, it has been more of an emissions story such as carbon capture in Qatar while it is also a gender diversity on boards' story. The overall maturity level is still at the "start-up" phase across the board, however this time with actual statistics - only 55 percent of firms reporting any ESG metrics (GCC Board Directors Institute, 2022).

This will push the ESG pressure in the manufacturing firms of the GCC countries up through 2025. It adds a renewable and circular economy investment. For Example, Oman's manufacturers expect to see non-hydrocarbon growth of 3.4% in 2025, integrated with ESG to mitigate water scarcity as part of supply chain resilience integration (World Bank, 2025). Firms performing high levels of ESG have been found in one direction to perform better financially, while another direction study finds low performers catching up by more investment in ESG, thus validating the bidirectional causality hypothesis (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024; Zheng, Khan,

Moudud-Ul-Huq, Lau, & Islam, 2025). The standardized reporting gap and talent have hence led to that much lag and therefore call for policy reform.

Figure 1.1: ESG in the Non-Financial Sectors of GCC Countries

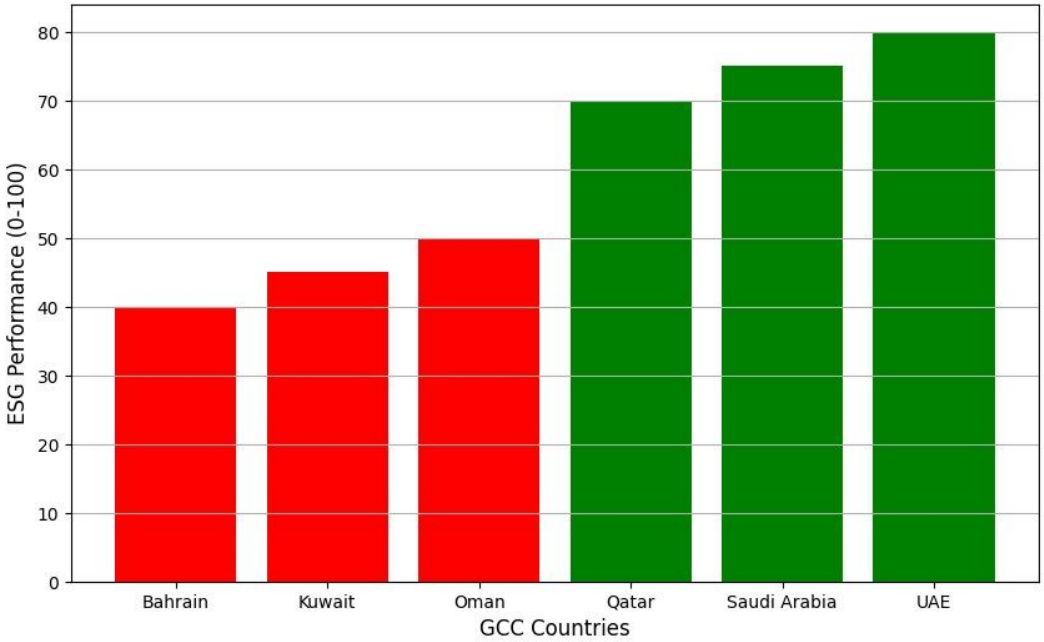


Figure 1.1 presents ESG in the non-financial manufacturing sectors of GCC countries. Red bars are those countries where the ESG is low (Bahrain, Kuwait, and Oman) therefore representing that these countries are presently at initial stages of fully adopting Environmental, Social, and Governance practices into their manufacturing firms. Green bars are those with high ESG among (Qatar, Saudi Arabia, and UAE) which have already taken some steps to integrate sustainability and governance practices into their manufacturing sector. (UAE and Saudi Arabia) are the leaders in ESG adoption followed by Qatar while (Bahrain, Kuwait, and Oman) have more work to do regarding implementing the comprehensive ESG.

This graph highlights the need for additional improvements in low ESG performing countries to align with the best practices observed in the region's higher-performing countries and gives a clear

visual depiction of how the GCC countries manufacturing firms is advancing in terms of ESG integration.

1.3 Problem Statement

In the rapidly changing field of sustainable finance, Environmental, Social, and Governance (ESG) factors have become key drivers of corporate decision-making. This is especially true in emerging markets where economic growth often meets significant environmental, governance and social issues. Yet, how ESG affects Investment Efficiency (IE), the best use of resources to prevent over or under investment has not been thoroughly studied. This is particularly the case in the non-financial manufacturing firms within the Gulf Cooperation Council (GCC) countries. (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024) found a positive relationship between ESG and IE in emerging markets, which is caused by lower agency costs and better stakeholder confidence, but fail to consider the individual or separate effects of the three ESG pillars: Environmental, Social, and Governance. They also fail to factor in regional dynamics such as the oil-dependent economies of the GCC and recent sustainability reforms (Zheng, Khan, Moudud-Ul-Huq, Lau, & Islam, 2025). This is where the problem lies: though theoretically ESG should improve IE through minimizing information asymmetry and encouraging ethical use of resources, empirically results are mixed with evidence of nonlinear or conditional effects depending on governance mechanisms (Abbas, Tabash, AsadUllah, & Riaz, 2025; Ellili, 2025).

The moderating role of Board Gender Diversity (BGD) problem has also been compounded by it because, though stronger corporate governance is always assured, mixed results happen when applied to an ESG context. For instance, (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024) and (Ellili, 2025) found that BGD positively moderates the links between ESG and firm performance in GCC settings through offering different perspectives that align investments with

sustainable goals. Studies such as (Almutairi, Albaz, & Hashad, 2025), however, present U-shaped nonlinear effects on IE indicating that thresholds exist beyond which the presence of gender diversity either enhances or hinders efficiency. This creates a very salient research problem in the GCC manufacturing firms, which is characterized by high ESG risks mainly supply chain ethics and emissions for not having fully analyzed how BGD moderates this nexus between ESG and IE, alongside Leverage, Liquidity, Tangibility, and ROA. Even more so because there are extremely scanty studies across the entire GCC between 2015–2024 precisely this period of SDG adoption plus post-COVID recovery where prior works are centered either on financial sectors or broader performance metrics rather than on IE (Chebbi & Ammer, 2022; Kampoowale, Kateb, Salleh, & Alahdal, 2025).

Empirical clarity on how the ESG components influence IE in manufacturing firms of the GCC countries and, pertinently, whether BGD magnifies or mitigates this relationship during new waves of market volatilities remains the core issue. This will lead to less-than-optimal investments by firms that affect their sustainability and competitiveness in the long run if not addressed. With resource dependence and agency theories as discussed in (Ullah, Zeb, Khan, & Xiao, 2020) and (Antari, Sbai, & Ed-Dafali, 2025), this study tries to fill such gaps using secondary data from Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE) while making it actionable for a policymaker and executive to maximize ESG-driven investments through diversity in board compositions.

1.4 Gap Analysis

The current literature on ESG, Board Gender Diversity (BGD), and Investment Efficiency (IE) reveals gaps that justify this study in the context of GCC countries manufacturing non-financial firms over the period 2015 to 2024. For instance, (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024) and

(Zheng, Khan, Moudud-Ul-Huq, Lau, & Islam, 2025) reported a positive ESG-IE nexus in emerging markets and banks when moderated by cultural diversity or environmental uncertainty but failed to decompose E, S, G, and combined pillars of ESG as independent variables. Specific control variables such as Leverage, Liquidity, Tangibility, and ROA were not applied in the context of non-financial manufacturing firms (Abbas, Tabash, AsadUllah, & Riaz, 2025). The study relates Board Gender Diversity (BGD) as a moderating factor in the ESG-firm performance (FP) links, with a very high possibility of positivity in the GCC/MENA (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024; Ellili, 2025) while other places it might be nonlinear or insignificant (Almutairi, Albaz, & Hashad, 2025). Very little focus has been provided to moderate specifically ESG-IE (Kampoowale, Kateb, Salleh, & Alahdal, 2025). Studies have mainly tilted towards developed or Asian markets regionally (Grau, Bel-Oms, & Núñez-Almonte, 2025; Ullah, Zeb, Khan, & Xiao, 2020). There is very scanty GGC-wide coverage across all six countries dealing with the manufacturing sector (Chebbi & Ammer, 2022), and most time periods predate recent sustainability reforms such as the adoption of SDGs by the UN member nations (Rabbani, Kiran, Bhuiyan, & Al-Hiyari, 2024). In terms of methodology, panel regressions handle endogeneity in different ways. However, no study incorporates secondary data from 2015 to 2024 to verify BGD's moderation on ESG-IE, which is based on resource dependency and agency theories. This would close these theoretical, empirical, sectoral, and geographical gaps.

1.5 Research Objectives

The main objective of the study is to assess the influence of ESG and its impact on the Investment Efficiency of non-financial firms on the manufacturing side, with a focus on the moderating role of Board Gender Diversity (BGD). The sub-objectives to fulfill the main objective are as follows:

1. To assess the impact of ESG on the Investment Efficiency of non-financial firms in GCC countries.
2. To analyze the impact of ESG dimensions on the Investment Efficiency of non-financial firms in GCC countries.
3. To examine whether Board Gender Diversity (BGD) moderate the relationship between ESG, its dimensions, and Investment Efficiency of non-financial firms in GCC countries.

1.6 Research Questions

1. What is the impact of ESG on the Investment Efficiency of non-financial firms in GCC countries?
2. What is the impact of ESG dimensions on the Investment Efficiency of non- financial firms in GCC countries?
3. Does Board Gender Diversity (BGD) moderate the relationship between ESG, its dimensions, and Investment Efficiency of non-financial firms in GCC countries?

1.7 Significance of the Study

This study is of very high relevance on multiple fronts: first for filling academic space and, second for practical applications in the fields of ESG and corporate governance. The increasing momentum of the wave for ESG practice worldwide makes it imperative to understand its effect on Investment Efficiency so that concerned firms can align their operations with sustainability goals without compromising the achievement of long-term profitability. It thus fills a critical gap in literature by studying not only the direct but also the combined effects that Environmental, Social, and Governance may have on Investment Efficiency within non-financial manufacturing firms across Gulf Cooperation Council (GCC) countries. This study offers crucial insights into how ESG issues affect company performance in developing economies, a topic that has not

received enough attention in prior research, given the region's distinct economic, cultural, and regulatory backdrop.

It also brings novelty by empirically investigating the Board Gender Diversity (BGD) moderation in the ESG-Investment Efficiency nexus. In connection to this, prior literature has sufficiently documented the criticality of the infusion of Board Gender Diversity (BGD) in corporate governance mechanisms without emphasizing how such diversity can facilitate the effectiveness levels of newly adopted strategies relating to ESG components. Thus, its quest into what way gender-diverse boards can further fortify the link between ESG practices and Investment Efficiency is a contribution toward building theory differently from available governance literature. This will enable a formulation that validates if female board members bring different cognitive perspectives that improve decision-making with better integration of ESG practices as well as effective investment decisions.

The study has practical implications that should matter most to policymakers, corporate managers, and investors in the GCC countries. To design and implement policies that develop an efficient market with enhanced ESG policies leading to higher female participation on boards toward a sustainable and more effective business environment, policymakers may base their arguments on some findings from this study. Corporate managers can take some insights into governance reform, strategic decision-making based on the ESG and its dimensions, and moving leadership structure inclusiveness towards long-term sustainability. This shall provide information to investors regarding firms performing well in terms of ESG matters with more diversified boards giving better investment output while providing relatively stable and sustainable returns on investment.

In general, the importance of this study resides in its strength to connect the concept of sustainability with corporate profitability by way of demonstrating a workable framework for the

integration of ESG principles into good business practices. It therefore enriches the theoretical understanding of ESG and offers practical prescriptions that could inform change in corporate governance and business policies to promote real interest within a given region because it focuses on the GCC's non-financial manufacturing firms by considering Board Gender Diversity (BGD) as a moderating effect.

1.8 Scope of the Study

This study aims to analyze the relationship between ESG and Investment Efficiency with a view to how Board Gender Diversity (BGD) moderates such a relationship in the non-financial manufacturing firms of GCC countries, explicitly and more particularly covering (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE). It will consider a review of how Environmental, Social and Governance individually and collectively impact Investment Efficiency as an exercise toward understanding which among them weighs more on moving toward efficient investment decisions. Apart from ESG, this study occupies itself with reviewing another determinant that would potentially moderate this relation: Board Gender Diversity (BGD) by empirically validating whether diverse leadership augments the strength of ESG initiatives toward better corporate financial performance. This study is based on secondary data analysis between 2015 to 2024 as a way of understanding how ESG shape investment decisions over time within the cultural, economic, and regulatory contexts of the GCC region. This study attempts to fill this gap by focusing more on the manufacturing sector in the GCC where previous studies have not vigorously assessed the impacts of ESG practices and Board Gender Diversity (BGD) on Investment Efficiency. The findings will assist a policymaker, corporate manager, or investor who is looking forward to maximizing his or her wealth through improved corporate governance and sustainability practices while realizing financial as well as social objectives.

1.9 Organization of the Study

The study that follows is set up as explained below. The context, problem statement, research purpose and question, significance, and scope of the study are found in chapter one which is the Introduction. This comprises a literature review which contains the description of the variables, an analysis of the literature, and theoretical connections between the variables. The methodology of this study includes research design, sample design, data collection tool, and data analysis approach. Afterward, detailed results from panel data analysis are provided. A critical discussion of findings and results based on previous studies is last discussed. This section also covers both theoretical and practical aspects of the study, its limitations plus recommendations concerning the proposed framework.

1.10 Summary of the Chapter

This chapter gives a background of major variables by narrowing progressively to an overview of the related industry. It discusses variable-related issues and defines the problem while articulating the scope of the study. It discusses the importance of carrying out such research, academic and practical significance, and possible benefits that can accrue from it. This chapter also outlines the structure of the thesis indicating what each subsequent section covers to ensure logical flow and coherence of the work. By the end, the study's objectives regarding the industry and the overall organization of the thesis will be crystal clear.

CHAPTER 02

LITERATURE REVIEW

2.1 Introduction of the Chapter

This chapter discusses literature reviews of all the variables that form the research framework and their theoretical backgrounds. It will describe in detail each of the variables based on previous studies and indicate how they are empirically related as concluded by prior studies. This chapter describes the research hypothesis of the current study. It gives a table of literature and describes in very clear terms the influence that Gender Board Diversity (BGD) has as a moderator between the variables involved. This chapter introduces the conceptual framework at the end to show those linkages between the variables. Therefore, it provides a detailed review of all relevant literature for this study.

2.2 Theoretical Review

This chapter brings up major theories concerning the importance of ESG and Investment Efficiency with a spotlight on Board Gender Diversity (BGD) as the moderating variable. That aspect best connects all variables through an application of Stakeholder Theory, which then outlines linkages between ESG & its dimensions, Investment Efficiency, and Board Gender Diversity (BGD). Other supporting theories have also been discussed, and each relates to the variables in the study. The second section gives more of a detailed theoretical review, further emphasis on the concepts and frameworks that are relevant to this research.

2.2.1 Underpinning Theories

2.2.1.1 Stakeholder Theory

Stakeholder Theory was first articulated by (Freeman, 1984). The interests of other stakeholders, aside from the maximized value for shareholders, were brought into, in a more general sense. It is from this perspective that contributions to employees, customers, and suppliers, larger community welfare, and environmental preservation are viewed as the fulfillment of corporate responsibility. (Freeman, 1984) stated that companies have an obligation to create value for all these different groups of stakeholders if they are to achieve success that can be sustained in the long run. Just balancing their interests with those of the shareholders, as contrasted with maximizing value for shareholders alone under the traditional fiduciary model, is what Stakeholder Theory posits will lead to sustainability in corporate organization over time. (Freeman, 1984; Clarkson, 1995)

The ethical aspect of Stakeholder Theory is very relevant to modern corporate management. (Freeman, 1984) noted that apart from the economic gains, businesses must also consider the social contract that exists between a firm and its stakeholders. Firms that prioritize social and environmental considerations in their operations avoid exploitation develop an image of responsibility thereby enhancing and solidifying all relationships with strength to work productivity among all stakeholders. In this respect, Stakeholder Theory can be perceived as offering a guiding principle towards the integration of ESG (Environmental, Social, Governance) activities by conducting business operations in line with social objectives.

Stakeholder Theory emphasizes the role of stakeholder engagement. In practical terms, dialogue engagement allows firms to understand the needs and concerns of those parts interested or affected by their actions and it results in better business practices and more ethical decision-making. Gender-diversity enhances this engagement because such a board is likely to bring different

perspectives towards decision making being more comprehensive and ethical governance. Evidence arising out of research (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024) on GCC countries establishes the fact that gender-diverse boards have better and more active engagements with their stakeholders which reflects in superior performance on social and environmental issues. Firms with greater female representation on their boards manifested a stronger commitment to sustainability practice which is conforming to the requirements of both internal and external stakeholders.

One of the paramount contributions in seeing the infusion of gender diversity at the board sits in viewing the management of stakeholders through championing more extensive corporate social responsibility (CSR) activities. Women leaders prioritize community service, environmental protection, and employee welfare all undertakings that fall under peripheral interests of Stakeholder Theory. For instance, (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024) and (Kharbeet, 2023) affirmed that firms with female representations on boards are more likely to integrate CSR as part of their corporate strategies so as to enhance relationships with their most important stakeholders consumers and regulatory bodies improving ESG ratings plus financial output.

Apart from just Board Gender Diversity (BGD), Stakeholder Theory also brings to light corporate governance transparency and accountability. Firms that establish transparent dialogs with their stakeholders will understand well what their expectation is, hence easily responding to the dynamism in the market. The consumer and investor stakeholder groups are now very vocal on responsible and sustainable corporate activities; thus, companies must be proactive in stakeholder engagement to stay ahead of the competition. (Post, Rahman, & Rubow, 2015) emphasized that effective stakeholder engagement leads to better corporate reputations where diverse boards are

more likely to manage such engagement and this enhances a firm's capacity to adjust to changing societal expectations.

Stakeholder Theory ties into the increasing importance that sustainable finance have. Gender-diverse boards will more likely attract socially responsible investors who are very keen on sustainability and social impacts rather than financial returns. This is evident in firms located within GCC countries, as noted by (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024) whereby firms with board diversity not only demonstrate better social performance but also improve their relationship with investors and other regulators on Environmental, Social and Governance. Such firms prioritize the needs of stakeholders; therefore, they tend to achieve long-term success since they can adequately navigate both market challenges and regulatory pressures.

Therefore, Stakeholder Theory offers an excellent framework for corporate governance to understand and explore the management of relationships between the firm and its various stakeholders. Gender diversity on board will add more strength through varied perspectives toward sound interactions with all relevant interest groups for the implementation of sustainable and ethical business practices. Gender-diverse boards improve ESG because they cover all components and ensure that every interest group is looked after hence attaining long-term sustainability in the corporation. As advanced by (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024) and (Kharbeet, 2023) Board Gender Diversity (BGD) enhances not only better governing stakeholder relations but also improved accountability due to more responsible behavior; thus, this makes it very instrumental in implementing ESG policies successfully.

2.2.1.2 Agency Theory

Agency Theory (Jensen & Meckling , 1976) describes potential conflicts of interest between the principals and agents or shareholders and managers. When managers pursue personal objectives,

not those of the shareholders, a conflict arises. This represents divergence leads to agency costs. The related expenses required to monitor and ensure that managers act in the best interests of shareholders are termed as agency costs. Corporate governance mechanisms which can come under this theory are board oversight and executive compensation schemes that play an important role toward minimizing such conflicts.

In corporate governance, Board Gender Diversity (BGD) are of great interest in the minimization of agency costs. Gender diversity on the board enhances monitoring and accountability to ensure that concerns regarding ESG (Environmental, Social, Governance) are raised at par with the financial goals of an organization. Female board members tend to be more risk averse as well as socially responsible hence management can effectively lead the company to operate in a sustainable manner as well as keep management's actions consistent with interest for all stakeholders (Adams & Ferreira, 2009).

Findings by (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024) from GCC countries prove that gender-diverse boards improve ESG more in the Environmental, Social and Governance areas. Such boards develop most sustainability-related adoptions of concerns to stakeholders, thus reducing agency costs relating to short-term profit maximization. This has also been supported by (Kharbeet, 2023), who found that the female representation on boards positively moderates the relationship between ESG scores and firm performance, reiterating the place of Board Gender Diversity (BGD) in effective stakeholder engagement and corporate governance.

In conclusion, Agency Theory posits that gender-diverse boards reduce agency costs through better oversight and decision-making which includes decisions pertaining to ESG goals. Board Gender Diversity (BGD) enhances corporate governance whereby the company maintains long-term

sustainability while aligning the interests of management with those of shareholders and stakeholders.

2.2.1.3 Resource Dependency Theory (RDT)

Resource Dependency Theory by (Pfeffer & Salancik, 1978) explained that organizations are interdependent with their external environment. Companies rely on the availability of external resources, such as capital, information, and technology for their survival and achievement of desired goals. To acquire these resources, firms must deal with many external parties, the management of which falls under the purview of corporate governance. Under Resource Dependency Theory, companies were seen to be under a necessity to respond to outside pressures to engage stakeholders so that they had access to the resources required for development (Pfeffer & Salancik, 1978).

Broader Board Gender Diversity (BGD) equates in the progressive sharpening of stakeholder engagement with the organization for resources in fields such as sustainable investment, partnership, and community engagement. Gender-diverse boards multiply scheme perspectives through which to attract socially responsible investments, including female directors who prioritize sustainability (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024; Glass, Cook, & Ingersoll, 2016). Indeed, (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024) have emphatically confirmed this assertion by noting that gender-diverse boards within GCC countries were even better resourceful in acquiring all the necessary resources towards their ESG initiatives to enhance Environmental, Social and Governance.

Resource Dependency Theory (RDT) emphasizes the role of corporate governance as part of the management of external relationships. Firms with gender-diverse boards develop stronger linkages with such stakeholders as NGOs, government agencies, and investors increasingly demanding

sustainable and socially responsible practices; thus, better ESG that will assist the firms to mitigate related environmental and social risks (Kharbeet, 2023). In support, (Kharbeet, 2023) found that European firms scored higher on environmental metrics when gender diversity was present on their boards and attracted more sustainable investments.

In conclusion, Resource Dependency Theory (RDT) highlights the need for firms to effectively manage their relationships with external stakeholders to secure critical resources. Gender-diverse boards enhance this capability by promoting better stakeholder engagement, which is crucial for firms to achieve sustainability goals and improve ESG.

The Theoretical Review of ESG and Investment Efficiency (IE) based on above theories is as follows:

2.2.2 ESG and Its Dimensions

Environmental, Social, and Governance (ESG) has attained very high ratings as companies are increasingly judged on their sustainability and ethical operations. In practice, the ESG framework reviews a company's Environmental impact, Social responsibility, and Governance structures toward long-term value creation and risk mitigation (Clark & Dixon, 2024). Existing literature postulates that strong ESG practices will place a firm in an improved financial situation with lower risks while having a good name in the marketplace (Friede, Busch, & Bassen, 2015). This review discusses each aspect of ESG concerning Investment Efficiency.

The Environmental dimension refers to a company's impact on the environment through factors such as energy consumption, carbon emission, resource conservation, and waste management. Firms with sustainable environmental policies attract Socially Responsible Investors (SRIs) who improve Investment Efficiency by offering long-term ethical capital. Firms having good Environment dimension can lower their operating costs avoid regulatory penalties (Fatemi, Glaum,

& Kaiser, 2018) thus be able to perform better financially and have improved access to capital (Huang & Chen, 2021).

The Social dimension evaluates how companies engage with employees, customers, suppliers, and the community. It includes labor practices, diversity, and employee welfare besides their community involvement. According to (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024), gender-diverse boards add up to better Social dimension through more inclusive and ethical practices that create a good image for a brand and build up stakeholder trust. Firms with Social responsibility have customer loyalty as well as employee retention which improves Investment Efficiency attracting ethical capital (Kumar, 2020).

Governance will look at leadership, board practices, executive pay, shareholder rights, and disclosure of the company. Good governance lessens the possibility of fraud, poor management, and corruption happening; thus, Investment Efficiency turns out better. Gender-diverse boards have a vital role in improving governance because they provide better oversight control which lowers agency costs and increases corporate transparency (Kharbeet, 2023). Firms with good governance are more likely to align investments with long-term goals, minimizing risks and ensuring ethical decision-making.

Table 2.1: ESG Literature Table

Author and Year	Country	Industry	Environment	Social	Governance	Combined ESG
(Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024)	GCC Countries	Manufacturing	✓		✓	✓
(Kharbeet, 2023)	Europe	Technology	✓	✓	✓	✓
(Glass, Cook, & Ingersoll, 2016)	Global	Various	✓	✓	✓	✓
(Lee, Park, & Kim, 2022)	Korea	Retail	✓	✓		✓
(Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024)	Emerging Economies	Various	✓	✓	✓	✓
(Kampoowale, Kateb, Salleh, & Alahdal, 2025)	Malaysia	Non-Financial	✓	✓	✓	✓
(Tran, Lu, Ting, Huang, & Fauzi, 2024)	Global	Financial Services	✓	✓	✓	✓
(Al-Tahat, Bani-Khaled, Jaradat, Mansour, & Al-zoubi, 2025)	Asia-Pacific	Manufacturing	✓	✓	✓	✓

(Al Hosani, Nobanee, & Ellili, 2025)	UAE	Non-Financial	✓	✓	✓	✓
(Guedes, Neves, & Vieira, 2025)	Iberian	Various	✓	✓	✓	✓

ESG have an impactful contribution toward Investment Efficiency, such that firms excelling in these areas easily attract socially responsible investments, establish good stakeholder relations and ensure the sustainability of profitability in the long run. Gender-diverse boards up the ante for ESG through better governance, more robust social strategy, and sustainability infusion. More importantly, as advanced by (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024) and (Kharbeet, 2023), gender-diverse boards improve Investment Efficiency because they help ensure a firm aligns with both financial and non-financial goals thereby securing sustainable capital for long-term success.

2.2.3 Investment Efficiency (IE)

Investment Efficiency (IE) has increasingly taken center stage in the evaluation of corporate performance. In effect, this denotes how resource allocation by a firm is maximized toward returns with minimal wastage and inefficiency. Firms are also under mounting stakeholder pressure for improved sustainable practices. In turn, it induces better integration of Environmental, Social, and Governance considerations within the corporate strategy plan, another factor that adds up to influence investment decision-making and efficiency. The other way around is represented in a very complex relationship where evidence suggests that high performers in ESG are likely to undertake more informed, transparent, and long-term investment decisions which therefore improve their total Investment Efficiency.

Board Gender Diversity (BGD) and other board characteristics play a significant role in the formulation of Investment Efficiency. Gender-diversity board members are relatively better decision-makers towards the creation of an environment that embraces more diversified thought. This diversity promotes good corporate governance and leads to efficient resource allocation (Guedes, Neves, & Vieira, 2025). For Example, boards with a higher proportion of female directors tend to implement cautious investment strategies, thus validating Investment Efficiency in the long term (Grau, Bel-Oms, & Núñez-Almonte, 2025). Women, by being more risk-averse, have better capacities for recognizing and controlling potential risks regarding investments whereby capital allocation becomes sustainable and efficient. These results bolster the more general claim that a company's capacity to allocate resources effectively may be greatly impacted by gender-diverse boards, particularly when ESG considerations are incorporated into the decision-making process (Al-Tahat, Bani-Khaled, Jaradat, Mansour, & Al-zoubi, 2025).

Also, cultural diversity at the board level may have a differential effect, or it may improve the link between Investment Efficiency of firms and their performance on ESG in emerging markets. (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024) documents this fact as board cultural diversity moderates the relationship between ESG and firm Investment Efficiency. Firms with boards having a relatively larger proportion of foreign directors seem to have weaker links between high ESG and Investment Efficiency, perhaps due to cultural differences within the board's perception toward sustainability and investment matters which lead to overinvestment tendencies found in firms operating regions where there is more diversity within their boards (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024). This throws up an issue regarding the need for some sensitivity towards cultural backgrounds while assessing the impact that ESG has on Investment Efficiency.

Besides the composition of the board, the regulatory environment and national gender parity policies play a fundamental role in channeling effectiveness through boards toward Investment Efficiency. Gender-diverse boards are more effective at reducing ESG misconduct and improving Investment Efficiency under strong gender equality policies at the country level. All this is explainable by the fact that women in leadership roles contribute to more effective decision-making processes, which improve a firm's capacity for managing ESG risks as well as investment allocation (García-Meca & Martinez-Ferrero, 2024). Such channels may be institutionally dependent on both dimensions of support at the aggregate level.

Therefore, in the current study, Investment Efficiency as its dependent variable and concentrates on the non-financial firms belonging to the manufacturing industry in Gulf Cooperation Council (GCC) countries, namely Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE). The legal and regulatory institutional context around ESG disclosures and gender diversity can either enable or constrain Investment Efficiency. In countries where ESG reporting is a mandate, companies with good ESG usually align their investment strategies with sustainability thus improving Investment Efficiency. Firms that operate in less regulated environments may be more interested in short-term financial gains rather than sustainable investments which lower their Investment Efficiency (Al-Tahat, Bani-Khaled, Jaradat, Mansour, & Al-zoubi, 2025). This brings out the role of the policymakers in creating an enabling environment for both gender diversity and strong ESG practices to improve corporate Investment Efficiency.

2.3 Empirical Literature Review

2.3.1 ESG and Investment Efficiency (IE)

Investment Efficiency (IE) is the degree to which a firm can channel resources toward getting optimal returns while controlling unnecessary capital expenditure. Since ESG, Environmental, Social, and Governance increasingly become part of business strategies, their influence on Investment Efficiency has gained growing interest in academia and practice. ESG is believed to bring a company's operational strategies into harmony with long-term sustainability goals; hence having more chances of making investment decisions efficiently. Well-conducted ESG reduces risk, improves corporate governance, and keeps firms on an investment path that is more sustainable (Velte, 2019).

Companies with strong ESG are generally those firms that exhibit higher Investment Efficiency by making informed decisions for the long term, not just short-term speculative investments (Guedes, Neves, & Vieira, 2025; Al-Tahat, Bani-Khaled, Jaradat, Mansour, & Al-zoubi, 2025). (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024) Board characteristics, particularly Board Gender Diversity (BGD), play an instrumental role in shaping such efficient Investment Decisions. Gender-diverse boards make long-term cautious decision processes be in place to better manage the risks associated with ESG and thus Investment Efficiency at a higher level, particularly in emerging markets. Female directors bring risk-averse behavior to ensure overinvestment does not take place (García-Meca & Martinez-Ferrero, 2024).

(Al-Tahat, Bani-Khaled, Jaradat, Mansour, & Al-zoubi, 2025) In state-owned enterprises, board diversity has a lesser impact on Investment Efficiency due to specific political and regulatory factors that allow the governance structure to take place within SOEs. Where the alignment between Gender Board Diversity (BGD) and ESG goals is not as strong as it would be in a privately

owned firm, state ownership plays a role in moderating the relationship between board characteristics and ESG. (Grau, Bel-Oms, & Núñez-Almonte, 2025) This finding was supported by another study which found that country-level gender parity also moderates the relationship between Board Gender Diversity (BGD) and ESG. In countries with greater gender equality, the positive effects of gender-diverse boards on Investment Efficiency are more pronounced.

Also, the cultural context and regional differences are important in framing the relationship between ESG and Investment Efficiency. (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024) found that in firms located in culturally diverse regions, the positive impact of ESG on Investment Efficiency is weaker in those firms where there is a possibility for overinvestment to take place-meaningful among high overinvesting firms. In regions characterized by more homogeneous culture, the alignment between ESG practices and Investment Efficiency was stronger. This demonstrates that from an institutional and cultural context, the driving force of ESG practices toward Investment Efficiency depends on such a backdrop (Al-Tahat, Bani-Khaled, Jaradat, Mansour, & Al-zoubi, 2025).

The Board Gender Diversity (BGD) of the board has been another governance mechanism that relates to the ESG and Investment Efficiency nexus. Gender-diverse boards enhance corporate sustainability practices as well as Investment Efficiency (Kampoowale, Kateb, Salleh, & Alahdal, 2025). They conducted their study in the emerging market of Malaysia. Firms having greater Board Gender Diversity (BGD) adopted more sustainable investment practices enhancing long-term Investment Efficiency. Regional differentiation in ESG moderates this relationship, as discovered by (Tran, Lu, Ting, Huang, & Fauzi, 2024) between Gender Board Diversity (BGD) and Investment Efficiency, such that it is stronger in Western markets compared to Eastern markets due to more mature ESG practice and institutional frameworks in Western economies.

The role of national policies and regulatory frameworks in the discussion of ESG and Investment Efficiency cannot be left out. In countries where gender quotas are enforced, such as in the EU, gender-diverse boards have been able to perform better both in terms of ESG and Investment Efficiency (García-Meca & Martinez-Ferrero, 2024) Board Gender Diversity (BGD) may have a lesser impact on Investment Efficiency in countries that have weaker regulations or fewer gender-equality policies (Velte, 2019).

Table 2.2: Literature Table

Author(s) & Year	Independent Variable	Dependent Variable	Methodology	Sector & Country	Results
(Guedes, Neves, & Vieira, 2025)	ESG Performance & Board Gender Diversity	Board Members' Remuneration	Panel Data	Iberian Companies	Gender diversity moderates the increased board pay for ESG success.
(Tran, Lu, Ting, Huang, & Fauzi, 2024)	Board Gender Diversity & ESG Practices	Corporate Performance & ESG	Panel Data	Financial Services (Global)	Board Gender Diversity boosts ESG performance, especially in Western markets.
(Al-Tahat, Bani-Khaled, Jaradat, Mansour, & Al-zoubi, 2025)	Board Characteristics (Gender Diversity, Board Size, Independence)	ESG Performance	Panel Data, Fixed-Effects Regression	Asia-Pacific (14 Economies)	Independent boards and gender diversity improve ESG performance. State ownership moderates the impact.

(Grau, Bel-Oms, & Núñez-Almonte, 2025; Antari, Sbai, & Ed-Dafali, 2025)	Board Gender Diversity, Gender Diversity Reforms	ESG Performance	Generalized Least Squares (GLS), Random Effects	MENA Region, Turkey	Female representation improves ESG performance; diversity policies boost it.
(Kharbeet, 2023)	ESG Scores (Environmental, Social, Governance)	Firm Performance (Profitability, Market Value)	Fixed Effects Panel Regression	Europe (Public & Private Firms)	R&D investment harms performance, and board size reduces ESG's impact on profitability.
(Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024)	Board Gender Diversity	ESG Performance & Firm Performance	Panel Data	Gulf Countries (Public Firms)	Board Gender Diversity boosts the link between ESG and firm performance, especially with strong governance.
(Al Hosani, Nobanee, & Ellili, 2025)	Board Gender Diversity	Financial Performance & ESG	Panel Data	UAE (Non-Financial Companies)	Board Gender Diversity enhances financial performance, especially with strong ESG disclosures.
(Kampoowale, Kateb,	Board Gender Diversity	Financial Performance	SEM, Baron-Kenny, 2SLS	Listed companies, Malaysia	Higher BGD boosts TQ, ROA, and

Salleh, & Alahdal, 2025)					ROE, with ESG mediating the link.
(Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024)	ESG Performance	Investment Efficiency	Fixed effects, Heckman, 2SLS	Listed firms, Emerging markets (7 countries)	Strong ESG improves IE; cultural diversity moderates overinvestment, not underinvestment.
(Grau, Bel-Oms, & Núñez-Almonte, 2025)	Board Gender Diversity, Board Sub-committees	ESG Performance	Panel Data, GMM	Sustainable Companies, Europe	Gender parity weakens BGD's impact on ESG, CSR-environmental, and governance performance.

2.4 Moderating Role of Board Gender Diversity (BGD)

Gender diversity on boards has heightened significant attention in the governance literature at companies regarding their influence on control over about issues such as Environmental, Social, and general corporate behaviors. Empirical research has indicated that gender-diverse boards improve the decision-making process to ensure more ethical and sustainable corporate behavior. Females who are members of boards of directors seem to emphasize long-term sustainability which falls within the framework toward achieving goals related to ESG issues bringing wider perspectives that further improve corporate accountability with enhanced stakeholder engagement (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024; García-Meca & Martinez-Ferrero, 2024). Evidence from some regions, like GCC countries gender-diverse boards show better ESG but the

actual effectiveness is dictated by regional governance frameworks besides the existing national gender parity policies (Grau, Bel-Oms, & Núñez-Almonte, 2025).

The relation between Board Gender Diversity (BGD) and ESG is more pronounced in countries with strong gender equality policies. For Example, female board members play a very effective role in the inculcation of sustainability practices in some European countries where gender parity policies are already in place because such policies offer an enabling environment for women to exert their influence on corporate decisions (Grau, Bel-Oms, & Núñez-Almonte, 2025). Conversely, where there is less gender parity in the region, female board members' positive influence on ESG was found to be weaker. This brings out that the effectiveness of gender-diverse boards regarding enhanced ESG outcomes depends on broader institutional and societal contexts (Al-Tahat, Bani-Khaled, Jaradat, Mansour, & Al-zoubi, 2025).

The moderating role of Board Gender Diversity (BGD) is also seen in the developing market, in which it facilitates better ESG that could be moderated by some institutional impediments such as high information asymmetry and weak regulatory enforcement. For instance, gender-diverse boards in Malaysia have been found to improve ESG outcomes when the institutional setting provides avenues for sustainability practices (Kampoowale, Kateb, Salleh, & Alahdal, 2025). However, the effect of Board Gender Diversity (BGD) on governance in emerging economies might be muted due to other factors such as corporate ownership structure and economic conditions (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024).

The ownership structure of the firm also moderates the effect of Board Gender Diversity (BGD) on ESG. In state-owned enterprises, SOEs, the contribution of Board Gender Diversity (BGD) to ESG appears less significant due to the political and compliance-oriented governance of SOEs. This is supported by a study (Al-Tahat, Bani-Khaled, Jaradat, Mansour, & Al-zoubi, 2025), found

that in SOEs, gender diversity tends to be more of a regulatory function than an input channel towards sustainability as a strategic driver; hence, it has limited potential in influencing ESG. On the other hand, private-sector firms have market-based governance systems where positive results emanate much stronger from gender-diverse boards.

Other corporate governance mechanisms, like board independence and transparency, also play a role in the relationship between Board Gender Diversity (BGD) and ESG. Transparency and accountability are more effectively achieved with gender-diverse boards, facilitating the nurturing of responsibility in ESG practices. Female directors are more likely to support the championing of ethical behavior which will lead to better monitoring of corporate social responsibility activities as well as reduced corporate misconduct (García-Meca & Martinez-Ferrero, 2024). However, the advancement of ESG outcomes through Board Gender Diversity (BGD) is largely facilitated by regional and national institutional frameworks that add another layer of complexity to this already dynamic relationship.

Though Board Gender Diversity (BGD) generally leads to better ESG, it is also besides several moderating factors such as national gender parity and institutional setup besides the type of ownership structure. Gender-diverse boards are more likely to attain the success of ESG when accompanied by a strong regulatory environment and by the practice of gender equality. Future research should continue to consider such contextual factors whereby an understanding of gender diversity can be achieved as an intervening tool for driving sustainable corporate practices.

2.5 Literature Gaps

The Literature Review revealed several gaps in existing studies. Following gaps will address in this study:

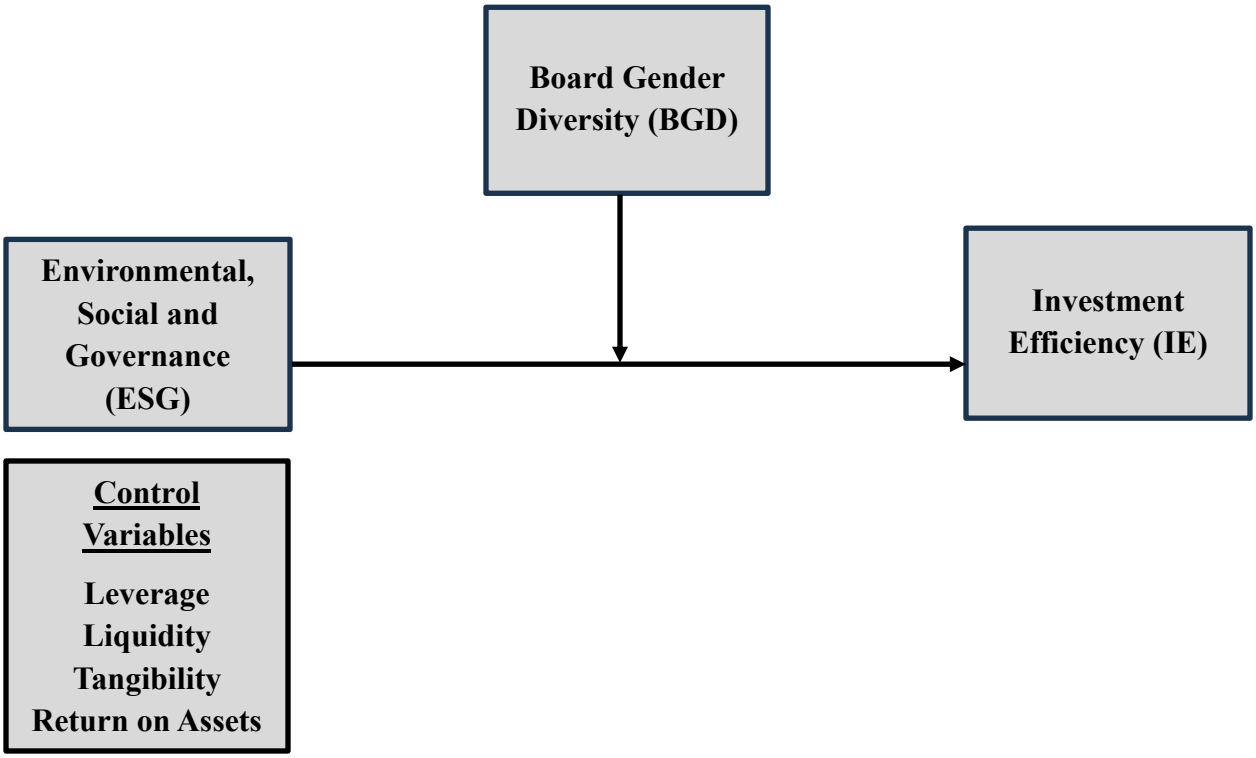
1. Little research explores the direct relationship between Investment Efficiency and ESG, as most studies prefer to focus on firm performance and sustainability.
2. The results of the relationship between ESG and Investment Efficiency are inconsistent. Some give a positive effect, while others indicate a negative impact.
3. In most studies, Board Gender Diversity (BGD) has been treated as an independent component rather than a moderating component in the ESG and Investment Efficiency relationship.
4. Studies examining the moderating role of Board Gender Diversity (BGD) in the relationship between ESG and Investment Efficiency are lacking.
5. ESG and Investment Efficiency studies are concentrated mostly in Asian economies. Studies pertaining to the GCC countries are few and far between.
6. One has not come across a detailed study that evaluates the impact of ESG on Investment Efficiency in non-financial firms such as manufacturing.
7. The contextual factors, such as the ownership structure and regulatory environment, have not been adequately explored about ESG and Investment Efficiency in this region.

2.6 Research Framework Development

The research framework for the current study was developed based on previous comprehensive discussions. The current proposed framework is based on three theories: Stakeholder Theory**,** Agency Theory**,** and Resource Dependency Theory (RDT)**,** which cover all variables. A small number of studies were conducted to examine the influence of ESG and its impact on Investment

Efficiency**,** but these studies do not able to draw a reasonable conclusion regarding ESG impact and results in various contradictions. Additionally, little attention was given to non-financial firms on the manufacturing side in the GCC countries. This study was conducted in six GCC countries: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE), contributing more facts and results towards the literature. It will analyze the individual as well as collective impact of ESG on Investment Efficiency**.** Based on above discussion following framework for the study is proposed.

Figure 2.1



2.7 Research Hypothesis

Based upon the empirical examination and review, the following hypothesis are proposed:

H1: There is a significant impact of ESG on the Investment Efficiency of non-financial firms in GCC countries.

H1-1: Environmental significantly impact the Investment Efficiency of non-financial firms in GCC countries.

H1-2: Social significantly impact the Investment Efficiency of non-financial firms in GCC countries.

H1-3: Governance significantly impact the Investment Efficiency of non-financial firms in GCC countries.

H2: There is a significant impact of the individual ESG dimensions (Environmental, Social, Governance) on the Investment Efficiency of non-financial firms in GCC countries.

H2-1: Environmental dimension significantly impacts the Investment Efficiency of non-financial firms in GCC countries.

H2-2: Social dimension significantly impacts the Investment Efficiency of non-financial firms in GCC countries.

H2-3: Governance dimension significantly impacts the Investment Efficiency of non-financial firms in GCC countries.

H3: Board Gender Diversity (BGD) significantly moderates the relationship between ESG and Investment Efficiency of non-financial firms in GCC countries.

H3-1: Board Gender Diversity (BGD) moderates the relationship between Environmental and Investment Efficiency.

H3-2: Board Gender Diversity (BGD) moderates the relationship between Social and Investment Efficiency.

H3-3: Board Gender Diversity (BGD) moderates the relationship between Governance and Investment Efficiency.

2.8 Summary of the Chapter

The current chapter discusses the literature review and theoretical background of all the variables, namely ESG, ESG & its dimensions & Investment Efficiency. It also comprehensively details empirical findings of all the proposed relations. To summarize literature table is also constructed in this chapter and hypothesis followed by conceptual framework were also built.

CHAPTER 03

METHODOLOGY

3.1 Introduction to the Chapter

This chapter discusses research design demonstrating research approach, type of data set and time period for the data collection. Besides, population measurement and data collection methods are also explained comprehensively. Econometric models are also explained for the achievement of research objective and hypothesis. At last, there are data analysis methods and various panel models with summary of the chapter at the end.

3.2 Operational Definitions of Variables

Operational definitions of variables constructing the framework discuss the way in which these variables tend to be measured in the current study. As, supported by previous literature. The following Table 3.1 represents the operational definitions of dependent, independent, moderator and control variables.

Table 3.1: Operational Definitions

Variables	Definitions
Environment (ENV)	Environmental: rates the company's effect on both living and non-living natural systems. It shows how well a firm uses best management steps to avoid environmental dangers and take advantage of green chances. (Grau, Bel-Oms, & Núñez-Almonte, 2025)
Social (SOC)	Social: judges how well a company can gain trust and loyalty from its staff, clients, and the public by using top management practices. It shows the firm's image and the power of its rights to operate. (Grau, Bel-Oms, & Núñez-Almonte, 2025)

Governance (GOV)	Governance: judges the ways and steps a company has to make sure its top people work for the good of those who own shares for a long time. It shows how well the company can use top methods to lead and manage its roles and duties. (Grau, Bel-Oms, & Núñez-Almonte, 2025)
ESG	ESG: is an aggregate rating of the company based on self-reported data in the pillars of environmental, social, and corporate governance. (Grau, Bel-Oms, & Núñez-Almonte, 2025)
Investment Efficiency (IE)	Investment Efficiency refers to a firm's capacity to embrace all and only those projects which have positive net present value (NPV). This is measured by deviations from the level of investment that is predicted based on growth opportunities for the firm. Overinvestment is defined as investment in negative NPV projects while underinvestment takes place when firms shun profitable projects. The residuals from an investment model can be used to quantify investment efficiency where higher values mean better efficiency. (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024)
Leverage (LEV)	Leverage as measured by the ratio of total liabilities to total assets indicates the extent to which a firm utilizes debt in financing its operations. This control variable will assist in the determination of financial risk resulting from investment decisions and the efficiency of a company. (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024)
Liquidity (LIV)	Liquidity is the ability of a company to pay off its short-term debts and is mostly measured by the ratio between cash or liquid assets and total assets. This will show how well a firm is able to get out of any financial problem it finds itself in or take advantage of new investment opportunities that may arise. (Eissa, Hamdy, & Diab, 2024)
Tangibility (TANG)	Tangibility is the component of a company's physical assets-such as property, plant, and equipment-compared to its total assets. This variable will assist in reviewing the asset structure of a company and how effectively these assets can be used as collateral against investments. (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024)
Return on Assets (ROA)	Return on Assets measures a company's net income in relation to total assets. It is calculated as Net Income over Total Assets and expresses how well the company has exploited its assets toward the generation of profit. (Grau, Castelo-Branco, & Bel-Oms, 2025)

3.3 Research Design

Research design is choosing of the overall research process. There are two methods that are universally used to do research, which were presented by (Al Hosani, Nobanee, & Ellili, 2025) deductive and inductive. By developing hypotheses, the deductive method seeks to validate the current theory (Almutairi, Albaz, & Hashad, 2025). This strategy is supported by generalized theory that focuses on a particular area of information discovered during the research process (Grau, Bel-Oms, & Núñez-Almonte, 2025). The Inductive method was explained as entails new theoretical notion generalization of an idea from a single or special point of view (Tran, Lu, Ting, Huang, & Fauzi, 2024). A deductive approach will be adopted, as is common in studies from emerging markets where hypotheses are validated based on appropriate quantitative metrics (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024). The panel that will test the relationships is purely quantitative and comes out of secondary data for the specified GCC firms. It adopts one of the regression techniques available within panel data, specifically fixed-effects models to test for endogeneity and interaction terms concerning moderation similar to prior literature (Ellili, 2025; Makhija, Raghukumari, & Sethiya, 2025). These approaches keep unobserved heterogeneity under control when Leverage, Liquidity, Tangibility, and ROA controls are introduced in the specification so that the results will be robust regarding their effects through any of the ESG. (Almutairi, Albaz, & Hashad, 2025) The current study uses a deductive approach, involving the empirical testing of existing theories. This approach is supported by the proposal of hypotheses, which are tested using quantitative data to validate or refute the theoretical framework.

3.4 Nature and Data of Sources

The Refinitiv Eikon database is used to collect data on Environment, Social, Governance, Overall ESG, Investment Efficiency (IE), moderator Board Gender Diversity (BGD) and control variables

such as Leverage, Liquidity, Tangibility, and Return on Assets (ROA). This study employs quantitative data and follows a deductive approach. This panel structure makes it possible to control unobserved heterogeneity and endogeneity by using fixed effects modeling, thus deriving inference more robust than what can be obtained from a pure cross-section (Makhija, Raghukumari, & Sethiya, 2025). Among other data formats, panel data increases empirical efficiency since it decreases the degree of collinearity among such variables as leverage and ROA by increasing degrees of freedom and considering time-varying effects in emerging markets (Al-Tahat, Bani-Khaled, Jaradat, Mansour, & Al-zoubi, 2025; Grau, Bel-Oms, & Núñez-Almonte, 2025). These benefits give room for an elaborate moderating-interaction effect that aligns with the studies of ESG in the same context (Al Hosani, Nobanee, & Ellili, 2025; Tran, Lu, Ting, Huang, & Fauzi, 2024).

3.5 Population and Data Collection

The data for this study spans from 2015 to 2024 (10 years) and focuses on non-financial manufacturing firms in the Gulf Cooperation Council (GCC) countries: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE). A total of 156 non-financial manufacturing firms from these countries, for which data is available, are included in the study.

3.5.1 Sample Selection Criteria

The sample for this study consists of 156 non-financial manufacturing firms from the Gulf Cooperation Council (GCC) countries: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE). These firms have been chosen based on the availability of secondary data related to Environmental, Social, Governance, Overall ESG, Investment Efficiency (IE), moderator Board Gender Diversity (BGD), and key control variables such as Leverage, Liquidity, Tangibility, and Return on Assets (ROA) for a period extending over 10 years from 2015 to 2024.

In addition to this major requirement regarding the availability of secondary data on all above-stated variables for the whole period concerned with this study, only companies having complete data for these variables are considered to ensure consistency.

This study uses a panel data approach that mixes the quantitative data and follows the deductive approach, thus enabling a discussion of firm and time specific effects (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024). Therefore, better empirical results are some of the advantages this method has over other data structures, dynamic changes that can be captured over time, and reduced problems of multicollinearity (Grau, Castelo-Branco, & Bel-Oms, 2025). The second advantage regarding the influence of Board Gender Diversity (BGD) as a moderator will enable the current paper to determine how female representation on boards affects ESG-Investment Efficiency, which has been deemed so in earlier studies (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024).

Sample selection is also consistent with earlier studies conducted in the context of GCC countries, which highlighted non-financial manufacturing firms because this sector has great Environmental and Social impacts (Grau, Castelo-Branco, & Bel-Oms, 2025). The study adopted already established criteria for selecting firms based on data completeness and continuous reporting as well as sector relevance that were used in related ESG studies from other emerging markets (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024; Grau, Castelo-Branco, & Bel-Oms, 2025).

Table 3.2: Sample Selection of Firms

Gulf Cooperation Council (GCC) Countries	Non-Financial Manufacturing Firms
Bahrain	8
Kuwait	17
Oman	11
Qatar	32
Saudi Arabia	49
United Arab Emirates (UAE)	39
Total	**156**

3.6 Measurement of Variables

The Measurement of Variables (IV, DV, Moderating and Control) are given below:

Table 3.3: Measurement of the Variables

Variables	Measurements	References
Environmental (ENV)	Evaluated using environmental metrics such resource use, carbon emissions, and product innovation.	Refinitiv Eikon database and (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024)
Social (SOC)	Measured by community involvement, human rights laws, labor standards, and employee wellbeing.	Refinitiv Eikon database and (Grau, Castelo-Branco, & Bel-Oms, 2025)
Governance (GOV)	Determined by the board's efficacy, which includes shareholder rights, CEO remuneration, board makeup, and anti-corruption measures.	Refinitiv Eikon database and (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024)

ESG	A sum of the ratings for the environment, society, and governance. usually expressed as the three separate scores combined into a weighted composite score.	Refinitiv Eikon database and (Grau, Castelo-Branco, & Bel-Oms, 2025)
Investment Efficiency (IE)	Determined by differences from anticipated investment levels based on the growth prospects of a company.	Refinitiv Eikon database and (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024)
Board Gender Diversity (BGD)	Determined by the proportion of female directors on a company's board.	Refinitiv Eikon database and (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024)
Leverage (LEV)	Determined by comparing a company's total debt to its equity, or the debt-to-equity ratio.	Refinitiv Eikon database and (Grau, Castelo-Branco, & Bel-Oms, 2025)
Liquidity (L)	Evaluated using the quick ratio (current assets/current liabilities) and current ratio (current assets/current liabilities).	Refinitiv Eikon database and (Grau, Castelo-Branco, & Bel-Oms, 2025)
Tangibility (TANG)	Determined by dividing total assets by the percentage of physical assets (equipment, property).	Refinitiv Eikon database and (Alahdal, Hashim, Almaqtari, Salleh, & Pandey, 2024)
Return on Assets (ROA)	Calculated by dividing net income by total assets. It demonstrates how well a business uses its resources to turn a profit.	Refinitiv Eikon database and (Grau, Castelo-Branco, & Bel-Oms, 2025)

3.7 Econometric Models of the Study

In this study, quantitative data is used, and the research follows a deductive approach. In these econometric models, the dependent variable is Investment Efficiency, the independent variables are Environmental, Social, Governance, Overall ESG, the moderator is Board Gender Diversity (BGD), and the control variables are Leverage, Liquidity, Tangibility, and Return on Assets (ROA).

- **Model 1: Only ESG (Without BGD):**

$$INVEFF_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 LEV_{it} + \beta_3 LIQ_{it} + \beta_4 TANG_{it} + \beta_5 ROA_{it} + \epsilon_{it}$$

- **Model 2: Disaggregated ESG (No Moderation):**

$$INVEFF_{it} = \beta_0 + \beta_1 ENV_{it} + \beta_2 SOC_{it} + \beta_3 GOV_{it} + \beta_4 LEV_{it} + \beta_5 LIQ_{it} + \beta_6 TAN_{it} + \beta_7 ROA_{it} + \epsilon_{it}$$

- **Model 3: Main Effect of ESG and Moderation by Board Gender Diversity (BGD):**

$$INVEFF_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 BGD_{it} + \beta_3 (ESG_{it} \times BGD_{it}) + \beta_4 LEV_{it} + \beta_5 LIQ_{it} + \beta_6 TANG_{it} + \beta_7 ROA_{it} + \epsilon_{it}$$

- **Model 4: Disaggregated ESG (Environmental, Social, Governance) with BGD Interactions:**

$$INVEFF_{it} = \beta_0 + \beta_1 ENV_{it} + \beta_2 SOC_{it} + \beta_3 GOV_{it} + \beta_4 BGD_{it} + \beta_5 (ENV_{it} \times BGD_{it}) + \beta_6 (SOC_{it} \times BGD_{it}) + \beta_7 (GOV_{it} \times BGD_{it}) + \beta_8 LEV_{it} + \beta_9 LIQ_{it} + \beta_{10} TANG_{it} + \beta_{11} ROA_{it} + \epsilon_{it}$$

Where:

- **INVEFF** = Investment Efficiency (DV)
- **ESG**, **ENV**, **SOC**, **GOV** = Independent Variable (IV)
- **BGD** = Board Gender Diversity (Moderator)
- **LEV** = Leverage (Control Variable)

- **LIQ** = Liquidity (Control Variable)
- **TANG** = Tangibility (Control Variable)
- **ROA** = Return on Assets (Control Variable)
- **єit** = Error Term
- **i** = Firm
- **t** = Time

3.8 Panel Regression Models

Panel regression models are extensively used in empirical research on ESG, Investment Efficiency, and Board Gender Diversity (BGD), as they accommodate longitudinal data by integrating cross-sectional and time-series elements, enabling the control of unobserved heterogeneity through Fixed Effects (FE) and Random Effects (RE) estimators to provide robust inferences on dynamic relationships (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024; Ellili, 2025). In this study, both FE and RE models are applied to analyze the impact of ESG (overall and pillars: Environmental, Social, Governance) on Investment Efficiency, with Board Gender Diversity (BGD) as a moderator, while controlling for Leverage, Liquidity, Tangibility, and ROA; the Hausman test determines the preferred model, where FE is suitable for firm-specific effects and RE for broader generalizability, aligning with mixed results that may indicate varying influences across GCC manufacturing firms (Makhija, Raghukumari, & Sethiya, 2025; Al-Tahat, Bani-Khaled, Jaradat, Mansour, & Al-zoubi, 2025). This dual approach addresses endogeneity and heterogeneity, as seen in emerging market studies, with robustness checks including GMM for dynamic panels and interaction terms to interpret moderation effects in the presence of both FE and RE outcomes (Grau, Bel-Oms, & Núñez-Almonte, 2025; Tran, Lu, Ting, Huang, & Fauzi, 2024). By employing these models, the study reconciles potential inconsistencies in results, such as context-dependent ESG impacts,

ensuring comprehensive insights into sustainable finance in the GCC context (Guedes, Neves, & Vieira, 2025; Rabbani, Kiran, Bhuiyan, & Al-Hiyari, 2024).

3.8.1 Ordinary Least Square (OLS) Method

The Ordinary Least Square (OLS) method is a core regression technique that estimates linear model parameters by minimizing squared residuals, offering unbiased estimates under key assumptions like linearity and homoscedasticity, ideal for initial analysis in ESG and Investment Efficiency studies (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024; Makhija, Raghukumari, & Sethiya, 2025). In this study, OLS is used as a baseline to assess ESG pillars impact on Investment Efficiency with Board Gender Diversity (BGD) moderation, before advancing to panel methods for endogeneity (Almutairi, Albaz, & Hashad, 2025; Tran, Lu, Ting, Huang, & Fauzi, 2024). It enables clear coefficient interpretation for controls like Leverage and ROA, with robustness via 2SLS in GCC contexts (Ellili, 2025; Guedes, Neves, & Vieira, 2025).

3.8.2 Fixed Effect Model (FEM)

The Fixed Effect Model (FEM) represents one of the panel data regression techniques by which time-invariant unobserved heterogeneity can be controlled through demeaning the variables within each entity, thereby allowing a focus on intra-firm changes to yield unbiased estimates in the analyses of ESG and Investment Efficiency (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024; Ellili, 2025). This article applies FEM in estimating the effects of ESG pillars on Investment Efficiency with Board Gender Diversity (BGD) moderation, as it effectively treats firm-specific invariants in GCC manufacturing data over the period 2015–2024 (Makhija, Raghukumari, & Sethiya, 2025). It specifies both entity and year fixed effects to address endogeneity issues that might offer more convincing evidence regarding such interaction as a moderator when including control variables for Leverage and ROA (Al-Tahat, Bani-Khaled, Jaradat, Mansour, & Al-zoubi, 2025). Compared

to random effects, FEM is selected via the Hausman test for correlated errors, isolating time varying effects in emerging markets (Grau, Bel-Oms, & Núñez-Almonte, 2025; Tran, Lu, Ting, Huang, & Fauzi, 2024). This approach ensures causal reliability, aligning with sustainable governance research (Guedes, Neves, & Vieira, 2025; Rabbani, Kiran, Bhuiyan, & Al-Hiyari, 2024).

3.8.3 Random Effect Model (REM)

The Random Effect Model (REM) is a panel data regression technique that assumes unobserved heterogeneity is random and not correlated with the predictors such variables, allowing for more efficient estimation by utilizing both within and between variations, therefore providing more generalized results in ESG and Investment Efficiency studies (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024; Ellili, 2025). In line with this, the study applied REM as an alternative to fixed effects when estimating the impact of ESG pillars on Investment Efficiency with Board Gender Diversity (BGD) as a moderator using data from firms assumed to have random effects drawn from the population and covering manufacturing firms in the GCC over 2015–2024 (Makhija, Raghukumari, & Sethiya, 2025). It gives variance for those factors that are decomposition, which are time-invariant thereby improving efficiency when the Hausman test prefers it to fixed effects (Al-Tahat, Bani-Khaled, Jaradat, Mansour, & Al-zoubi, 2025; Grau, Bel-Oms, & Núñez-Almonte, 2025). This model captures variability at large, separating out moderating interactions when control is made over Leverage, Liquidity, Tangibility, and ROA in emerging contexts (Tran, Lu, Ting, Huang, & Fauzi, 2024). REM otherwise supports robust hypothesis testing on sustainable governance insight where fixed effects could be over-controlled (Guedes, Neves, & Vieira, 2025; Rabbani, Kiran, Bhuiyan, & Al-Hiyari, 2024).

3.9 Data Analysis Method

An analysis of data in this study is carried out through panel regression techniques to examine the impact of ESG (overall and its pillars: Environmental, Social, and Governance) on Investment Efficiency, with Board Gender Diversity (BGD) as a moderator, and (Leverage, Liquidity, Tangibility, & ROA) as control variables. It applies fixed effects models to control both types of unobserved heterogeneity across firms and time. Any kind of endogeneity will be tested in the model through the Heckman two-step procedure and two-stage least square tests (2SLS) as mostly been applied for model specified within emerging markets (Al-Hiyari, Ismail, Kolsi, & Kehinde, 2024; Ellili, 2025). To add the moderating effect, interaction terms, e.g. ESG*Board Gender Diversity(BGD) shall be entered into the regressions and robustness checked by Generalized Method of Moments (GMM) involving dynamic panel data to ensure the model's appropriateness in catching causality (Makhija, Raghukumari, & Sethiya, 2025; Grau, Bel-Oms, & Núñez-Almonte, 2025). The above suggested approach falls in line with the quantitative studies already carried out in the area of sustainable finance, helping to test hypotheses minutely regarding the influence of ESG pillars on efficient capital allocation pertaining to the manufacturing firms of GCC countries.

Descriptive Statistics, Correlation Analysis, and Variance Inflation Factor (VIF) tests shall be used toward the characteristics of data and multicollinearity for inference of results without bias or any form of prevention against it (Al-Tahat, Bani-Khaled, Jaradat, Mansour, & Al-zoubi, 2025; Tran, Lu, Ting, Huang, & Fauzi, 2024). The whole analyses are to be run in STATA-17 software, capable of managing longitudinal panel data efficiently, advanced econometric modeling, and output visualization for better interpretation (Almutairi, Albaz, & Hashad, 2025; Abbas, Tabash, AsadUllah, & Riaz, 2025). Through this approach, strong empirical evidence can be obtained as a

moderating effect of Board Gender Diversity (BGD) toward expanding another dimension in understanding more extensively on corporate governance influence through ESG factors when investing in emerging economies.

3.10 Summary of the Chapter

The current chapter discusses the population, methodology of data collection, research design, major variables, and research framework. The current chapter also discusses in detail the nature of the datasets constructed for the study. All econometric models are also built for panel data analysis. Along with this measurement of variables including control variables has been incorporated in much detail. Also, hypotheses are framed in line with models of regression and according to objectives of study. The models developed to supervise the moderating effect of Board Gender Diversity (BGD) are also discussed under this chapter through econometric equations.

CHAPTER 04

ANALYSIS

4.1 Introduction of the Chapter

This chapter discusses the analysis section of the study. The study aims to explore the impact of Environmental, Social, and Governance and Overall ESG on Investment Efficiency (IE), with Board Gender Diversity (BGD) as the moderate variable. The analysis includes independent variables such as Environmental, Social, Governance and Overall ESG, dependent variable Investment Efficiency (IE), and control variables including Leverage, Liquidity, Tangibility, and Return on Assets (ROA). Since this study is a panel data study, descriptive statistics are first presented to know the distribution of major variables and examine preliminary relationships. The effect that independent variables have on the dependent variables shall be estimated using panel data regression models. Other diagnostic tests have also been carried out, which include the Hausman test for ensuring that the model being used is robust and appropriate.

4.2 Results

The panel data analysis results from the study are displayed below.

Software Used

To conduct the data analysis, STATA-17 has been used.

5.3.1 Descriptive Statistics

Table 4.1 provides descriptive statistics of the main financial and ESG (Environmental, Social, and Governance) variables. The mean values of the variables show the average performance of companies in this sample. Investment Efficiency (INVEFF) has a mean value of (1.064) indicating moderately efficient investments by companies on average. The Environment (E) has a mean value

of (1.187) while mean values for Social (S) and Governance (G) are at (1.218) and (1.601) respectively indicating better average governance compared to social or environmental by these companies. The ESG has a mean value of (28.331) which reflects Overall ESG from all three pillars that is also relatively moderate. The Return on Assets (ROA) has a low mean of (0.083), suggesting that companies, on average, have low profitability.

Standard deviations report the dispersion around these mean values. For example, Leverage (LEV) has a very high standard deviation of (129.712), which means there is large variation in how firms use debt. Liquidity (LIQ) has an even more aggressive standard deviation at (1349.642), reflecting extremely different liquidity positions of the firms. Tangibility (TANG), with a mean value of (1.26) indicates great variability in tangibility of assets and with a standard deviation of (25.439) implies some firms may have substantial tangible assets while others may not have such assets. Maximum and minimum values for these variables will show the range over which can vary. For Example, the maximum value for Return on Assets (ROA) is (.434), substantially above its means to prove that some firms are highly profitable. Similarly, Overall ESG ranges from as low as (0.186) to as high as (95.402), showing large disparities in corporate sustainability efforts across the sample.

Table 4.1: Descriptive Statistics

Variables	Mean	Std. Dev.	Min	Max
INVEFF	1.064	4.035	20.037	9.093
ENV	1.187	.444	-0.521	1.933
SOC	1.218	.438	-0.731	1.949
GOV	1.601	.237	0.294	1.98
ESG	28.331	16.098	0.851	84.355
LEV	5.214	129.712	0.000	5019.525
LIQ	139.136	1349.642	0.113	31857.156
TANG	1.26	25.439	0.000	1005.176
ROA	.083	.067	0.001	.434

Source: Authors Estimation

Notes: INVEFF-Investment Efficiency, ENV-Environmental, SOC-Social, GOV-Governance, ESG-Overall ESG, LEV-Leverage, LIQ-Liquidity, TANG-Tangibility, ROA-Return on Assets

5.3.2 Correlation Analysis

Table 4.2 contains the correlation analysis between a set of financial and ESG variables. Weak positive correlations between Investment Efficiency (INVEFF) and Environment (E), Social (S), and Governance (G), at (0.154), (0.102), and (0.081) respectively, are evident at 1% level of statistical significance. This somewhat explains that firms with high Investment Efficiency slightly improve their ESG; however, the relationship is not strong since these are simple pairwise correlations with no control for other independent influences. Stronger correlations are noticed by Overall ESG (ESG) when calculated as a combination of individual components wherein it reflects

very strong positive correlation with Social at (0.921) and Governance at (0.752) both significant at a 1% level-that is, to say the composite Overall ESG will depend more on social and governance. Leverage (LEV) has a very small positive relationship with INVEFF, at (0.101), significant at the 1% level, indicating a minor relationship between higher Leverage and Investment Efficiency. Liquidity (LIQ) has weak positive relationships with INVEFF (0.115) and Environment (0.093), both significant at the 1% level, indicating a slight relationship that better liquidity relates to better Investment Efficiency and Environment; however, Tangibility (TANG) does not have any meaningful relationships with most of these variables except for a small positive relationship with LEV (0.101), significant at the 1% level.

Return on Assets (ROA) has weak negative correlations with SS (-0.091) and GS (-0.117) significant at the 1% level, meaning that firms in general, better in social and governance are less profitable. This can be interpreted as saying that more investment in sustainability by the firm lowers its profitability. ROA does not have strong relations with INVEFF, LEV or LIQ thereby indicating that profitability is relatively weakly associated with these factors.

In summary, INVEFF presents slight positive correlations with ESG factors, except for the much stronger relationships that are established between the ESG dimensions themselves. Particularly strong is the relationship between social and governance. Some financial variables, specifically leverage and liquidity, present some associations with Investment Efficiency whereas Tangibility and Return on Assets (ROA) present weaker or even negative correlations with both ESG and Investment Efficiency. This indicates that although ESG does influence financial metrics to some degree, those effects are not very strong.

Table 4.2: Correlation Analysis

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) INVEFF	1.000								
(2) ENV	0.154*	1.000							
	(0.000)								
(3) SOC	0.102*	0.632*	1.000						
	(0.000)	(0.000)							
(4) GOV	0.081*	0.251*	0.540*	1.000					
	(0.001)	(0.000)	(0.000)						
(5) ESG	0.135*	0.666*	0.921*	0.752*	1.000				
	(0.000)	(0.000)	(0.000)	(0.000)					
(6) LEV	0.101*	0.039	0.055*	0.023	0.047	1.000			
	(0.000)	(0.126)	(0.029)	(0.361)	(0.062)				
(7) LIQ	0.115*	0.093*	0.075*	0.007	0.065*	0.340*	1.000		
	(0.000)	(0.000)	(0.003)	(0.787)	(0.010)	(0.000)			
(8) TANG	-0.002	0.036	0.034	0.017	0.034	0.101*	0.001	1.000	
	(0.926)	(0.156)	(0.180)	(0.492)	(0.177)	(0.000)	(0.977)		
(9) ROA	0.047	0.033	-0.091*	-0.117*	-0.072*	0.015	0.061*	0.025	1.000
	(0.062)	(0.197)	(0.000)	(0.000)	(0.005)	(0.547)	(0.017)	(0.332)	

**** p<0.01, ** p<0.05, * p<0.1*

Source: Authors Estimation

Notes: INVEFF-Investment Efficiency, ENV-Environmental, SOC-Social, GOV-Governance, ESG-Overall ESG, LEV-Leverage, LIQ-Liquidity, TANG-Tangibility, ROA-Return on Assets

5.3.3 Multicollinearity Statistics

The Variance Inflation Factor (VIF) of the variables, and its reciprocal (1/VIF) are presented in Table 4.3 as an initial diagnosis of multicollinearity within the model. Normally, if the VIF is greater than 10 there exists high multicollinearity; close to 1 means little or no multicollinearity. Social and Overall ESG have high VIFs of (11.938) and (27.517) respectively which implies that there is a problem with multicollinearity among them with other variables inside the specification related to different dimensions of ESG that can bias regression results because their coefficients are not correctly estimated. Environmental and Governance only show moderate VIFs of (2.757) and (5.54) indicating some correlation though at unharmful levels.

Meanwhile, financial factors represented by Leverage (LEV), Liquidity (LIQ), and Return on Assets (ROA) posted low VIFs at (1.145), (1.146), and (1.043) respectively hence showing less collinearity among them. Tangibility (TANG) recorded the lowest VIF of (1.014) which means that it does not have a strong relationship with other variables. The Mean VIF is (6.512) thus indicating an overall moderate level of multicollinearity but the high VIFs for Social and Overall ESG should be noted in regression models.

Table 4.3: Variance Inflation Factor (VIF)

Variables	VIF	1/VIF
ENV	2.757	.363
GOV	5.54	.181
SOC	4.938	.084
ESG	4.517	.036
LEV	1.145	.873
LIQ	1.146	.873
ROA	1.043	.958
TANG	1.014	.987
Mean VIF	4.512	.

Source: Authors Estimation

Notes: INVEFF-Investment Efficiency, ENV-Environmental, SOC-Social, GOV-Governance, ESG-Overall ESG, LEV-Leverage, LIQ-Liquidity, TANG-Tangibility, ROA-Return on Assets

5.3.4 Heteroscedasticity

Heteroscedasticity is a variance of the error terms that depends on the independent variables and in such a case, there is a violation of the assumption made in classical linear regression regarding constant error variance i.e., one should always assume (homoscedasticity). The immediate consequence of fitting an inappropriate model where heteroscedasticity exists will be inefficient parameter estimates; all statistical testing involving standard errors like t-test and F-test would become irrelevant since they heavily rely on valid standard errors. Thus, hypothesis testing may mislead and indicate the statistical significance of predictors when they are not significant under

heteroscedastic conditions. This problem is highly pronounced in financial data because changing economic conditions or firm size results in varying error variances (Alodat & Hao, 2025).

Table 4.4 presents the heteroscedasticity results of four different models. Results show that the p-value for all the models is close to (0.05) with that of (0.0534) for M1, hence heteroscedasticity can be said to be a borderline case. This implies that there exists some level of heteroscedasticity but not in a very strong manner to pose high problems. The Chi2 statistics for each model prove their significance, hence whatever the test is picking might be some form of variance inconsistency in the models.

Table 4.4: Heteroscedasticity

Models	Heteroscedasticity	
	P-value	**Chi2**
M1	0.0534	713.12
M2	0.0565	535.24
M3 (Moderation)	0.0545	1143.54
M4 (Moderation)	0.0536	909.33

Source: Authors Estimation

5.3.5 Breusch-Pagan Lagrange Multiplier Test (BP-LM) Test

The Breusch-Pagan Lagrange Multiplier (BP-LM) test is the most popular test that will be used in detecting heteroscedasticity. Specifically, it tests whether the variance of the error terms is constant across observations as in most cases or changes from one observation to another. The null hypothesis in the BP-LM test states that the variance of the error terms is constant and alternative hypothesis it is not; i.e., there exists (heteroscedasticity). If a p-value is less than the level of

significance, say 0.05, then this will indicate that heteroscedasticity does exist within a model hence there has been a violation against an assumption of constant variance. (Khan, Irfan, & Naveed, 2024), the BP-LM test is essential for determining whether heteroscedasticity needs to be addressed in regression analyses.

Table 4.5 presents Breusch-Pagan LM Test Results for four models. Chibar-square test values for all the models (Model 1: 1912.73, Model 2: 1897.98, Model 3: 1945.38, Model 4: 1905.40) are significantly large with p-values of (0.0000) for each model thus indicating strong evidence toward heteroscedasticity in all the four models since the p-values are less than the significance level of, i.e., Consequently, the null hypothesis of homoscedasticity is rejected and alternative hypothesis accepted hence variance cannot be said to be constant across the models; therefore highlighting a need to apply some form of correction such as by way of using robust standard errors or an alternative estimation technique so as to address heteroscedasticity in these models.

Table 4.5: Breusch-Pagan Lagrange Multiplier Test (BP-LM) Test

Coef.	Model 1	Model 2	Model 3 (Moderation)	Model 4 (Moderation)
Chibar-square test value	1912.73	1897.98	1945.38	1905.40
P-value	0.0000	0.0000	0.0000	0.0000

Source: Authors Estimation

5.3.6 Hausman Test for Selection of Panel Model

The Hausman Test is essentially a test that helps in choosing between Fixed Effects Model (FEM) and Random Effects Model (REM) for the analysis of panel data. It's actually a more technical way of saying that it tests whether the random effects are uncorrelated with regressors. If $p<0.05$, then Fixed Effects Model (FEM) is preferred; that is, it indicates random effects are correlated

with independent variables. In the same way, if p>0.05, Random Effects Model (REM) is indicated since it would mean that random effects are not correlated with regressors. The test will be very crucial to aid in picking the right model and getting dependable estimates from analysis involving panel data (Khan, Irfan, & Naveed, 2024).

Table 4.6 summarizes the outcome of the Hausman Test for the four models by indicating their Chi-square test values and p-values. Since, in Model 1, the p-value equals (0.199), it signifies that Random Effects is applicable because there is no significant difference between Fixed and Random Effects estimators. The p-value for model 2 equals (0.03) which is less than (0.05) hence implying that fixed effects should be used due to a significant correlation between the random effects and regressors. For Model 3 (Moderation), since the p-value equals (0.135) therefore random effects are applicable because there exists no significant correlation. Similarly, in Model 4 (Moderation), the p-value is (0.1), again suggesting that the Random Effects Model is more suitable. Overall, the Hausman test results indicate that Models 1, 3, and 4 are better suited to the Random Effects Model, while Model 2 requires the Fixed Effects Model.

Table 4.6: Hausman Test for Selection of Panel Model

Models	Chi-square test value	P-value	Modelling Technique (FEM/REM)
Model 1	4.656	.199	Random
Model 2	12.373	.03	Fixed
Model 3 (Moderation)	8.411	.135	Random
Model 4 (Moderation)	14.695	.1	Random

Source: Authors Estimation

5.3.7 Regression Results: FEM and REM

The regression results in Table 4.5 show that Governance (GOV) and Board Gender Diversity (BGD) positively impact Investment Efficiency (INVEFF). Governance (GOV) has a significant positive effect in both the Fixed Effects Model (FEM) with a coefficient of 14.86 ($p < 0.01$) and in the Random Effects Models (REM) in Model 3 and 4. Similarly, Board Gender Diversity (BGD) also shows significant positive results, with Model 1 under FEM showing a coefficient of 192,401,726.64 ($p < 0.01$) and Model 2 under REM showing 4.47 ($p < 0.1$). The ESG is significant in Model 1 with a coefficient of 34,264,889 ($p < 0.01$), but this effect becomes non-significant in Model 3 and 4, where moderation effects are considered.

Leverage (LEV) and Liquidity (LIQ) are positively associated with INVEFF across all models, indicating that firms with higher leverage and liquidity tend to be more investment efficient. In contrast, Tangibility (TANG) shows no significant effect, suggesting that physical assets do not influence Investment Efficiency. Return on Assets (ROA) has a negative relationship with INVEFF in Model 2 (-4.12, $p < 0.1$), indicating that profitability is not always a predictor of Investment Efficiency.

It is important to note that Model 2 is based on a Fixed Effects Model (FEM), while Model 3 and 4 use Random Effects Models (REM). This distinction reflects the approach to account for unobserved heterogeneity in the data. Overall, strong governance, board diversity, and ESG are crucial for Investment Efficiency, but moderation effects suggest that certain ESG aspects, particularly environmental and governance factors, may reduce Investment Efficiency when combined with other corporate variables.

Table 4.5: Regression Results: FEM and REM

INVEFF	Model 1	Model 2	Model 3 (Moderation)	Model 4 (Moderation)
ENV	-	-1.902 (.780)***	-	2.507 (1.279)**
SOC	-	-6.81 (4.154)*	-	2.95 (1.506)**
GOV	-	14.86 (6.367)***	-	3.62 (2.208)*
BGD	-	-	192401726.64 (82478848)***	4.47 (2.724)*
ESG	34264889 (8755783.6)***	-	63538610.72 (27218544)***	-
ESG*FOB			-9927360.1 (1974185.7)***	-
ENV*FOB	-	-	-	-1.71 (1.044)*
SOC*FOB	-	-	-	-1.96 (1.196)*
GOV*FOB	-	-	-	-25933450 (1.862)***
LEV	2022633 (578187.14)***	1978973 (578481.77)***	2031233.4 (572867.88)***	2048194.8 (574966.57)***
LIQ	221939.24 (82798.933)***	211430.31 (88630.111)***	221357.35 (82197.389)***	226661.95 (82588.785)***
TANG	-5638658.6 (2875776.2)**	-4727412.8 (2880647.3)*	-5582739.4 (2849285.8)**	-4696019.6 (2859768.3)*
ROA	-3.48 (2.126)*	-4.12 (2.516)*	-4.15 (2.119)**	-4.19 (2.140)**
Constant	6.45 (3.935)*	-2.863 (1.041)***	-3.527 (1.094)***	-7.901 (3.268)***

Source: Authors Estimation

Notes: INVEFF-Investment Efficiency, ENV-Environmental, SOC-Social, GOV-Governance, ESG-Overall ESG, LEV-Leverage, LIQ-Liquidity, TANG-Tangibility, ROA-Return on Assets

4.4 Summary of Hypothesis Testing

The Summary of Hypothesis Testing is mentioned below:

Table 4.8: Summary of Hypothesis Testing

Hypothesis	Statement	Result
H1	ESG impact on Investment Efficiency.	**Accepted**
H1-1	Environmental impact on Investment Efficiency.	**Accepted**
H1-2	Social impact on Investment Efficiency.	**Accepted**
H1-3	Governance impact on Investment Efficiency.	**Accepted**
H2	ESG dimensions (Environmental, Social, Governance) impact on Investment Efficiency.	**Accepted**
H2-1	Environmental dimension impact on Investment Efficiency.	**Accepted**
H2-2	Social dimension impact on Investment Efficiency.	**Accepted**
H2-3	Governance dimension impact on Investment Efficiency.	**Accepted**
H3	Board Gender Diversity moderates relationship between ESG and Investment Efficiency.	**Accepted**
H3-1	Board Gender Diversity moderates relationship between Environmental and Investment Efficiency.	**Accepted**
H3-2	Board Gender Diversity moderates relationship between Social and Investment Efficiency.	**Accepted**
H3-3	Board Gender Diversity moderates relationship between Governance and Investment Efficiency.	**Accepted**

4.4 Summary of the Chapter

This chapter carries the discussion of all static panel data analysis in a comprehensive and integrated way. Therefore, requirements and assumptions on panel data set that have to be fulfilled are hereby fulfilled in due manner by this chapter. Detailed explanations of all the tests used, and interpretation of results obtained are included in this chapter. The results for all four models are reported at the end of this chapter together with their descriptions.

CHAPTER 05

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction of the Chapter

This chapter contains a discussion that gives a detailed explanation of the analytical findings of the hypothesis in relation to previous studies. Theoretical backgrounds and supporting arguments are also established. The proposed framework of the current study will be critically evaluated based on theoretical and practical implications, limitations, and recommendations for future study.

5.2 Discussion

This study examined the effect of ESG on Investment Efficiency with the role of Board Gender Diversity (BGD) as a moderator in non-financial manufacturing firms of GCC countries. Results confirm that higher ESG leads to greater Investment Efficiency, indicating that firms having robust ESG strategies are able to attract long-term investments, optimize the use of resources, and end up with better financial outcomes. The results add to the growing literature stock validating the sustainability-financial performance link.

An important contribution of this study lies in the identification to be specific of the moderating role of Board Gender Diversity (BGD). Results establish that gender-diverse boards significantly enhance the relationship between ESG and Investment Efficiency, suggesting that more inclusive decision-making leads to better governance as well as stronger ESG practices. Companies with gender-diverse boards demonstrate a propensity to articulate progressive and holistic sustainability policies which eventually lead to improved financial performance as well as investments.

It also throws light on the fact that the adoption of ESG in the GCC region has been very differential between countries. While UAE and Saudi Arabia have strong performers in ESG and

higher Investment Efficiency, other countries like Bahrain and Kuwait are slow to fully integrate sustainability practices into their manufacturing sectors. This variation again speaks for a uniform ESG framework across the GCC customized as per each country's economic and social contextual differences.

In practical terms, this implies that policymakers in the GCC region should prioritize Board Gender Diversity (BGD) and ESG regulations as an approach to create a sustainable business environment. In return for allowing gender-diverse leadership and stronger ESG policies to take root in corporate cultures, foreign investments will be attracted and long-term economic resilience infused into the region. The government should apply such a policy across all sectors of governance inclusivity and sustainable business practice.

For corporate managers and investors, the study brings to the limelight the need for integrating ESG practice with Board Gender Diversity (BGD) in decisions. Managers in control should make direct efforts at bettering the firm’s ESG and provide gender-diverse leadership for Investment Efficiency leading to long-term growth. On the other hand, investors should consider the companies’ ESG factors and Board Gender Diversity (BGD) when making assessments of companies since these are important elements of sustainable financial returns.

5.3 Research Implication

The research implication on theoretical and practical is following below:

5.3.1 Theoretical Implication

It makes significant theoretical contributions to the knowledge of the relationship between ESG and Investment Efficiency, particularly in non-financial manufacturing firms of GCC countries. The study supports growing literature where positive relationships between Environmental, Social, and Governance with Investment Efficiency are observed such that good ESG practice can bring

better financial as well as operational output. Such an evaluation of ESG through these three pillars gives a more detailed insight into how different aspects of environmental sustainability, social responsibility, and governance practice individually contribute to a firm's Investment Efficiency. The major theoretical contribution of this study is introducing Board Gender Diversity (BGD) as a moderate variable in the relationship between ESG and Investment Efficiency. This realization thereby creates a new dimension or angle of approach for corporate governance theory, particularly through the accentuation of the fact that diverse boards may be pivotal in enhancing the effectiveness of ESG strategies. The results indicate that gender-diverse boards improve decision-making processes by bringing different perspectives into strategic discussions and ensuring more effective integration of ESG factors into corporate practices. This corroborates earlier findings on the positive effects that diversity in leadership has on organizational outcomes but extends such understanding to matters relating to ESG and investment decisions. The study has also, therefore, addressed a major gap in GCC region literature resulting from inadequate studies relating to ESG practices with Board Gender Diversity (BGD) and Investment Efficiency. The study's reliance on secondary data from 2015 to 2024 and its focus on a specific region provides a novel perspective on how ESG factors and Board Gender Diversity (BGD) interact in emerging markets, offering a unique contribution to both the academic discourse on ESG and the governance literature.

5.3.2 Practical Implication

The practical implications of this study are useful for policymakers, corporate managers, and investors. Pertaining to policymakers, the findings recommend that acting upon Board Gender Diversity (BGD) as part of ESG-related regulations will significantly make available avenues through which ESG can channel its effectiveness toward Investment Efficiency. By offering policies for companies within the GCC countries to increase gender diversity on the boards and

have strong ESG practices, governments in these countries concurrently create an environment attracting long-term sustainable growth with improved firms' overall competitiveness. This falls within a more massive drive internationally for greater gender equity at leadership levels and recognition of ESG as a critical component toward sustainable business practices. Corporate managers should use these results to review their governance practice as well as a better approach toward the integration of ESG practices in decision-making. By raising their games in the aspects of Environment, Social, and Governance together with fostering more gender diversity on board, managers will not only be able to satisfy heightened stakeholder demands but also enhance the firm's Investment Efficiency. This is particularly relevant for non-financial manufacturing firms where long-term sustainability plus operational efficiency increasingly ties in with competitive advantage. The study provides investors with handy information on how Board Gender Diversity (BGD) and ESG could be pointers to a firm's long-haul growth potential. Profitability and efficiency of investment decisions are characteristics that define firms with strong ESG practices and diverse leadership. Such firms have high performance on these dimensions, making them attractive to investors who are champions of sustainability and high corporate performance. This thereby constitutes a further basis for encouraging the infusion consideration of the ESG factor and Board Gender Diversity (BGD) in the evaluation of investment opportunities because this combination leads to better risk management, enhanced reputation, and superior financial results. The study strategically informs business practice, policy formulation, and investment direction toward aligning with global sustainability goals while maintaining a long-term commitment to strong financial performance.

5.4 Limitations and Future Research

Though this study has provided some useful insights, a few limitations do exist. The primary

limitation is that this study emanates from secondary data collected from publicly listed companies belonging to the non-financial manufacturing sectors of GCC countries. Hence, results cannot be generalized on a larger scale or in different regions and sectors. Second, the dataset covers the period 2015-2024; though it gives fairly recent information on ESG practices and Board Gender Diversity (BGD), longer-term datasets would enable analysts to better assess the long-term impacts that can be associated with ESG practices. Another limitation of this study is that it does not consider several external factors, such as market volatility and geopolitical risks, which may also affect Investment Efficiency. Board Gender Diversity (BGD) has been proven to significantly moderate the relationship between ESG and Investment Efficiency. However, this aspect is subject to cultural, regulatory, and societal differences within the GCC countries, hence limiting their generalizability. Future research may investigate the role of ESG in other sectors factoring in the country's regulation towards ESG and long-run effects of R&D investment or any strategic initiative. Such a study can be done across countries within GCC countries or comparisons made with other emerging economies, to offer broader perspectives on how the interplay works between ESG, Investment Efficiency, and Board Gender Diversity (BGD).

5.5 Conclusion

In conclusion, this study presents a great deal of evidence on the impact that ESG has on Investment Efficiency with specific reference to the moderating role played by Board Gender Diversity (BGD) across the non-financial manufacturing firms of GCC countries. It reiterates that good Environmental, Social, and Governance practices do have positive effects on Investment Efficiency while general ESG even more enhances this relation. This study also repeats the call on the importance of Board Gender Diversity (BGD) by revealing that diverse boards strongly formalize the strength between ESG practice impacts and a firm's Investment Efficiency. This adds

to all the growing literature on ESG and corporate governance by demonstrating that firms with sound ESG management, led by a diverse leadership team, are better poised to make sustainable profitable investment decisions. It thus motivates the policymakers' drive towards instituting Gender Board Diversity (BGD) and strong ESG frameworks in corporate governance practices toward sustaining growth. This offers a great background for future studies about the changing function of ESG in corporate decision-making, investment strategy, and long-term financial performance.

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MBA

1st Half Semester Progress Report

Enrolment No.	01-321242-012
Thesis/~~Project~~ Title	ESG and Its Impact on Investment Efficiency: Moderating Role of Board Gender Diversity.

Supervisor Student Meeting Record

No.	Date	Place of Meeting	Topic Discussed	Signature of Student
1	06/09	Office	Discuss about STATA Test run and how to implement them	K. Fatima.
2	15/09	Office	Checked results and redone them.	K. Fatima.
3	01/10	Office	Started working on Literature Review.	K. Fatima.
4	19/10	Office	Completed the chapter 1 and chapter 2 and discuss them	K. Fatima.

Progress Satisfactory ☑ Progress Unsatisfactory ☐

Remarks: _____

Signature of Supervisor: _____ Date: 17/12/2025

Note: **Students attach 1st & 2nd half progress report at the end of spiral copy.**

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MBA

2nd Half Semester Progress Report & Thesis Approval Statement

Enrolment No.	01-321242-012
Thesis/~~Project~~ Title	ESG and Its Impact on Investment Efficiency: Moderating Role of Board Gender Diversity.

Supervisor Student Meeting Record

No.	Date	Place of Meeting	Topic Discussed	Signature of Student
5	10/11	Office	Work on Analysis Part and make some adjustments.	K. Fatima.
6	25/11	Office	Work on Chapter 3 and chapter 5 and discuss them.	K. Fatima.
7	12/12	Office	Finalizing and correcting it.	K. Fatima.

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