

**ENVIRONMENTAL, SOCIAL, AND GOVERNANCE
(ESG) ON FIRM RISK: EVIDENCE FROM ASEAN AND
GCC COUNTRIES**

BY

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ABSTRACT

Despite the increasing focus on Environmental, Social, and Governance (ESG) practices worldwide, the complex interplay between ESG and firm risk remains insufficiently examined, particularly within the emerging markets of the ASEAN and GCC regions. This thesis seeks to fill this gap by investigating how ESG practices influence different aspects of firm risk and by evaluating the moderating effect of country ESG scores on this relationship. Utilising a comprehensive dataset that encompasses 643 firms, resulting in 2,898 firm-year observations across 12 countries within these regions from 2011 to 2021, this research further dissects the distinct impacts of the individual ESG components on firm risk (systematic, total, default, and credit risk). Furthermore, this study reveals a compelling similarity between Shariah-compliant and ethically oriented companies that adhere to ESG principles, both emphasising ethical investment and risk mitigation as core business strategies. This convergence highlights how ethical frameworks, driven by Shariah compliance or broader ESG commitments, align business practices with risk management objectives. This study uses a panel regression analysis to examine the study hypotheses and achieve the study aims. Rooted in stakeholder theory, the results indicate that ESG practices, particularly those related to the environment (ENV), significantly reduce systematic and credit risks, echoing the principles of risk mitigation theory by highlighting the role of ESG in protecting against market volatility and bolstering creditor confidence. However, through the lens of managerial opportunism theory, the study also suggests that ESG engagements could be motivated by managerial self-interest, affecting the firm's risk profile. Crucially, the research highlights the significance of the institutional context, as posited by institutional theory, in amplifying the efficacy of ESG practices in risk reduction. In jurisdictions with robust sustainability regulations, ESG practices exert a more pronounced influence in curbing risks, particularly regarding total risk. The findings offer valuable implications for policymakers, investors, and corporate leaders in the ASEAN and GCC regions, underlining the importance of integrating ESG into risk management strategies and the significant role of institutional contexts in shaping these dynamics. The study also adds to the literature on the effects of ESG practice on risk within the specific context of ASEAN and GCC markets, contributing novel insights to the body of knowledge. Contributing novel insights into the effects of ESG practices on firm risk within specific emerging markets, this research offers a solid foundation for strategic policy development and further academic exploration.

ملخص البحث

إنه على الرغم من التركيز المتزايد على الممارسات البيئية والاجتماعية والحوكمة، في جميع أنحاء العالم، إلا أنَّ التفاعل المعقد بين المخاطر البيئية والاجتماعية والحوكمة، ومخاطر الشركات، لا يزال غير مدروس بشكل كافٍ، ولا سيما داخل الأسواق الناشئة في منطقة رابطة دول جنوب شرق آسيا (ASEAN)، ودول مجلس التعاون الخليجي. تسعى هذه الأطروحة إلى سد هذه الفجوة من خلال التحقيق في كيفية تأثير الممارسات البيئية والاجتماعية والحوكمة، على جوانب مختلفة من أخطار الشركات، وذلك من خلال تقييم التأثير المعتدل لدرجات الممارسات البيئية والاجتماعية والحوكمة في الدولة على هذه العلاقة. باستخدام مجموعة بيانات شاملة من (643) شركة، أفرزت (2,898) مراجعة سنوية للشركات، عبر (12) دولة داخل هذه المناطق، من عام (2011) إلى عام (2021)، يقوم هذا البحث بتحليل التأثيرات المميزة للمكونات الفردية للمسائل البيئية، والاجتماعية، والحوكمة، على أخطار الشركات (التنظيمية، والإجمالية، والتخلف عن السداد، ومخاطر الائتمان). علاوة على ذلك، يكشف هذا البحث عن وجود تشابه واضح بين الشركات المتوافقة مع الشريعة الإسلامية، والشركات التي تلتزم بمبادئ الممارسات البيئية والاجتماعية والحوكمة، وكلاهما يؤكد على الاستثمار الأخلاقي، وتخفيف المخاطر، بوصفها إستراتيجيات عمل أساسية. يسلط هذا التقارب الضوء على كيفية عمل الأطر الأخلاقية، سواء كانت مدفوعة بالامتثال للشريعة، أو الالتزامات البيئية والاجتماعية والحوكمة الأوسع، وأثر ذلك على مدى موازنة ممارسات الأعمال، لأهداف إدارة المخاطر. استخدمت هذه الدراسة تحليل الانحدار اللوجي لفحص فرضيات الدراسة، وتحقيق أهدافها. تشير النتائج -استناداً إلى نظرية أصحاب المصلحة- إلى أن الممارسات البيئية والاجتماعية والحوكمة، وخاصة تلك المتعلقة بالبيئة، قد قللت بشكل كبير من الأخطار المنهجية والائتمانية، عن طريق الالتزام بمبادئ نظرية تخفيف الأخطار من خلال تسليط الضوء على دور الممارسات البيئية والاجتماعية والحوكمة، ودورها في الحماية من تقلبات السوق، وتعزيز ثقة الدائنين. ومع ذلك، ومن وجهة نظر نظرية الانتهازية الإدارية، تشير الدراسة أيضاً إلى أن الارتباطات البيئية والاجتماعية والحوكمة يمكن أن تكون مدفوعة بالمصلحة الذاتية الإدارية، مما يؤثر على ملف تعريف الأخطار الخاص بالشركة. ومن الأهمية بمكان تسليط البحث الضوء على أهمية السياق المؤسسي، كما تطرحه النظرية المؤسسية، ودوره في تضخيم فعالية الممارسات البيئية والاجتماعية والحوكمة في الحد من الأخطار. وفي الولايات القضائية التي لديها لوائح استدامة قوية، تمارس الممارسات البيئية والاجتماعية والحوكمة تأثيراً أكثر وضوحاً في الحد من الأخطار، ولا سيما فيما يتعلق بالأخطار الإجمالية. تقدم هذه الدراسة نتائج قيمة لصانعي السياسات، والمستثمرين، وقادة الشركات، في منطقة (آسيان)، ودول مجلس التعاون الخليجي، مما يؤكد أهمية دمج المعايير البيئية والاجتماعية والحوكمة في إستراتيجيات إدارة الأخطار، والدور المهم للسياقات المؤسسية في تشكيل هذه الديناميكيات. تضيف هذه الدراسة أيضاً إلى الأدبيات المتعلقة بتأثيرات الممارسات البيئية والاجتماعية والحوكمة على الأخطار، ضمن السياق المحدد لأسواق رابطة دول جنوب شرق آسيا، وأسواق دول مجلس التعاون الخليجي، مما يسهم بتقديم رؤى جديدة في أدبيات هذا المجال. ومن خلال المساهمة برؤى جديدة حول تأثيرات الممارسات البيئية والاجتماعية والحوكمة، على أخطار الشركات داخل الأسواق الناشئة المحددة، يوفر هذا البحث أساساً متيناً لتطوير السياسات الإستراتيجية، وتقديم مزيد من الاستكشاف الأكاديمي.

APPROVAL PAGE

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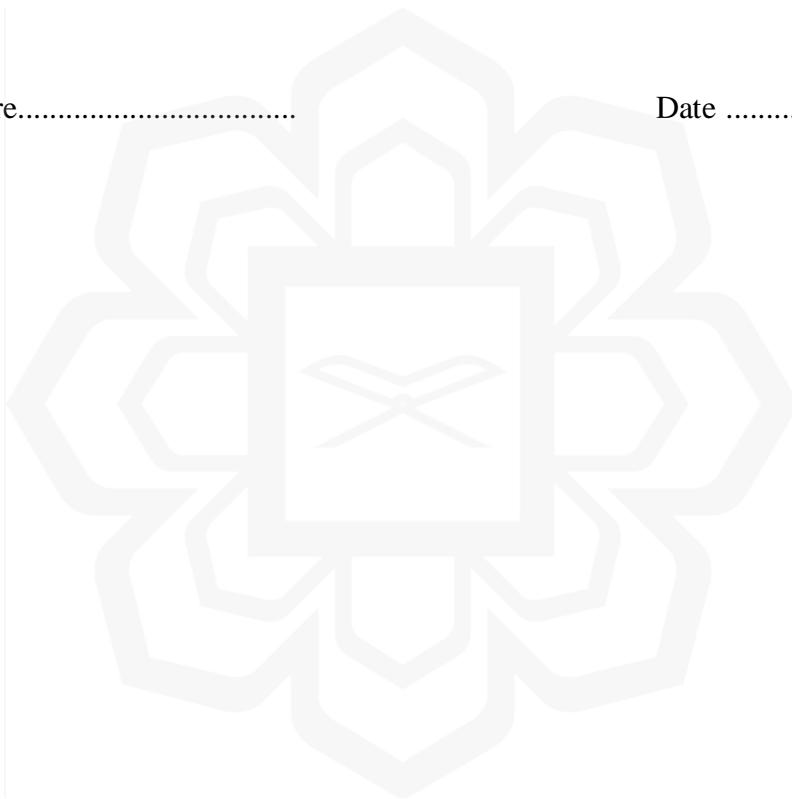
DECLARATION

I hereby declare that this thesis is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

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(ESG) ON FIRM RISK: THE MODERATING ROLE
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LIST OF ABBREVIATIONS

AAOIFI	Accounting and Auditing Organization for Islamic Financial Institutions
ACCA	Association of Chartered Certified Accountants
AICD	Australian Institute of Company Directors
AICPA	American Institute of Certified Public Accountants
ASEAN	Association of Southeast Asian Nations
CEO	Chief Executive Officer
CFA	Chartered Financial Analysts
CG	Corporate Governance
CIMA	Chartered Institute of Management Accountants
CLRM	Classical Linear Regression Model
CSR	Corporate Social Responsibility
DJSI	Dow Jones Sustainability Indices
EPF	Employees Provident Fund
EPS	Earnings Per Share
ESG	Environmental, Social, and Governance
EY	Ernst and Young
FEM	Fixed Effect Model
GCC	Gulf Cooperation Council
GHG	Greenhouse Gas
GRI	Global Reporting Initiative
IFAC	International Federation of Accountants
IFRS	International Financial Reporting Standard
IIRC	International Integrated Reporting Council
IRQ	Integrated Reporting Quality
JSE	Johannesburg Stock Exchange
KPI	Key Performance Indicators
KPMG	Klynveld Peat Marwick Goerdeler
KWAP	Kumpulan Wang Persaraan (Diperbadankan)
OIC	Organization of Islamic Cooperation
OJK	Financial Services Authority of Indonesia
OLS	Ordinary Least Square
PB	Price-To-Book
PNB	Permodalan Nasional Berhad
POLS	Pooled Ordinary Least Square
PRI	Principle for Responsible Investment
PwC	PricewaterhouseCoopers
REIT	Real Estate Investment Trust
REM	Random Effect Model
REVA	Ratio of Economic Value Added
RMVA	Ratio of Market Value Added
ROA	Return on Asset
ROE	Return on Equity
ROS	Return on Sales
RSE	Robust Standard Errors
SASB	Sustainability Accounting Standard Board

SDG	Sustainable Development Goals
SE	Standard Errors
SG	Sustainability Governance
SVC	Stakeholder Value Creation
TCFD	Task Force on Climate related Financial Disclosure
US	United States
VIF	Variance Inflation Factor
WACC	Weighted Average Cost of Capital



CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

In an era where corporate sustainability is under the global spotlight, the question arises: how do a country's environmental, social, and governance (ESG) frameworks influence the capacity of a firm's own ESG practices to mitigate risks? This inquiry delves into the heart of a critical issue facing businesses worldwide. As companies increasingly prioritise sustainability, their efforts are not isolated events but are significantly shaped by the broader ESG frameworks established at the national level. These frameworks, comprising policies, regulations, cultural norms, and market expectations, create a backdrop against which individual firms' ESG practices are implemented and their efficacy measured. The effectiveness of a firm's sustainability initiatives in risk mitigation is thus not solely dependent on its internal policies. Still, it also reflects the country's regulatory environment, societal values, and governance standards. This interconnectedness raises essential questions about the role of a country's ESG frameworks in either bolstering or hindering a firm's ability to address and manage the diverse risks associated with environmental stewardship, social responsibility, and ethical governance. Exploring this dynamic is crucial in understanding the immediate impact of these practices on a firm's risk profile and their broader implications for shaping sustainable business practices in a global context.

Remarkably, companies with robust ESG practices have been found to have a 25% lower risk of financial defaults compared to the companies who have lower scores (Atif & Ali, 2021; Broastock et al., 2021; Gholami et al., 2022). Yet, the efficacy of these practices varies dramatically across borders—how does the ESG framework of a country sharpen or blunt this protective edge against financial turbulence?

1.2 BACKGROUND OF THE STUDY

In recent years, there has been increased economic uncertainty due to factors like the COVID-19 pandemic, which has significantly impacted global markets and economies. This uncertainty has contributed to the deceleration of economic expansion as countries and companies navigate the challenges of recovery and adaptation. Amidst these challenges, there has been a concurrent shift towards prioritising sustainable development, emphasising economic growth that harmonises with environmental sustainability, social inclusivity, and the adoption of green technologies (Fernandes et al., 2021; Ferreira et al., 2020). This emerging focus represents a fundamental transition from the traditional industrial growth models, which typically emphasised rapid economic expansion at the expense of environmental and social considerations. Together, these trends illustrate a complex global landscape where the imperative for economic resilience intersects with the growing demand for sustainable and responsible growth strategies.

Adding to this complexity is the evolving nature of firm risk, which is increasingly influenced by various non-financial factors. Traditionally, firm risk focused on financial performance metrics such as market volatility, credit risk, and default risk. However, as businesses transition towards sustainable growth, ESG practices have emerged as critical tools in mitigating risk. The rise of ESG practices underscores the shift in priorities, with firms now being assessed not only on their financial performance but also on their contributions to sustainability and social responsibility.

The World Economic Forum's Global Risk Report 2023 provides valuable insights into this shift. It highlights how environmental and societal risks have overtaken traditional economic risks in global importance. For the short-term period in 2023, four of the top five risks identified were related to environmental and societal challenges, including climate change and biodiversity loss. Moreover, over the next decade, eight out of the top ten global risks are expected to be environmental and societal in nature (World Economic Forum, 2023). While economic risks such as the cost-of-living crisis remain significant, the growing prominence of environmental and societal risks marks a departure from the risk landscape a decade ago, when economic

risks dominated. This evolution underscores the increasing urgency to address sustainability challenges and integrate them into risk management strategies (World Economic Forum, 2023).

Evidence from ASEAN and GCC firms highlights the pressing need for better risk management strategies. For example, in ASEAN, the pandemic led to a significant rise in corporate bankruptcies, with countries like Malaysia and Thailand witnessing a sharp increase in non-performing loans (NPLs) and default rates among businesses, particularly in the tourism and manufacturing sectors (Bank Negara Malaysia, 2022). According to Moody's (2020), exposure to global market shocks impacting large firms in the UAE and Saudi Arabia. Similarly, in GCC, the oil price volatility of recent years has exposed the financial vulnerability of firms, particularly those in energy-dependent sectors, leading to higher default risks and debt restructuring cases (S&P Global, 2021).

The integration of ESG practices into business operations is not a recent development, but it has gained momentum over the past few decades. In the early 2000s, the concept of ESG began to take shape, influenced by seminal works such as the United Nations' "Principles for Responsible Investment" launched in 2006. These principles highlighted the importance of ESG factors in investment decisions, linking them to long-term value creation. This period also saw an increasing number of studies demonstrating a correlation between strong ESG practices and reduced firm risk, challenging the traditional view that these practices were merely ethical choices with no financial relevance. The 2008 global financial crisis further accelerated this trend. The crisis underscored the risks associated with poor governance and unethical practices, emphasizing the need for greater transparency and accountability in business operations. Post-2008, there was a noticeable increase in the adoption of ESG practices as risk management tools, with firms recognizing that ESG factors could significantly impact their financial performance and stability.

Today, ESG practices are considered integral to risk management strategies. The growing body of empirical evidence suggests that firms with robust ESG practices are better equipped to mitigate various risks, from regulatory and reputational to environmental and social. This shift is also reflected in the evolving regulatory landscape, with many countries now requiring firms to disclose ESG-related

information, recognising its critical role in assessing firm risk and promoting sustainable business practices. Thus, the journey of ESG practices from peripheral ethical considerations to central components of risk management reflects a fundamental change in the business ethos, reshaping how firms operate in the global economy.

With a greater emphasis on sustainability in today's business landscape, companies increasingly incorporate various sustainable practices into their operations. This shift reflects their commitment to environmental stewardship and social responsibility and a response to evolving stakeholder expectations. ESG principles are integral to this transformation, providing a structured framework to operationalise sustainability. ESG practices enable firms to systematically address the environmental impact, ensure social equity, and uphold robust governance standards, all essential components of comprehensive sustainability strategies. As stakeholders, from investors to consumers, demand more transparent and accountable corporate actions, ESG offers a strategic approach to meet these demands while advancing sustainability goals. Consequently, the adoption of ESG practices is not just about compliance but about embedding sustainability into the core of business operations to drive long-term value and resilience.

In parallel, corporate reporting has developed as a vital tool for businesses to give their shareholders and other stakeholders a detailed account of their operations. According to Lombardi et al. (2021) and Adams and Frost (2008), corporate reporting, traditionally focused on financial disclosures, now extends to promoting accountability and transparency through a broader spectrum of reporting. This expanded scope serves as a method of communicating with stakeholders and informing them of essential information beyond traditional financial metrics. Once the cornerstone of corporate reporting, financial reports are now complemented by sustainability reports. This evolution reflects the growing awareness of social and environmental issues, where sustainability reports emerge as crucial documents. As Deloitte (2020) outlined, these reports provide insights into an organisation's material non-financial performance, incorporating ESG issues. This integration of sustainability reporting into the corporate reporting framework exemplifies how businesses adapt to a more holistic approach to reporting, aligning their operational practices with their commitment to transparency and accountability in ESG.

To promote ESG reporting, numerous nations have enacted legislation requiring the disclosure of sustainability information, recognising the critical nature of this information for various stakeholders. For example, in Malaysia, Bursa Malaysia and FTSE launched an ESG index, named the FTSE4 Good Bursa Malaysia index, in December 2014 (Bursa Malaysia, 2014). Although ESG reporting is voluntary in Malaysia, this index encourages companies to provide high-quality data and information on their ESG practices to be recognised as responsible corporate citizens (KPMG,2011). According to The Edge Malaysia (2021), the country's institutional investors, such as Permodalan Nasional Bhd (PNB), Kumpulan Wang Persaraan (Diperbadankan) (KWAP), and Employees Provident Fund (EPF), are already committed to making sustainability a component in guiding their future investment decisions, confirming the growing influence of sustainable practices as a critical requirement for Corporate Malaysia.

The current state of research on the impact of ESG practices on firm risk, with a particular focus on the moderating role of a country's ESG, is witnessing significant growth and diversification. This field brings together diverse perspectives from finance, corporate governance, environmental studies, and international business, reflecting its multidimensional nature. One of the most prominent aspects of recent research is the accumulation of empirical evidence that underscores a correlation between robust ESG practices and a reduction in firm risk (Abdul Razak, Ibrahim, & Ng, 2020; Albuquerque, Koskinen, & Zhang, 2019; Jo & Na, 2012; Sassen, Hinze, & Hardeck, 2016; Shakil, 2021). This relationship is frequently manifested in lower cost of capital, reduced volatility, and enhanced resilience during economic downturns. In the context of Islamic finance, ESG practices are complementary and integral to the core principles of Shariah compliance. Findings show that the convergence of ESG principles with Islamic finance enhances risk management and financial performance and aligns with the ethical and moral framework valued by investors and consumers in these markets (Alam et al., 2022; Senna et al., 2024). Contrary to earlier views that relegated ESG practices to primarily ethical considerations, current studies indicate their tangible benefits in risk management and financial performance over the long term. Additionally, emerging research trends also include the need for a deeper examination of the individual components of ESG (environmental, social, and governance) to understand their unique impacts on firm risk.

However, the relationship between ESG practices and firm risk is not straightforward and is influenced by many factors, including the regulatory, economic, and cultural contexts within which a firm operates. Firms operating across different countries might encounter diverse environmental laws, social standards, and governance obligations such as corporate responsibility disclosures. A significant trend in recent research (Lavin & Montecinos-Pearce, 2022; Gracia & Siregar, 2021) is exploring how a country's ESG framework affects the relationship between firm ESG and its risk. This includes examining how differences in regulatory environments, cultural norms, and the overall maturity of ESG markets influence the effectiveness of ESG practices at the firm level. Stellner et al. (2015) found that greater corporate social performance consistently lowers credit risk and that the country's sustainability achievements moderate the relationship between CSR and credit risk. Similarly, Hoepner et al. (2016) observed that sustainability at the country level influences the interest rates banks impose on borrowing companies. In contrast, sustainability at the firm level does not have the same effect. Comparative studies between countries with established ESG frameworks and those with emerging or less developed frameworks are particularly insightful, shedding light on how national policies and cultural attitudes can shape corporate sustainability practices.

The interplay between the country's ESG and the firm's ESG practices is critical because ESG is often seen as a mechanism to reduce various risks, including operational, reputational, financial, and compliance-related risks (Sultana et al., 2018; Tang, 2022; Xu et al., 2021). The effectiveness of these practices in risk mitigation may vary significantly based on the robustness of a country's ESG framework. For example, a firm operating in a country with stringent ESG regulations may find that compliance naturally aligns with risk mitigation strategies. Conversely, in countries where such frameworks are weak or non-existent, firms might struggle to realise the risk mitigation benefits of ESG practices due to a lack of guidance, resources, or external pressures.

In conclusion, the research into the impact of ESG practices on firm risk, mainly through the lens of a country's ESG framework, is rapidly evolving. It is becoming increasingly clear that ESG practices are not just ethical imperatives but are also crucial for managing financial risks and enhancing long-term business sustainability. This realisation drives a more analytical exploration of the subject, with researchers delving

into various aspects, from firm and sector-specific impacts to the influence of a country's policies and cultural contexts. As the field continues to grow, it offers valuable insights for policymakers, business leaders, and investors, highlighting the critical role of ESG practices in shaping the future of sustainable business practices in a globally interconnected economy. As such, this thesis aims to shed light on this intricate relationship, exploring how ESG practices influence firm risk and the extent to which a country's ESG framework can moderate this impact. Doing so seeks to contribute to this field's growing body of knowledge and provide insights that can inform more effective ESG strategies and policies.

1.3 PROBLEM STATEMENT

The global investment landscape is transforming significantly, driven by evolving sustainability challenges and new investor demographics. The emergence of complex global issues, including climate change-related risks like flooding and rising sea levels, concerns about data privacy, demographic changes, and increasing regulatory demands, unveils new risk factors for investors. These risks, previously unaccounted for, are compelling investors to reconsider their traditional investment strategies. Furthermore, the economic strain imposed by the COVID-19 pandemic on various sectors has heightened companies' exposure to ESG risks, challenging their capacity to navigate these concerns effectively. Firms today face environmental and social pressures and are subject to intensified scrutiny regarding their handling of ESG and climate-related risks.

In today's business environment, firm risk—which includes systematic risk, credit risk, default risk, and total risk—is a critical concern for corporate leaders, policymakers, and investors. Factors such as global financial crises, climate change, and the ongoing COVID-19 pandemic have intensified the importance of understanding and managing firm risk. In this volatile environment, ESG practices are proposed as a solution to mitigate risks, with advocates suggesting that firms adopting robust ESG practices are better equipped to manage both financial and non-financial risks (Abdul Razak et al., 2020; Albuquerque et al., 2019).

The integration of ESG into corporate strategy represents a holistic approach to risk management. Environmental practices address climate change and resource depletion, social practices focus on community engagement and labour rights, and governance practices target transparency, ethical conduct, and compliance (Sassen et al., 2016). Proponents argue that these practices can help firms reduce risk exposure, lower the cost of capital, and enhance stakeholder trust, making them more resilient to market disruptions and global shocks.

However, the actual effectiveness of ESG practices in risk mitigation is still subject to debate. Some studies have shown mixed results, with evidence suggesting that while environmental and social practices can reduce risks (Sassen et al., 2016; Chollet & Sandwidi, 2018; La Rosa et al., 2018; Brogi et al., 2021), the governance component may not always have a consistent impact (Sciarelli et al., 2023; Sassen et al., 2016). Additionally, issues such as greenwashing, where companies claim to adopt ESG practices without substantive action, further complicate the relationship between ESG and risk mitigation (Eliwa et al., 2019; Hamrouni et al., 2019).

This raises a key question: Is ESG serve as an effective solution for mitigating firm risk? While some firms that rigorously adopt ESG practices report lower systematic and credit risks, others fail to demonstrate any significant risk reduction, particularly in emerging markets such as the ASEAN and GCC regions, where ESG frameworks are still developing (Shakil, 2021). In these regions, ESG practices remain inconsistent, influenced by varying levels of regulatory enforcement, cultural attitudes towards sustainability, and corporate governance standards. These markets provide a unique context to examine the impact of ESG on firm risk, as firms are increasingly incorporating ESG reporting into their strategies but at different maturity levels compared to their Western counterparts.

Capital markets face challenges in assessing non-financial risks, and emerging markets like ASEAN and GCC continue to struggle with standardising ESG practices, improving data quality, and aligning corporate behaviour with investor expectations (KPMG, 2011; Bursa Malaysia, 2014). Without robust regulatory frameworks, firms in these regions may lack the necessary incentives to fully integrate ESG into their risk management strategies (Hoepner et al., 2016). Furthermore, despite the growing focus

on ESG, greenwashing and inconsistent reporting continue to undermine investor confidence, making it difficult for institutional investors to accurately assess whether firms are genuinely mitigating risks or simply managing their reputations (Hamrouni et al., 2019).

Simultaneously, the investment realm is being reshaped by a demographic shift among investors, with the millennial generation at the forefront of championing sustainable investment (EY, 2017). This shift is a passing trend and a substantial movement to redefine the investment landscape. According to a Morgan Stanley survey in 2019, 84% of millennials cite investing with a focus on ESG impact as a central goal. According to a 2018 survey by Bank of America Merrill Lynch, there is a conservative estimate that ESG funds domiciled in the U.S. will witness an explosive growth of approximately USD 20 trillion in assets over the next two decades. This projection underscores the significant influence of millennial investors, whose preferences and ethical considerations drive the surge in ESG investments. The convergence of these factors—emerging global sustainability challenges and the rise of a new generation of investors committed to ethical investing—makes exploring ESG practices timely and essential in 2023. This research domain promises to yield critical insights into how companies can adapt to the dual pressures of evolving global risks and changing investor expectations, thereby shaping the future of responsible investing and corporate governance.

However, despite the widespread adoption of ESG practices and the global push for enhanced social and environmental responsibility, significant issues such as social inequity and environmental degradation persist. Eliwa et al. (2019) suggest that the continuous deterioration of societal and environmental conditions can be attributed to the failure of corporations and governments to fulfil their responsibilities. This failure is compounded by a tendency for government policies to favour voluntary market-driven solutions, as noted by Deegan and Shelly (2014), which may align with corporate interests in disputes over corporate responsibility. This study aims to address these issues by examining the actual impact of ESG practices within the corporate sector of ASEAN and GCC regions. By analysing the relationship between ESG practices and firm risk, this study directly evaluates the effectiveness of ESG practices in mitigating risks associated with environmental degradation and social inequity. This is crucial

because reducing firm risk through effective ESG practices can indicate a firm's better management of environmental and social issues. By evaluating the moderating effects of a country's ESG frameworks, the study also sheds light on whether stronger regulatory policies could enhance the effectiveness of ESG practices, potentially leading to better social and environmental outcomes.

Amidst these concerns, the efficacy and authenticity of ESG disclosures have come under scrutiny. Critics, including Eliwa et al. (2019) and Hamrouni et al. (2019), argue that firms may engage in greenwashing, using ESG disclosures as a facade to improve their public image rather than effectuating genuine change. While risky businesses may raise their sustainability reporting as greenwashing practices, ESG reporting also increases transparency and reduces firm risk (Chakraborty et al., 2019; Nguyen & Nguyen, 2020; Shakil, 2021). Stock price volatility rises rapidly due to investors' responses to ESG issues and CSR concerns, affecting the companies' risk (Nguyen and Nguyen, 2020). This study utilises a robust dataset, encompassing a comprehensive collection of data from 643 firms across 12 countries within the ASEAN and GCC regions for 11-year years (2011–2021). The dataset includes detailed firm-level information on ESG practices and various dimensions of firm risk (systematic, total, default, and credit risks), ensuring high accuracy, reliability, and representativeness. This wide coverage captures firms' diverse regulatory environments, economic contexts, and ESG practices in emerging markets, making the analysis more robust and allowing for a thorough examination of whether ESG practices genuinely contribute to risk mitigation or merely serve as a public relations tool.

Individuals, managers, and institutions concerned with the ESG elements of their investments are increasingly interested in understanding if ESG may improve returns and whether it can influence other firms' financing decisions (Benlemlih, 2017). The emerging consensus suggests that firms that ignore ESG issues or fail to embed ESG standards into their business operations may encounter adverse reactions from investors (Shakil, 2021). Although there is empirical support for the notion that ESG practice significantly reduces a firm's stock volatility and firm's risk (Nguyen and Nguyen, 2020; Lueg et al., 2019; Sassen and Hinze, 2016; Shakil et al., 2019), research on the interaction of ESG practice on firm's risk is lacking in the literature.

When studies established a connection between sustainability reporting and risk reduction, the interest in ESG disclosure intensified. It has been proposed that ESG may impact various kinds of risk, including systematic risk, regulatory risk, supply chain risk, product and technology risk, litigation risk, reputational risk, and physical risk, through several different channels (Gillan et al., 2021; Seltzer et al., 2020). Despite this, many academics assert that the study findings have not reached a consensus. The evidence on the relationship between ESG integration and business risk is mixed, with many studies found a strong negative impact (El Ghouli et al., 2011; Nguyen and Nguyen, 2020; Seltzer et al., 2020; Shakil, 2021; Stellner et al., 2015), while others report positive (Breuer et al., 2018) or insignificant relationship between the two (Bhuiyan et al., 2020; Stellner et al., 2015).

The mixed findings in the literature highlight the complex nature of ESG issues and underscore the need for further research to unravel the dynamics between ESG practices and their impact on firm risk. This debate has sparked two arguments on ESG practices. The first is the “overinvestment” viewpoint by Goss and Robert (2011) and supported by the classical view of Friedman (1962), which posits that resources allocated to ESG practices are a waste of resources, implying that such investments may not only be unproductive but could actively erode shareholder value. This view is shared by Mackey et al. (2007), who argue that shareholders want a company to improve its financial transparency without mentioning its social activities, which they believe should be carried out by charities and non-profit organisations instead. Marsat and Williams (2014) further argue that disclosing sustainable activities raises costs and has economic consequences. All the issues outlined above can reduce profitability and increase the volatility of a firm. Hence, lenders and investors will demand higher spreads as the risk of default rises.

By contrast, the second argument is about "value creation," which suggests that ESG practices may create competitive advantages and enhance financial performance. According to Goss and Robert (2011), companies with robust ESG credentials are likely to have a more favourable risk profile than those that perform poorly in these areas. Rational investors reward a firm with a better risk profile and a higher capacity to repay the capital at maturity with a lower spread (Stellner et al., 2015). According to Hahn and Kühnen (2013), sustainability reporting enhances a firm's transparency, strengthens

its reputation, motivates its workers, and supports its control processes. This perspective is reinforced by Herzig and Schaltegger (2006), who highlight the potential of ESG practices in securing a competitive advantage and facilitating comparison with industry peers.

In recent academic research, the connection between ESG and company value has gotten much attention. While the relationship between a firm's ESG practices and financial performance has been extensively studied (Buallay, 2020; Deng and Cheng, 2019; Zhao et al., 2018; Velte, 2017), the specific link between ESG practices and firm risk remains markedly under-explored. The reason behind most research concentrating on the impact of ESG practices and firm performance is mainly due to the challenges researchers face in delineating the complex relationship between ESG and risk factors. Consequently, the literature tends to be biased towards ESG and firm performance. However, the existing gap in the literature presents an urgent need for a systematic investigation into how ESG practices influence firm risk, thereby offering new insights into the ESG-value proposition from a risk perspective.

This study aims to fill this research void, providing a deeper understanding of the ESG-risk linkage and its implications for corporate valuation. According to Gregory et al. (2014), a company's value is arguably composed of two components: (1) future cash flows and (2) a risk-dependent discount rate used to convert these future cash flows to present value. Investors may anticipate more significant future cash flows if the business achieves a competitive advantage through sustainable practices (Breuer et al., 2018; Lueg and Radlach, 2016). Additionally, sustainable practices mitigate the danger of lawsuits, boycotts, regulatory action, or a tarnished image. Future cash flows gain value when the discount rate is reduced (i.e., when risk is reduced). Following another assumption that states higher ESG scores may enhance firm and shareholders' value through either i) increased cash flows and/or ii) reduced cost of capital (Plumlee et al., 2015), therefore, it is critical to examine firm risk as a key determinant of the cost of capital.

As firms increasingly prioritise ESG issues, understanding the impact of these practices on firm performance has become critical. However, the extent to which ESG practices effectively communicate a firm's sustainability efforts and influence its risk

profile remains ambiguous. This raises the question of the value of ESG practices in conveying a firm's sustainability efforts by linking ESG measures with firm risk. This thesis seeks to investigate the relationship between ESG measures and firm risk, examining the value of ESG practices in representing a firm's commitment to sustainability. It aims to explain whether ESG measures serve as credible indicators of reduced risk, thereby offering empirical evidence to the debate on the actual versus perceived value of ESG practices in risk management.

Notably, previous research has predominantly concentrated on the broader ESG-firm performance dynamic, with limited attention given to how distinct ESG components individually and collectively influence firm risk profiles (Eccles et al., 2014; Khan et al., 2016). Existing research into the individual components of ESG is less clear, particularly regarding how each dimension affects firm risk. Previous studies tend to individually focus on environmental, social, or corporate governance factors and, in significant cases, governance. While there is abundant research on corporate governance's effects on a firm's performance (Mohd Saad et al., 2020), the impact of environmental and social components on firm risk remains underexplored. This gap is particularly striking given the implicit relevance of these factors to sustainability and the Triple Bottom Line (TBL) framework, which emphasises the equal importance of social, environmental, and financial performance.

While the aggregate ESG score is commonly used as a proxy for a firm's sustainability efforts, Mattingly (2017) highlights the necessity of examining the individual ESG dimensions to understand their impact on firm risk fully. This notion is further supported by Lueg et al. (2019), who found that due to varying stakeholders' concerns, investors' perceptions of ESG dimensions are inconsistent, often leading them to prioritise one dimension over others. Given this, a singular focus on aggregate ESG scores may obscure the distinct relationships each ESG component has with firm risk. Moreover, the complex nature of ESG factors necessitates a more granular approach, as a firm can be socially responsible in one area and socially irresponsible in another (Nguyen and Nguyen, 2020). This thesis is motivated by the need to dissect the aggregate ESG practices into their components to better understand their individual impacts on firm risk.

The inconsistencies within the ESG components discussed above raise the question of whether the ESG components could lead to different impacts on firm risk. To systematically examine their individual and interrelated effects on firm risk, this thesis proposes to dissect the aggregate notion of ESG into its components — environmental, social, and governance. By doing so, it seeks to contribute to the discourse on the differential strength of relationships between each ESG component and firm risk. The research aims to provide an understanding that can inform investors, regulators, and corporate managers in evaluating firm risk profiles about specific ESG practices.

The international discussion convened by the PRI in 2019 highlighted that the incorporation of ESG practices varies internationally across three dimensions: (i) the diversity in awareness and advancement of ESG, (ii) the relative sensitivity of ESG issues by countries, and (iii) the regulatory frameworks governing them. This disparity underscores the need to consider the unique institutional settings of each country, which dictate the nature of a firm's sustainability practices (DiMaggio and Powell, 1983). Firms are subject not only to internal organisational factors but also to the broader institutions of the countries in which they operate, which shape their ESG practices and the market incentives for these activities. To ensure that investment in ESG activities is protected during a downturn, a firm must have the resources and an environment that recognises and values the concept. In a world facing unprecedented challenges – from climate change and resource scarcity to social inequality and governance crises – the resilience of businesses is being tested like never before.

When deciding on a firm's ESG practices, managers must balance the benefits against the costs, which vary significantly in every country due to cultural, institutional and economic differences. The institutional factors can either promote or hinder ESG investments, affecting the perceived value of such investments and influencing the associated costs (Cai et al., 2016). Campbell (2007) argues that robust and well-enforced state laws to guarantee socially responsible corporate conduct would encourage companies to behave in a more socially responsible manner. Today, government regulations significantly impact how sustainability reports are disclosed (Abdul Razak et al., 2020; Breuer et al., 2018).

In this context, studies such as those by Shakil (2021) assert that ESG practice and its impact on company risk vary by country due to institutional and legal frameworks. This is supported by Cai et al. (2016), who emphasise that country factors are much more important than firm characteristics in explaining the variations in a firm's corporate performance ratings. Such insights highlight the importance of examining the relationship between ESG practices and risk across many countries within their institutional and regulatory frameworks. This relies on the idea that risk-reducing mechanisms induced by investing in ESG activities might not work if the external environment does not reward them. Instead, the marginal cost of the investment will be higher than the marginal benefits of such investment. Rational investors are unlikely to settle for reduced returns on their risk. Aligned with the overinvestment perspective, investors may demand greater compensation as resources allocated to ESG initiatives raise operational costs and potentially degrade the company's risk profile. Firms exhibiting strong ESG performance should benefit from reduced spreads if they operate within countries that achieve above-average ESG scores and face penalties when situated in countries with below-average ESG scores. Rational investors should recognise that companies in countries with superior sustainability scores manage their resources more effectively and engage in ESG activities that are valued and rewarded by their respective environments.

Additionally, Brooks and Oikonomou (2018) point out that prior research has not established a link between ESG practices and firm risk, suggesting that the addition of moderating factors is essential in understanding this relationship. The moderating role of a country's ESG framework on the relationship between firm-level ESG practices and firm risk remains underexplored. This gap is significant, as the effectiveness of ESG practices in risk mitigation can vary considerably across different regulatory, cultural, and economic contexts (Amel-Zadeh & Serafeim, 2018). The ambiguity in existing research underscores the need for a more detailed understanding of how ESG practices influence firm risk and how the country's ESG framework influences this dynamic. Such a case raises the question of whether country-level ESG will define the firm's degree of ESG practice that will have a meaningful impact on firm risk.

The current study intends to fill the gap using a country's ESG score as a moderating variable, examining how country-level ESG score influences the relationship between firm-level ESG and firm risk. Such an investigation is crucial for providing more precise insights to policymakers, investors, and business leaders who are increasingly focused on integrating ESG considerations into risk management strategies in a diverse and evolving global economic landscape. The outcome of this research could deepen the understanding of how ESG practices perform across various national landscapes and provide direction for formulating more impactful ESG strategies and policies. By bridging this knowledge gap, the study seeks to contribute significantly to the academic discourse on sustainable business practices and to inform practical approaches for managing firm risk in a world where ESG factors are becoming ever more critical to corporate success and resilience.

In conclusion, the review of existing literature underscores a critical gap in understanding the interplay between ESG practices and firm risk, compounded by the lack of research into the role of a country's ESG in influencing firm-level ESG outcomes. This gap is not only academic but also has practical implications, as it hinders a comprehensive understanding of how ESG practices contribute to firm value, mainly through the lens of risk. Summarily, the present study was motivated to answer the following research questions: what is the relationship between ESG practices and their components of firm risk, and is there an effect of a country's ESG on the relationship between a firm's level ESG and firm risk?

1.4 RESEARCH QUESTIONS AND OBJECTIVES OF THE STUDY

The present study needs to address three research questions based on the above arguments. It includes:

- i. To what extent do the ESG practices have any impact on the firm's risk?
- ii. To what extent do the firm's ESG components have a differential impact on the firm's risk?

- iii. Does a country's ESG score moderate the relationship between the firm's level ESG practices and firm's risk?

Constructed from the above research problems, this study has three objectives. Firstly, this study investigates the impact of ESG practices on firm risk among the listed non-financial firms in six ASEAN and six GCC countries. This ESG mechanism comprises aggregate ESG scores and environmental, social, and governance scores. The selection of these ESG mechanisms to represent a firm's sustainability was based on the existing studies' constant emphasis on their valuable impact on firm value. The unique qualities associated with ESG practices may help firms build a competitive advantage through sustainable practices.

This study focuses on the impact of ESG practices on four different risk measures: systematic, total, default, and credit risk. The market-risk measure in this study, the systematic risk, depends on a firm's sensitivity to general market movement. In contrast, total risk encompasses market and firm-specific factors reflected in the firm's stock volatility. The accounting risk measure in this study is represented by default and credit risk. Default risk refers to the risk of a firm's inability to meet its debt obligations, often measured through financial ratios and credit models, such as Altman's Z-score. Credit risk focuses on the risk of a borrower defaulting on debt repayments, typically evaluated based on financial ratios and credit ratings. By examining these diverse risk dimensions, the study aims to provide a comprehensive understanding of how ESG practices influence different dimensions of a firm's risk profile, offering valuable insights into academic research and practical risk management strategies.

Secondly, this study examines the differential impact of ESG components (environmental, social, and governance) on firm risk. The present study separately assesses the effect of aggregate ESG score and its three components on firm risk. Although the aggregate ESG score consolidates its three components score, the different ESG dimensions might impact the firm's risk differently. Moreover, the three dimensions of ESG concern various stakeholders, which could lead to varying effects on a firm's financial or market risk (Sassen et al., 2016). Thus, examining how these three ESG dimensions affect a firm's risk is essential.

Lastly, recent studies have acknowledged that countries with stronger sustainability policies tend to have higher levels of ESG practices. This trend is largely due to the strict oversight and successful implementation of regulations related to sustainability within these countries (Gracia and Siregar, 2021; Shakil, 2021; Abdul Razak et al., 2020; Eliwa et al., 2019). This observation is particularly relevant to regions like ASEAN and GCC, where ESG regulatory frameworks vary significantly. Given this context, this study finds it fascinating to investigate whether a country's ESG practice moderates the relationship between ESG practices and firm risk. The distinct regulatory environment of ASEAN and GCC provides a compelling backdrop to examine how a country's ESG policies influence the efficacy of firm sustainability practices in managing its risk.

Anchored by the discussion above, this study aimed to achieve the following objectives:

- i. To investigate the impact of ESG practices on firm risk.
- ii. To examine the differential impact of ESG components (Environmental, Social, and Governance) on firm risk.
- iii. To investigate the moderating effect of the country's ESG on the relationship between ESG practices and firm risk.

1.5 CONTRIBUTIONS OF THE STUDY

In terms of contribution, the results from this study provide significant contributions on both theoretical and practical aspects.

1.5.1 Academic Perspectives

This study may contribute to the body of knowledge for several reasons. First, this study extends the existing literature on the relationship between ESG practices and firm performance, specifically on various dimensions of firm risk. While prior studies have

often focused on the impact of ESG practice on firm performance, this study provides a more detailed analysis by examining different aspects of firm risk (systematic, total, default, and credit risk). To date, research concerning ESG has predominantly concentrated on analysing how ESG practices influence returns, while minimal effort has been dedicated to explicitly assessing their impact on risk. It adds to the small number of earlier research that has looked at the influence of an ESG on firm risk, which found mixed findings (Erragragui, 2017; Sassen et al., 2016; Shakil, 2021; Gracia and Siregar, 2021; Eliwa et al., 2019;). This study analyses the relationship between ESG practices and firm risk since empirical studies show divergent views and mixed findings.

This study makes significant contributions by addressing the notable gap in the existing literature by dissecting and analysing the individual components of ESG practices. This approach allows a more precise understanding of how environmental, social, and governance factors independently influence firm risk. It is also believed to be beneficial for future research endeavours, providing a comprehensive framework for assessing the multidimensional impact of these practices on firm risk. It contributes to the literature by providing empirical evidence on the differential effect of these components, which has been underexplored in prior research.

Reflecting on the role of a country's ESG framework, it is interesting to note that studies addressing its direct and indirect effects on the relationship between firm-level ESG practices and firm risk is relatively scant. One explanation might be that researchers have predominantly focused on the impact of firm-level ESG practices and firm risk in isolation, thus overlooking the potential of a country's ESG framework to act as a moderating factor in this relationship. Among the earliest to explore this association, the current study contributes significantly to the understanding that a firm's risk profile is influenced not only by its internal ESG practices but also by the external ESG environment provided by the country in which it operates. Therefore, this study addresses the question of whether the country's ESG framework serves as a crucial moderating factor, potentially enhancing or diminishing the effectiveness of firm-level ESG practices in managing risk.

Further, this study contributes to understanding the interplay of ESG practices, firm risk, and the moderating role of a country's ESG through the lens of stakeholder, risk mitigation, managerial opportunism, and institutional theories. According to the stakeholder theory (Freeman, 1984), firms must consider the interests and expectations of all stakeholders, not just the shareholders, for long-term success. This theory forms the basis for the argument that companies adopting strong ESG practices can develop trust and loyalty among stakeholders, creating a stable and supportive business environment and reducing risk for the firm (Harrison and Wicks, 2013). On the other hand, risk mitigation theory offers a complementary view, suggesting that ESG practices serve as a mechanism to reduce business risks by generating "moral capital" among stakeholders, which can act as "insurance-like" protection during adverse events (Godfrey, 2005). This theory supports that firms with strong ESG credentials may experience less volatility in their operations and financial performance, contributing to a lower overall risk profile (Luo and Bhattacharya, 2009).

In contrast, managerial opportunism theory presents a more critical perspective, as Bansal et al. (2013) discussed. It suggests that managers might engage in ESG practices not solely for the intrinsic value they provide to the firm or its stakeholders but as a strategic move to enhance their reputation or to shield the firm (and themselves) from criticism during times of financial underperformance, potentially introducing different risk dynamics (Bousslah et al., 2013).

Lastly, institutional theory, outlined by DiMaggio and Powell (1983), emphasises the role of the broader regulatory, cultural, and normative environment in shaping firm behaviour, including ESG practices. This theory highlights how firms adapt to the institutional pressures and norms of their operating environments, suggesting that the impact of ESG practices on firm risk may vary significantly based on the country's regulatory and normative context regarding sustainability (Meyer and Rowan, 1977).

This multi-theoretical approach facilitates a deeper understanding of the complex dynamics and underscores the importance of firms' navigating these interdependencies. By integrating these theories, this study explains how ESG practices relate to firm risk and how this relationship is contingent upon the broader institutional

context of a country's sustainability framework. This approach contributes to theoretical advancements in corporate sustainability and risk management and provides practical insights for firms navigating the complexities of ESG integration within different regulatory and cultural landscapes.

1.5.2 Practical Perspective

Several practical contributions emanate from the present study. Findings from this study may guide firms in effectively implementing and managing their ESG practices. This study reveals that firms can enhance their risk management strategies and contribute to sustainable growth by focusing on the application of ESG principles. For instance, prioritising environmental sustainability could lead to regulatory compliance, operational efficiencies, and innovation. Attention to social aspects, such as employee welfare and community engagement, can bolster a firm's reputation and stakeholder relationships. Strong governance practices, including transparency and ethical conduct, are crucial in building investor trust and mitigating risks. This leads to more effective ESG integration, resulting in a robust risk profile that aligns with broader stakeholder interests and enhances overall firm performance and sustainability.

In addition, this study will also provide insights for firms on how to integrate ESG practices into their corporate strategies effectively. By demonstrating the impact of ESG components on firm risk, this study aids managers and decision-makers in identifying which aspects of ESG are most critical to their risk mitigation efforts. This can lead to a more informed and strategic allocation of resources towards ESG initiatives that yield the most significant risk reduction benefits. The insights on the differential impacts of ESG components on firm risk can serve as a benchmark for firms in their sustainability reporting. It encourages firms to provide more comprehensive and meaningful disclosures, focusing on aspects of ESG that are most pertinent to risk reduction and stakeholder interests.

The result of this study can also offer investors and policymakers in the sampled regions valuable insights into how ESG practices affect firm risk, influenced by the country's specific ESG framework. For investors, this insight facilitates informed

decision-making, enabling them to allocate capital more effectively by considering the firm's ESG practices and the supportive nature of the ESG frameworks in the countries where they operate. Concurrently, the findings emphasise the critical role of country ESG frameworks in risk management, offering governments and regulatory bodies essential guidance for developing and refining ESG regulations and policies. Such policies are instrumental in fostering sustainable practices while ensuring effective risk management strategies are in place for firms across different jurisdictions.

In summary, this study contributes practically by providing insights that can enhance firm ESG strategies, strengthen stakeholder relationships, improve sustainability reporting, inform investor decisions, and shape government policies. These contributions are vital in the current business landscape, where ESG considerations are increasingly central to the success and resilience of organisations.

1.6 SCOPE OF THE STUDY

This study investigated the association between aggregate ESG practices and their components (environmental, social, and governance) with firm risk. In addition, this study also examined the moderating role of a country's ESG in the relationship between firm ESG practice and risk. The study sample comprised 643 listed non-financial firms from 12 countries, evenly divided between ASEAN and GCC regions, from 2011 to 2021. The study extensively utilises secondary data meticulously extracted from reliable sources such as Refinitiv Eikon and World Bank websites. Stata software was utilised to analyse the data, allowing for robust statistical analysis. This methodological approach enables the study to offer insights into how ESG practices are influenced by and interact with the national ESG context, significantly contributing to the existing body of knowledge in corporate sustainability and risk management.

1.7 ORGANISATION OF THE THESIS

This thesis is systematically organised into six comprehensive chapters: 1) Introduction; 2) Literature Review; 3) Theoretical Framework and Hypothesis

Development; 4) Research Methodology; 5) Research Findings and Discussions; and 6) Conclusion. The first chapter sets the stage for the study by discussing the general background of the study, which includes a discussion regarding crucial research problems, research objectives, and how this study may theoretically and practically contribute to the area of ESG practice and firm risk.

Chapter Two delves deeply into past studies that have been conducted in the field of ESG practice and firm risk. The discussion begins with an overview of ESG practice and its evolutions before synthesising previous studies to identify gaps in this field that need to be fulfilled. This chapter also examines and explores various dimensions of firm risk that are believed to be significantly influenced by a firm's ESG practices. The relevant studies on the moderating potential of the country's sustainability frameworks are also provided.

Chapter Three highlights the theoretical foundation and hypothesis development. It comprises the theories that underpinned the conduct of this study. The hypotheses are formed based on the theories and prior studies, and the theoretical framework is developed. This study proceeds with Chapter Four, which details the study's methodological approach. This chapter describes the sample selections, the period of study, and the measurement used to assess the stakeholder value creation and other variables of interest and control variables. The data analysis method and regression models employed in the study are also thoroughly discussed.

Chapter Five presents a detailed analysis of the findings and a discussion of the results. It includes a review of the assumption underlying the regression analysis. Descriptive statistics were also presented, and the main findings generated from the regression analysis were discussed. These chapters clarify the results, drawing comparisons and contrasts with previous studies. Lastly, Chapter Six emphasises the overall concluding remarks for this study. It highlighted the summary of the main findings. This chapter also discusses this study's implications, limitations, and future research suggestions. This chapter aims to encapsulate the study's contributions to the field and its relevance to both academic and practical applications in ESG and firm risk management.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter discusses existing literature on ESG practices, their impact on firm risk, and the role of a country's ESG framework. Section 2.2 describes the multifaceted nature of ESG components—encompassing environmental, social, and governance aspects—and examines how these individual components influence firms' risk profiles. Sections 2.3 and 2.4 extend the discussion to the global ESG reporting frameworks and a sector-wise comparison of ESG practices, specifically focusing on the ASEAN and GCC regions. Sections 2.5 and 2.6 critically analyse the integration between ESG practices and Islamic finance, contrasting Shariah-compliant firms with their non-Shariah counterparts. Lastly, section 2.6 summarises the overall chapter.

2.2 ESG PRACTICES AND FIRM RISK

This section discusses ESG practice and firm risk. The discussions are divided into several sub-sections: the definitions of risk, definitions and evolution of ESG practices and their components, and previous studies concerning ESG practice and firm risk.

2.2.1 Introduction to the Concept of Risk in A Corporate Context

The concept of firm risk in corporate finance encompasses the potential likelihood of negative outcomes that may impact a firm's financial value. According to Hassan (2018), risk is an inseparable element of financial transactions, arguing that it can emerge from institutions and products. He further differentiates risk into two categories: inherent risk and residual risks. Inherent risk exists before any action or corrective measure, whereas residual risks emerge after controls or corrective actions have been implemented.

Expanding on this notion, Milne and Onorato (2012) and Howells and Bain (2011) describe risk as the probability of difference between the expected return and the actual return on investment. This definition of risk also emphasises the inherent unpredictability associated with financial returns, highlighting the potential for outcomes to diverge from what investors might expect. It can originate from various sources and manifests in inherent and residual forms. Therefore, understanding firm risk is essential from the context of the present study to manage firm risk effectively and ensure the sustainability of a firm.

Scholars have consistently highlighted the need to manage firm risk, underscoring it as a critical aspect of corporate strategy and governance. Effective risk management is essential not only for the stability and sustainability of a firm but also for maximising shareholder value and ensuring long-term growth. According to Tolikas (2008), managing risk involves identifying, assessing, and prioritising various risks, followed by coordinated efforts to minimise, monitor, and control the probability or impact of unfortunate events. This process is crucial in navigating the complex and often unpredictable business environment.

The importance of risk management extends beyond mere compliance and operational concerns; it plays a pivotal role in strategic decision-making. Markou and Corsten (2018) argue that firms that effectively manage their risks can gain a competitive advantage, as risk management strategies can lead to more efficient allocation of resources, improved financial performance, and enhanced market reputation. Furthermore, Shiu (2020) highlights that risk management can create value for firms by reducing the costs associated with financial distress and providing greater operational flexibility.

In the context of financial markets, risk management is also integral to investor confidence. As Merton and Perold (1993) noted, investors are more likely to entrust their capital to firms that demonstrate robust risk management practices, as it reduces the likelihood of drastic adverse financial outcomes. This aspect is particularly crucial in volatile market conditions, where managing risk effectively can differentiate a firm's performance from its peers.

Overall, the scholarly emphasis on firm risk management underscores its multidimensional impact on a firm's operational integrity, strategic direction, financial health, and investor relations. This holistic view of risk management as a central component of corporate strategy is vital for firms navigating the increasingly complex and dynamic business landscape.

2.2.2 Definition and Evolution of ESG Practices

ESG has become an essential consideration for investors due to its effects on their investment portfolio's risk-return profile (Albuquerque et al., 2019; Gillan et al., 2021; Rajesh, 2020). When addressing Socially Responsible Investing (SRI), the phrase "sustainability", or the abbreviation of ESG and corporate social responsibility (CSR), is often used (Buallay, 2019). The Financial Times Lexicon defines ESG as a broad term employed in capital markets by investors to evaluate how businesses integrate ESG concerns into their business model to determine companies' future financial performance.

ESG is a term that was established in a 2004 report by 20 financial institutions following a request from Kofi Annan, then Secretary-General of the United Nations. The report offered guidelines and recommendations for integrating ESG factors into investment choices. ESG is a result of responsible investing. The Principles for Responsible Investment (PRI) defines responsible investment as "a strategy and practice incorporating ESG considerations in investment choices and active ownership." Therefore, ESG is usually a standard and strategy used by investors to evaluate an enterprise's sustainable development and future financial performance for investment and decision-making analysis (Li et al., 2021). Moreover, ESG factors help measure business activities' sustainability and social impact.

Meanwhile, CSR has traditionally referred to corporate self-regulation in business models (Han et al., 2021). CSR is a self-regulatory tool that assures a corporation's active compliance with the spirit of the law and ethical standards. According to Han et al. (2021), CSR aims to boost long-term earnings and shareholder trust by establishing excellent public relations and strong ethical standards to lower

business and legal risks. As a result, CSR has emerged as a prominent concern in the management literature from a theoretical standpoint and from empirical methodologies for measuring CSR activities (Nejati and Ghasemi, 2012). Possible causes of the difficulty in measuring CSR include the concept's inconsistency and interdependence across numerous fields. Consequently, companies are shifting to more metric-based ESG criteria to better evaluate their social and environmental performance and assess the outcomes of their policies. In essence, these methods are not intended to generate revenue. Instead, they communicate a company's commitment to prioritising people and the environment before profit.

Although CSR and ESG have similar goals, they are not interchangeable. This difference is mainly based on how corporate responsibility is recorded and measured (Gillan et al., 2021). While CSR and ESG share a common goal of promoting sustainable and responsible business practices, ESG's structured approach and emphasis on measurable impacts distinguish it from the more discretionary and varied practices associated with CSR. CSR traditionally focuses on a company's ethical and social responsibilities towards its stakeholders. It encompasses various activities, including charitable giving, community engagement, and ethical labour practices. CSR initiatives are often considered voluntary or philanthropic efforts beyond regulatory requirements (Carroll, 1991).

On the other hand, ESG criteria provide a more structured and quantifiable approach to evaluating a company's impact and sustainability practices. According to (Sepetis, 2020), the ESG framework focuses on measurable factors that can directly influence a company's operational performance and long-term sustainability. These factors include environmental impact assessments, social responsibility in business practices, and governance structures that ensure accountability and transparency.

One key difference is that ESG criteria are increasingly integrated into investment analysis and decision-making processes. Investors use ESG metrics to assess potential risks and growth opportunities associated with companies' environmental, social, and governance practices. This integration of ESG considerations into financial analysis marks a significant shift from the traditional view of CSR as a separate entity from core business operations (Friede et al., 2015).

Furthermore, ESG reporting offers a more standardized and comparable data set, making it easier for stakeholders, including investors, to evaluate and compare corporate performance in these areas. Unlike CSR, which can vary significantly in its application and reporting, ESG criteria tend to be more consistent and aligned with global sustainability goals and benchmarks (Eccles and Klimenko, 2019).

Another distinction between the two acronyms (ESG and CSR) is their treatment of governance concerns. ESG explicitly incorporates governance as a fundamental pillar, directly emphasising aspects such as board diversity, executive pay, audits, internal controls, and shareholder rights. This inclusion highlights the critical role of corporate governance in ensuring accountability and ethical behavior within organizations, directly linking it to a firm's sustainability and ethical practices (Gillan et al., 2021).

In contrast, while encompassing environmental and social responsibilities, CSR often indirectly addresses governance issues. CSR initiatives focus on philanthropy, community engagement, and ethical labour practices, with governance aspects integrated as part of broader ethical and responsible business practices rather than as a distinct category. As a result, CSR approaches might not always provide the same level of detail or scrutiny to governance issues as ESG does.

Therefore, ESG is often viewed as a more comprehensive and holistic approach to assessing and reporting a company's impact and sustainability practices. It encompasses a broader range of factors that affect a company's ability to manage risk and operate sustainably. The explicit inclusion of governance in ESG signifies its importance alongside environmental and social aspects, reflecting a more integrated and transparent approach to corporate responsibility. This makes ESG a more expansive terminology than CSR, offering a more detailed framework for companies to assess and report on their impact in these critical areas.

To gain a deeper understanding of ESG, it is crucial to explore the classification of ESG components. Refinitiv has one of the most extensive ESG databases in the industry, encompassing over 80% of the global market capitalisation and more than 500 different ESG metrics dating back to 2002. The ESG scores provided by Refinitiv are

designed to offer a transparent and objective evaluation of a company's relative ESG performance. This assessment is based on the publicly available data. These scores are organised into ten categories that restructure the three pillar scores and the aggregate ESG score. This score is reflective of a company's ESG-related performance and commitment. The Refinitiv Eikon Datastream introduced an in-depth classification, which divides the ESG into ten dimensions, as in Table 2.1.

Table 2.1 ESG Components

ESG Pillars	Main Categories	ESG Description
Environment	Emission	The emission reduction score measures a company's commitment and effectiveness towards reducing environmental emissions in its production and operational processes.
	Environmental Innovation	The innovation score reflects a company's capacity to reduce its customers' environmental costs and burdens, creating new market opportunities through new environmental technologies and processes or eco-designed products.
	Resource use	The resource use score reflects a company's performance and capacity to reduce materials, energy, or water and find more eco-efficient solutions by improving supply chain management.
Social	Community	The community score measures the company's commitment to being a good citizen, protecting public health, and respecting business ethics.
	Human rights	The human rights score measures a company's effectiveness in respecting fundamental human rights conventions.
	Product responsibility	The product responsibility score reflects a company's capacity to produce quality goods and services, integrating the customer's health and safety, integrity, and data privacy.
	Workforce	The workforce score measures a company's effectiveness in providing job satisfaction, a healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce.
Governance	CSR strategy	The CSR strategy score reflects a company's practices to communicate that it

ESG Pillars	Main Categories	ESG Description
		integrates economic (financial), social and environmental dimensions into its day-to-day decision-making processes.
	Management	The management score measures a company's commitment to following best practice corporate governance principles.
	Shareholders	The shareholder's score measures a company's effectiveness towards equal treatment of shareholders and the use of anti-takeover devices.

(Source: Environmental, Social, and Governance Scores from Refinitiv, November 2021).

2.2.3 Evolution of Sustainability and ESG Concept

According to Gray (2007), sustainability is a notion that has evolved significantly over time and transcends organisational boundaries and, therefore, lacks a predefined end state. This evolution is evident in the literature, where sustainability has been approached from various perspectives, often intertwining with CSR and ESG practices. Firm sustainability is referred to by a variety of names in the literature. The foundation of sustainability is usually traced back to the Brundtland Commission's definition in 1987, which defines sustainability as "development that meets current needs without jeopardising future generation's ability to meet their own needs" (Bens et al., 2009; Carter and Rogers, 2008). This definition outlines three dimensions of sustainability: environmental, social, and economic, similar to Elkington's (1997) Triple Bottom Line framework of People, Planet, and Profit. These two frameworks are used by firms to guide their CSR strategies (Hopkins, 2007). While the word 'Planet' refers to a company's environmental commitment, the term 'People' relates to its social responsibility to its workers and the community in which it operates. The third factor, 'Profit,' denotes the economic value and advantages (Elkington, 1997).

However, the concept of corporate governance is absent from both definitions. Recent research asserts that good governance and sustainability are inseparable and should be included to incorporate those three sustainability dimensions (environment, social, and economic) into corporate strategy (Galbreath, 2013; Corallo et al., 2018).

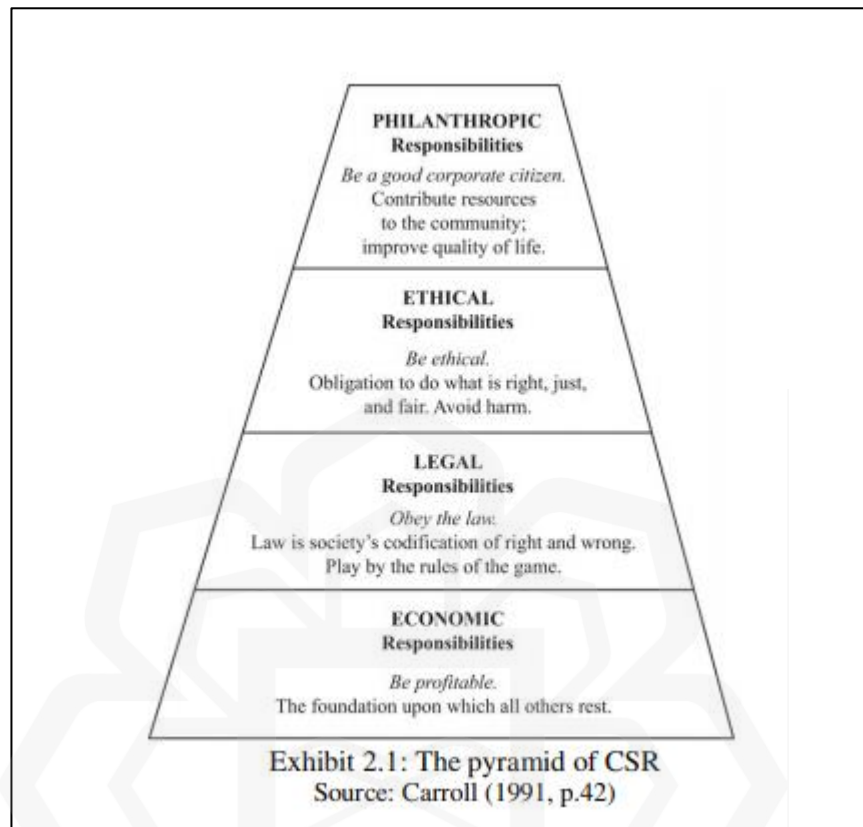
This perspective is increasingly echoed by institutional investors who consider governance alongside environmental and social criteria in their SRI assessments (US SIF Foundation, 2012). Thus, ESG indicators provide a broader spectrum of socially responsible behaviour, encompassing traditional CSR elements and the pivotal pillar of governance.

The Global Reporting Initiative (GRI) further expands this concept and defines sustainability reporting as the following mix of economic, environmental, social, and governance disclosure. As per GRI, sustainability reporting is the process of measuring, reporting, and being accountable to internal and external stakeholders, emphasising the responsibilities of firms in sustainable development. This broader understanding of sustainability reporting is in line with the World Bank's definition of CSR as "businesses' commitment to act ethically and contribute to sustainable economic development by collaborating with all relevant stakeholders to improve their lives in ways that benefit business, the sustainable development agenda, and society as a whole." As a result, a sustainability report should give a fair and realistic depiction of a reporting organisation's sustainability performance — encompassing both positive and negative contributions" (GRI, 2011 p 3).

CSR has been studied for more than four decades and is constantly evolving (Carrol and Shabana, 2010), now to include the traditional focus on society and considerations of profitability and risk reduction through comprehensive CSR strategies. Friedman (1962) coined the term "Corporate Social Responsibility" when he described it as a firm's use of its resources to maximise profits without resorting to deceit or fraud. Similarly, Carroll (1979) describes CSR as "the social responsibility of business encompasses the economic, legal, ethical and discretionary expectations that society has of businesses at a given point in time." This definition is the foundation of Carrol's pyramid of CSR (1991), which covers four business responsibilities towards society: economic, legal, ethical, and discretionary.

The pyramid's basis is economic responsibilities: a firm's fundamental duty is to profit. The second tier of the pyramid is legal obligations, which acknowledges the critical nature of businesses adhering to applicable laws to continue operating. The third pyramid tier is ethical obligations, defined as acting ethically by doing right and fair.

The highest tier of the pyramid, philanthropic duties, emphasises that businesses should give back to the community (Carroll, 1991, pp. 40-43).



By the early 1980s, sustainability shifted from social reporting to environmental reporting (Kolk and Van, 2010) due to the increased number of environmental problems that businesses encountered, such as pollution, soil deterioration, and oil spills (Deegan, 2014). As stakeholder knowledge of companies' environmental effects increased, several firms disclosed environmental concerns in their annual reports. The voluntary disclosure of environmental problems in a yearly report has enabled companies to publish favourable information about their environmental operations while ignoring unfavourable disclosures that may influence stakeholders' choices (Deloitte and Van-Staden, 2011). As a result, businesses revealed environmental actions as an acceptable strategy for influencing the choices of their stakeholders (Brown and Deegan, 1998; Deegan and Gordon, 1996).

In the 1990s, businesses started to measure sustainability on all three dimensions: social, environmental, and economic. Businesses and stakeholders began

recognising the potential value of a company's non-financial information. Elkington has created a framework known as the triple bottom line (TBL) (Elkington, 1994). The TBL incorporates social and environmental performance and financial components that must be met before success. Nowadays, the technique of reporting on a corporation's social, environmental, and economic performance is called sustainability reporting (Bebbington et al., 2014; Hahn and Kühnen, 2013; Manetti and Bellucci, 2016). Initially, disclosure of sustainability reports was voluntary (Milne and Gray, 2013).

As sustainability problems intensified, demand for sustainability reporting increased among stakeholders, including shareholders, regulators, and civil society. As a result, the 1990s witnessed the emergence of stand-alone sustainability reports (Kolk, 1999). However, there were concerns about the kind and quality of sustainability information and how it was regulated and assessed (Hohnen, 2012). Despite increasing legislation, most CSR work is voluntary and goes above and beyond a company's legal requirements. Nonetheless, businesses increasingly publish integrated annual reports that combine financial information with ESG performance assessments. This progress is driven to represent how companies are governed and provide a common language for all stakeholders. However, it may also attract investors who consider ESG aspects in their business evaluations and want more transparency, especially if a firm is trying to enhance its ESG performance.

Several projects have been launched to establish standards to improve sustainability reporting transparency. Globally, numerous NGOs provide standards and guidelines to corporations. The Global Reporting Initiative (GRI) is arguably the most important global organisation and is recognised by many as the global standard in nonfinancial reporting, covering all three aspects of sustainability – social, environmental, and economic (Toppinen and Korhonen-Kurki, 2013). In 2000, GRI released the first edition of its standards for sustainability reporting. The second generation of sustainability reporting standards was released two years later, in 2002. GRI published its first taxonomy for third-generation recommendations in 2006. The fourth-generation standards, which include reporting principles, were released in 2013.

In October 2016, GRI introduced the first global guidelines for sustainability reporting. Developed by the Global Sustainability Standards Board, these guidelines

aim to enable businesses across the globe to report on their economic, environmental, and social impacts, as well as their contributions to sustainable development. These standards build upon the fourth-generation principles for sustainability reporting and are organised into four main categories: universal, economic, environmental, and social, each containing specific sub-standards and guidelines. A study by Cuesta and Valor (2013) examined the effectiveness of these GRI guidelines by evaluating the quality of ESG reporting among Spanish companies. Their research found that the GRI standards have led to a certain level of uniformity in the structure of ESG reporting. However, they also highlighted a significant limitation: using a standard set of indicators for corporate reporting might not always yield relevant, comparable, and comprehensive high-quality data that meets the needs of all stakeholders.

In recent years, the integration of sustainability into financial reporting has gained significant momentum, driven by the need for greater transparency and accountability in corporate sustainability practices. The International Financial Reporting Standards (IFRS) Foundation has taken notable steps in this direction through the development of IFRS Sustainability Disclosure Standards, particularly IFRS S1 and S2. IFRS S1 focuses on the general requirements for sustainability-related financial disclosures. It provides a comprehensive framework for companies to report how sustainability-related risks and opportunities could affect their financial position, performance, and prospects (IFRS, 2023). IFRS S1 aims to enhance sustainability-related information's comparability, consistency, and reliability across industries and regions, thereby supporting investors and stakeholders in making informed decisions.

IFRS S2 specifically addresses climate-related disclosures. It requires companies to provide detailed information about their exposure to climate-related risks, the impact of these risks on their business models, and the strategies they employ to manage them (IFRS, 2023). IFRS S2 aligns with the Task Force on Climate-related Financial Disclosures (TCFD) recommendations, emphasising the need for companies to assess and disclose their resilience in different climate scenarios (IFRS, 2023). The adoption of IFRS S1 and S2 is crucial as the global economy increasingly recognises the need for common reporting standards to reduce fragmentation and drive comparability in climate-related financial data. These standards support the move towards a more holistic view of corporate performance, where sustainability is not just

a peripheral concern but a central component of financial stability and long-term value creation.

According to Murphy and Mcgrath (2013), the incentive for businesses to disclose ESG issues was to reduce the possibility of financial fines. Murphy argues that litigation's deterrent effect in Australia offers an additional incentive to improve ESG reporting and sustainability performance. The greater focus on ESG measures helps provide a better understanding of a firm's sustainability (Atkins and Maroun,2015). It has aided regulators in their efforts to compel businesses to disclose ESG information (Zuraida et al., 2015).

The disclosure of sustainability reports or ESG reporting is now familiar among firms worldwide (Buallay et al., 2020; Eliwa et al., 2019; Erragragui, 2018; Nguyen and Nguyen, 2020). In recent years, the debate surrounding the firm's socially responsible actions and role in the value creation process has gained growing importance in management and business ethics studies. A survey on sustainability encompasses issues such as environment, human rights, labour standards, and anti-corruption, finds that 93% of the 700 top managers across 100 countries believe that sustainability issues will be critical to their businesses' future successes (Lacy and Hayward, 2011).

There is also evidence that investors are more inclined to invest in socially responsible companies (Cheng et al., 2014; Kweh et al.,2017; Oikonomou et al., 2014; Taliento et al., 2019). For example, the Employees Provident Fund (EPF), Malaysia's biggest pension fund, said in 2021 that it plans to base all of its investments on ESG standards by 2030, as they are concerned with both the performance and sustainability of its assets over the long term (Bloomberg, 2021). Meanwhile, the Government Pension Fund Global of Norway (GPFNG) has decided to withdraw 5.7 billion pounds in investments in oil and gas companies because they have failed to invest in renewable energy (Fitzpatrick, 2019). This may be due to the investor's interest in identifying resilient and future-oriented investment opportunities to serve the needs of their stakeholders. Stakeholder demands drive sustainability disclosure growth beyond yearly financial reports to include non-financial information, including ESG performance (Dhaliwal et al., 2014; La Rosa et al., 2018).

Following the 2008 financial crisis, the European Commission embarked on several initiatives to improve the quality of business reporting to satisfy the requirements of various stakeholder groups (CFA Institute, 2016). Additionally, in April 2019, the United Nations (UN) Global Compact launched an initiative urging companies to align their sustainability strategies with actions that advance societal goals in four key areas: human rights, labour rights, environmental protection, and anti-corruption. This initiative represents a global call to action, emphasising the critical role of businesses in achieving sustainable development by adhering to these fundamental principles. One of the most notable UN-backed ESG projects is termed Fiduciary Duty in the 21st Century, which asserts that businesses perform better when contributing to their host communities (UN Principle for Responsible Investment). Because of these recent developments, companies must behave socially by emphasising their social obligations to society to maximise profit. Several efforts have been launched to establish standards for more transparent sustainability reporting. The most current and comprehensive effort is the Global Reporting Initiative (GRI), which encompasses all three pillars of sustainability — social, environmental, and economic — in one report (Toppinen and Korhonen-Kurki, 2013). This project is regarded as a model for sustainability reporting.

Firms reacted to these initiatives and made many efforts to publish sustainability reports to attract new stakeholders and re-establish market confidence eroded during the financial crisis (Perez-Batres et al., 2010). It has been claimed that listed companies that focused on corporate social responsibility, environmental concerns, and corporate governance did not go bankrupt during the financial crisis and continued to earn profit (Earhart et al., 2009). Businesses are becoming more conscious of their impact on society and the environment. The UN Environment Program (UNEP) Finance Initiative has shown that sustainability concerns are essential for a company's value (Deringer, 2005). Firms committed to social responsibility go the extra mile to support the communities and environments in which they operate, often exceeding the expectations set by regulatory bodies or environmental organisations. This shift in mindset encourages businesses to embrace a wider view that transcends the traditional focus on profit maximisation, highlighting the importance of contributing positively to society and the planet. Firms must begin implementing sustainability strategies and providing investors with non-financial data reports that capture additional dimensions not

included in traditional financial reports (Bassen and Kovács, 2008). As sustainability concerns continue to be crucial for a company's value, firms are increasingly motivated to adopt ESG practices, thereby aligning with stakeholders' expectations and global sustainability goals.

2.2.4 Firms Sustainability Components

i). Environmental Component

The environmental component of sustainability focuses on protecting and preserving the natural world. It includes efforts to mitigate climate change, conserve natural resources, protect biodiversity, and reduce pollution and waste. Environmental sustainability ensures that the planet's ecosystems remain healthy and viable, providing essential services such as clean air, water, and fertile soil for all life forms, including humans. Shrivastava (1995) defines environmental sustainability as the capacity to mitigate long-term risks related to resource depletion, energy price volatility, product liability, environmental contamination, and waste management problems. Similarly, Moldan et al. (2012) define environmental sustainability as "sustaining nature's services at an acceptable level."

Environmental sustainability acknowledges the finite nature of environmental resources and advocates for businesses to reform, rethink, and reorganise their operations to reduce adverse environmental effects (Shrivastava, 1995). Environmental sustainability is concerned with problems such as resource conservation, waste reduction, and the reduction of hazardous substance use (Gimenez et al., 2012; Pullman et al., 2009; Montabon et al., 2007; Shrivastava, 2007).

The incorporation of environmental shows corporate environmental sustainability practices into everyday operations and strategic planning processes by businesses (Closs et al., 2011; Halldorsson et al., 2009; O'Brian, 1999). Environmental practices are a collection of actions that companies engage in to manage and enhance their environmental obligations. They may include any activity contributing to the advancement of environmental sustainability (Tate et al., 2013). According to Klassen

and McLaughlin (1996), environmental practices encompass all actions to reduce the negative environmental effect of a company's goods throughout their life cycle, from product creation through final distribution and disposal (Angell and Klassen, 1997; Sroufe, 2003). The requirement to strengthen environmental sustainability standards necessitates businesses altering their operations and supply chain activities.

ii). Social Component

Corporate social responsibility (CSR) codifies the social component of sustainability (Sodhi, 2015). Social sustainability refers to a corporation's societal obligations, including poverty and illness alleviation, access to health care and education, and general societal well-being (Closs et al., 2011; Haugh and Talwar, 2010; Sarkis et al., 2010). It is also linked to the firm's human capital and includes business practices that are fair and beneficial to the people who are impacted, either directly or indirectly, by the company (Govindan et al., 2014). Firms must offer equal opportunities, promote diversity, provide staff training and development seminars, and maintain high occupational health and safety standards to be socially sustainable (Slaper and Hall, 2015; Branco and Rodrigues, 2006).

Social sustainability aims to increase the beneficial effect of a company's operations on internal communities, such as workers, and external groups, such as communities and society in general (Pullman et al., 2009; Sarkis et al., 2010). According to Dyllick and Hockerts (2002), social sustainability is defined as 'adding value to the communities in which the business works by growing the human capital of individual partners and advancing the social capital of these communities.' As a result, it can be argued that social sustainability can be divided into two dimensions: one directed internally to the firm and concerned with employees, suppliers, and other subcontractors, as well as relevant labour practices, and the other required externally to the firm and concerned with community and social aspects (Sharma and Henriques, 2005).

Internally, the focus of social sustainability is the company's responsibility to its workforce, which includes employee health and well-being practices, respect for employee diversity and equal opportunities, continuous training and development, and

providing employees with high standards of occupational health and safety (Slaper and Hall, 2011; Pullman et al., 2009; Branco and Rodrigues, 2006). Another example of social sustainability inside a company is acknowledging, valuing, and advancing workers' skills via suitable human resource policies and procedures for equality, well-being, and growth (Pullman et al., 2009).

The external component of social responsibility refers to a company's obligations to the communities in which it operates. Involvement in community support activities includes organising charity fundraisers, donating to disadvantaged populations, and participating in volunteer activities to benefit local communities.

iii). Economic Component

Economic sustainability refers to an organisation's economic effect on its external and internal stakeholders and local, national, and worldwide economic systems (Azapagic et al., 2004). Companies must perform effectively at the micro-level to be economically viable by reducing expenses and increasing revenues and shareholder returns (Closs et al., 2011; Haugh and Talwar, 2010). Thus, the economic component of sustainability does not only relate to financial viability. It also refers to generating adequate cash flows to sustain liquidity and provide shareholders with a consistent, above-average return (Halldorsson et al., 2009; Dyllick and Hockerts, 2002). As a result, economic sustainability should address the bottom line and the flow of money, including measures such as earnings and shareholder returns, as well as stock market performance and financial ratios (Azapagic et al., 2004; Wagner et al., 2002).

iv). Governance Component

The fourth component of company sustainability is governance, which relates to the firm's policies and procedures for monitoring controls, resolving conflicts of interest, and ensuring transparency (Buallay et al., 2017). Corporate governance is the process through which rules, regulations, and laws, especially those relating to economic, environmental, and social problems, are obeyed, and corrective action is taken to

guarantee the firm's long-term viability. Griffin et al. (2014) believe that well-governed companies help management use resources more effectively and enhance performance, boosting stakeholders' confidence in the firm's profitability, continuity, and long-term viability. As a result, corporate governance is an essential aspect of sustainability since it ensures a company's long-term viability (Brown and Caylor, 2006).

Governance serves as a framework for a company's internal controls, designed to meet the demands of its stakeholders. According to institutional and stakeholder theories, firms implement governance structures to align their environmental and social goals with economic aims, monitor their progress, and operationalise strategies that meet stakeholder expectations. By incorporating governance practices that monitor and adjust their operations proactively, companies can address and mitigate issues related to governance in their management decisions. Consequently, effective governance improves a company's reputation and builds and maintains trust within the community, paving the way for sustained business success.

v). Interdependence of Sustainability Components

Sustainability comprises four components, one of which is regarded as financial (economic), and the other three are considered non-financial (environmental, social, and governance) (Cheng and Ali, 2023; Clune and Zehnder, 2018). Figure 2.1 shows these components are interdependent, each playing a crucial role in the sustainability framework. Sustainability is a holistic concept that aims to meet the needs of the present without compromising the ability of future generations to meet their own needs. Many studies have only dealt with one facet of sustainability at a time (Newman et al., 2014; Xie et al., 2015) and ignored their linkages (Van der Byl and Slawinski, 2015). The concept of sustainability is multifaceted, offering stakeholders the opportunity to evaluate it from different perspectives (Bhinge et al., 2015). While a significant body of research on sustainability considers its social and environmental dimensions, the interplay between governance and these two elements has been comparatively underexplored (Buallay, 2019; Bolton and Mattila, 2015; Pelozo et al., 2013). Ignoring the governance aspect leads to ambiguous results in achieving social and environmental sustainability (Buallay, 2018). This highlights the importance of incorporating

governance into the sustainability equation to fully understand and effectively manage the outcomes.

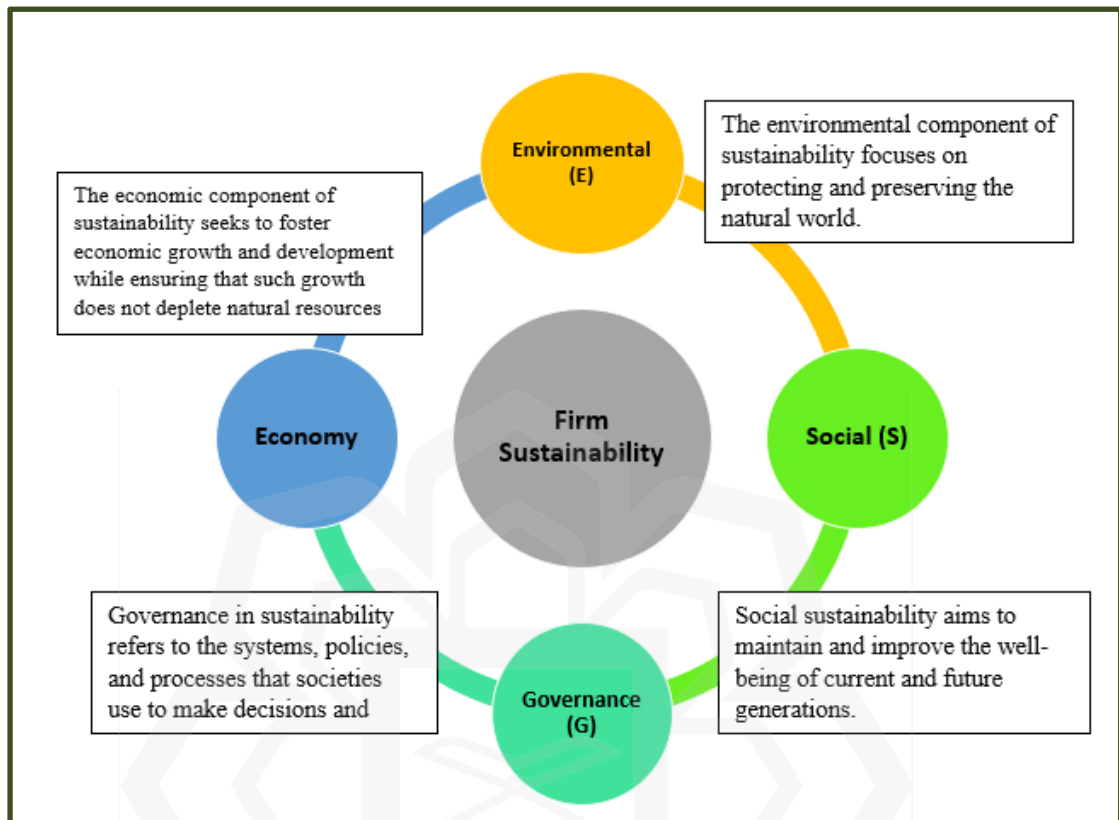


Figure 2.1 The Sustainability Components

According to researchers (Uwuigbe and Egbide, 2012), combining ESG initiatives results in economic sustainability and competitive advantage. ESG, though sometimes considered synonymous with SRI, is its own class of investing (Refinitiv, 2019). ESG investing integrates ESG factors into the fundamental investment process. Investors can select companies to invest in using ESG factors or an ESG framework. ESG factors such as environmental friendliness are considered factors in a firm's longevity. In other words, companies that follow high-quality ESG standards are more likely to outperform their peers in the long run (Taliento et al., 2019). Accordingly, all aspects of sustainability are included in this thesis.

In summary, the pillars of sustainability—environment, social, governance, and economy—are intertwined. Sustainable development requires a balanced approach that considers all these components, recognising that actions in one area can significantly

impact others. Integrating environmental, social, governance, and economic considerations allows societies to thrive while preserving the planet for future generations.

2.2.5 Prior Literature on ESG Practice and Firm Risk

2.2.5.1 Background Setting: ASEAN and GCC

The ASEAN and GCC regions have been selected for this study due to their unique and evolving economic, capital market, and corporate governance structures. Both regions represent emerging markets with distinct characteristics that make them ideal settings for investigating the relationship between ESG practices and firm risk.

The ASEAN region comprises ten Southeast Asian countries with diverse economies ranging from developing nations like Myanmar and Cambodia to more advanced economies such as Singapore and Malaysia. Collectively, the ASEAN economy was the fifth largest in the world as of 2020, demonstrating its significant role in global trade and investment (ASEAN Secretariat, 2021). The region is undergoing rapid industrialisation and urbanisation alongside growing population pressures. However, these developments bring environmental and social challenges, making sustainable development crucial for ASEAN countries. With increasing integration into the global economy, ASEAN nations are under pressure to adopt globally recognised frameworks, such as ESG, to enhance their competitiveness and manage risks associated with environmental and social governance (PwC, 2020).

Similarly, the GCC comprises six Middle Eastern countries: Saudi Arabia, the United Arab Emirates, Qatar, Kuwait, Bahrain, and Oman. The GCC economies have traditionally been heavily reliant on oil exports, which has driven their economic growth for decades. However, due to global shifts towards sustainability and the volatility in oil prices, GCC countries are seeking to diversify their economies. Initiatives such as Saudi Arabia's Vision 2030 and UAE's Green Economy for Sustainable Development emphasise economic diversification, sustainability, and the adoption of ESG practices to reduce reliance on oil revenues and manage the environmental and economic risks posed by climate change (Al-Khazraji and Mohammed, 2021). This economic

transformation positions the GCC as a critical region for studying the role of ESG in managing firm risk, particularly in non-oil sectors.

Similarly, the capital markets in both ASEAN and GCC are drawing increasing global attention due to their growth potential and relatively untapped investment opportunities. However, both markets face challenges such as low transparency, regulatory inconsistencies, and varying degrees of corporate governance practices.

ASEAN capital markets have seen a steady rise in foreign direct investment (FDI), particularly from major economic powers like China and Japan, which view the region as a growing manufacturing hub (ASEAN Secretariat, 2021). Some ASEAN countries, such as Singapore, have highly developed financial markets, while others, like Vietnam and Indonesia, are still in the early stages of market development (ADB, 2021). The need for robust ESG frameworks is becoming increasingly evident, particularly as investors demand more transparency and accountability from firms in terms of their environmental and social impact (PwC, 2020).

In the GCC, capital markets are younger but growing steadily, driven by government investments and the development of financial hubs such as the Dubai International Financial Centre (DIFC). There is growing interest in integrating ESG practices into the financial markets as part of a broader effort to diversify away from oil dependence. Initiatives such as green bonds and sustainability-linked indices reflect the increasing awareness of ESG's role in mitigating financial risks and ensuring long-term stability in the GCC markets (S&P Global, 2021).

Corporate governance in both ASEAN and GCC countries has been evolving, particularly in response to the need for better risk management and sustainability reporting. ASEAN countries such as Malaysia and Singapore have implemented corporate governance codes that encourage greater transparency and stronger oversight of corporate practices. For example, Malaysia's "Corporate Governance Blueprint 2011" and the "Securities Commission's Code on Corporate Governance 2017" emphasize the importance of sustainability reporting and responsible business conduct (Securities Commission Malaysia, 2017). Furthermore, ESG disclosure requirements

are becoming more prominent in ASEAN as part of a wider strategy to attract foreign investment by increasing environmental and social accountability (KPMG, 2021).

In the GCC, corporate governance reforms have gained momentum in recent years, with countries like Saudi Arabia and the UAE making significant progress in enhancing transparency and accountability. Saudi Arabia's Capital Market Authority has introduced ESG reporting guidelines, and the UAE has launched various initiatives to encourage sustainable investment (Al-Khazraji and Mohammed, 2021). However, corporate governance frameworks in the GCC are still developing, with many firms adopting voluntary rather than mandatory ESG disclosures. This inconsistency highlights the need for studies that investigate how these frameworks impact firm risk (S&P Global, 2021).

Therefore, the selection of ASEAN and GCC regions is critical because these emerging markets are at a pivotal stage where ESG practices are gaining importance in managing firm risk, yet the frameworks governing these practices are still developing. The regulatory environments in these regions vary greatly, with some countries implementing stringent ESG reporting requirements while others are still in the process of recognizing sustainability's importance in corporate governance (KPMG, 2021).

Additionally, the growth of both regions as emerging markets with increasing global integration makes understanding the role of ESG in these settings vital for domestic and international investors. As these regions continue to develop their financial markets and corporate governance structures, the findings from this study could provide valuable insights into how ESG practices can be leveraged to reduce firm risk and enhance long-term business resilience in emerging economies (ASEAN Secretariat, 2021; Al-Khazraji and Mohammed, 2021).

By focusing on the ASEAN and GCC regions, this study aims to contribute to the growing body of knowledge on ESG and risk management in emerging markets. The economic, capital market, and corporate governance contexts of these regions provide a rich backdrop for examining how ESG practices influence firm risk and how country-specific factors, such as regulatory frameworks and market maturity, moderate this relationship.

2.2.5.2 ESG Practice and Firm Risk

The section reviews the literature on the relationship between ESG practices and firm risk, highlighting the benefits and complexities associated with ESG practices. The prior literature argues that engagement in ESG activities has proven to have specific benefits ranging from better financial performance (Kweh et al., 2017; Taliento et al., 2019) to better access to financing (Hamrouni, Boussaada, and Ben Farhat Toumi, 2019). This is in line with what has been emphasized by other researchers that firms with high ESG scores experience better access to valuable resources (Cheng et al., 2014), attract more qualified employees (Erhemjants and Huang, 2019), and better market their products and services (Hamrouni et al., 2019) relative to firms with low ESG scores.

However, studies examining the relationship between ESG practices and firm risk present a more complex picture, revealing significant variations in the influence of ESG practices on firm risk (Shakil, 2021; Lueg et al., 2019; Albuquerque et al., 2019b; Breuer et al., 2018; El Ghouli et al., 2016; Erragragui, 2018; Nguyen and Nguyen, 2020). These studies have yielded various outcomes, including significant positive, negative, mixed, and insignificant impacts of ESG practices on firm risk across various industries and countries. Such diversity in findings indicates that the link between ESG practices and company risk is complex and affected by numerous elements, such as the specific dynamics of industries, the regulatory environment of different regions, and the particular ESG measures adopted.

According to Gillian et al. (2021), ESG can affect many types of risk, including systematic, regulatory, supply chain, litigation, reputational, and physical risks. Some studies found a negative relationship between ESG practices and firm risk, indicating that firms with high ESG scores exhibit lower firm risk. For example, Albuquerque et al. (2019a) conclude that firms with high ESG performance have lower systematic risk due to less price elastic demand for their products or services. Other studies, such as those by El Ghouli et al. (2011), Lueg et al. (2019), and Seltzer et al. (2020), also observed a negative relationship between ESG practices and firm risk, suggesting that better ESG practice can lower the cost of capital for firms. This relationship was further

supported by Eliwa et al. (2019), who differentiated between ESG performance and disclosure, finding both equally effective in lowering the cost of debts for firms.

In contrast, some studies found no or non-significant relationship between ESG and firm risk (Stellner et al., 2015; Humphrey et al., 2012). Stellner et al. (2015) conclude that no statistically significant relationship exists between firm ESG and their credit rating in a country with below-average ESG scores. Accordingly, Humphrey et al. (2012) found that UK firms with high and low ESG ratings do not differ in their amount of idiosyncratic risk. In their study exploring the impact of ESG performance on the value of Korean firms, Yoon et al. (2018) highlight that the social dimension of ESG appeared not to have any significant relationship with a firm's financial risk, hence highlighting the complexity of the ESG-risk relationship.

Contrary to the above findings, some studies have found a positive relationship between ESG practices and firm risk (Breuer et al., 2018; Menz, 2010). Menz (2010) shows a positive but weakly significant association between ESG and corporate spreads in his research of 498 European corporate bonds, implying that firms with superior ESG performance suffer larger corporate bond spreads. This was echoed by Goss and Robert (2011), who observed that companies that are vulnerable to ESG concerns, on the other hand, are penalized with greater spread. This reinforces the argument that spending money on ESG initiatives wastes precious resources that could be used elsewhere in the organization. Similarly, using a sample of 332 companies in France, Germany, Italy, and Japan, Izzo and Magnanelli (2012) found no evidence of a negative relationship between CSR and the cost of debt. In line with Menz (2010), their results reveal a positive relationship that better ESG practice is penalized with a higher cost of debt. Meanwhile, Baran and Zhang (2012) find that the yield spreads of newly issued bonds increase systematically after companies have been included in the KLD 400 Index, which comprises companies with superior CSR performance. The overall results support the findings of Menz (2010) and Izzo and Magnanelli (2012).

Existing studies in ESG mostly employ aggregated or total ESG scores as a measure to represent a firm's overall commitment to sustainability. Therefore, it is argued that it often overlooks the possible contributions of individual ESG components, such as environmental or social aspects, to a firm's value creation. Individual ESG

components may uniquely influence various firm-specific outcomes that the aggregate ESG approach may hinder. A study by Flammer (2015) that disaggregated ESG scores, which specifically focused on the environmental component of ESG, revealed a positive impact on firms' financial performance. Such analyses can uncover the differential effect of each ESG component on firm performance, risk, and valuation. Furthermore, research by Khan, Serafeim, and Yoon (2016) on materiality in sustainability issues highlighted the importance of considering the individual ESG components. They argue that certain ESG issues pertinent to a specific industry or firm may have a more pronounced impact on firm outcomes that can be overlooked when employing aggregated ESG scores.

In summary, while aggregated ESG scores offer a convenient measure for assessing a firm's overall ESG practices, they lack the specificity to capture the distinct influences of environmental, social, and governance factors. This gap in research methodology underlines the need for more studies that examine the individual components of ESG to provide more understanding of how each component contributes to a firm's ESG performance.

In assessing the performance of a company, researchers typically opt for one of three methods: accounting-based measures, market-based measures, or a combination of both. Each of these measurement options provides unique insights into a firm's performance, but they also come with limitations. In relation to firm risk, many researchers have preferred to use market-based measures, such as systematic risk, idiosyncratic risk, and total risk (Sassen et al., 2016; Lueg et al., 2019; and Seltzer et al., 2020) due to their ability to capture market and investors' perceptions. On the other hand, some researchers have selected to use accounting-based measures (credit risk and/or default risk). These measures are less complex since they reflect the firm's actual performance (Isiaka, 2023; Buallay, 2021)), and they are better at forecasting sustainability performance (López et al., 2007). Lopez et al. (2007) highlight that accounting measures, such as return on assets (ROA) or return on equity (ROE), provide a direct view into a firm's operational efficiency and financial health.

Meanwhile, Huang et al. (2020) pointed out that market-based measures of firm performance are affected by information asymmetry between managers and

shareholders. This discrepancy arises from the uneven distribution of information, where managers may have access to details not available to shareholders, potentially impacting the accuracy of market-based evaluations. This asymmetry can lead to misinterpretations of a firm's risk profile since market-based measures are influenced by investor perceptions, which may not always align with the actual financial condition of the firm.

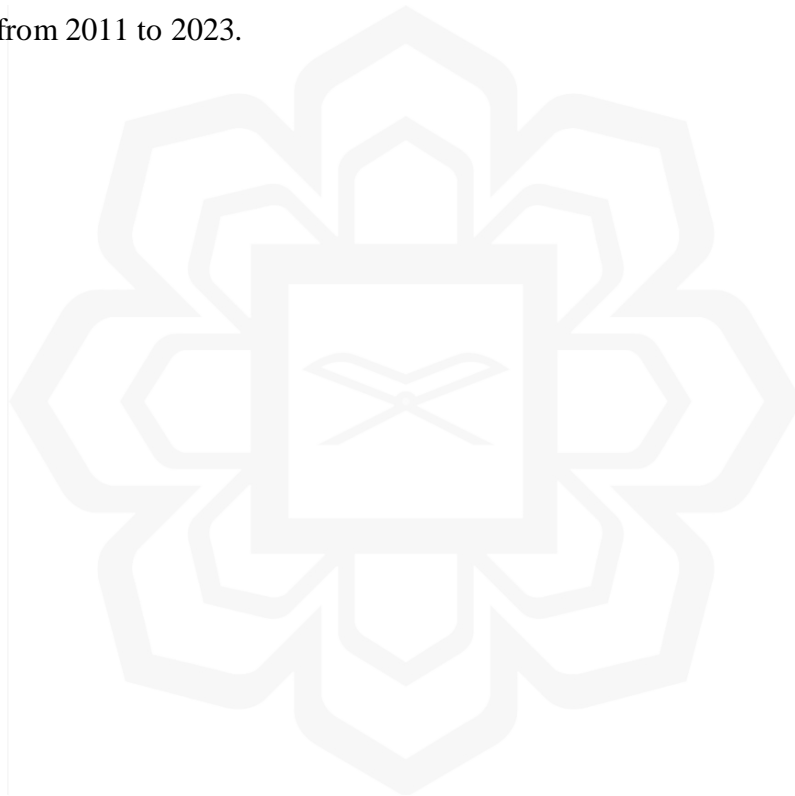
Thus, to overcome the criticisms of both measures of firm risk, this present study will use both market-based and accounting-based measures in this thesis. This dual approach aims to provide a more holistic understanding of firm risk, combining the external market perspective with internal financial realities. By integrating both measures, the study seeks to mitigate the drawbacks of each and offer a more balanced and accurate assessment of firm risk. This methodological choice aligns with recent trends in financial research, where combining different types of measures is increasingly recognized as beneficial for obtaining a more complete picture of a firm's performance and risk profile (Fama and French, 1993, 2001).

The present study builds on the above debates. While the consensus in the literature points towards the benefits of ESG practices in enhancing overall firm value and performance, the impact on firm risk is complex and multifaceted. The mixed results regarding the impact of ESG on firm risk are likely due to a combination of factors, including differences in measurement and reporting standards, methodologies, sample sizes, industry contexts, and geographical locations.

For instance, ESG practices and their impact on firm risk can be difficult to measure consistently due to the lack of standardized ESG reporting frameworks. The inconsistency in ESG data quality and reporting standards can lead to mixed findings. As the field matures, the adoption of standardized reporting, like those promoted by IFRS S1 and S2, may help reduce these discrepancies and provide clearer insights into the true impact of ESG on firm risk. Additionally, the impact of ESG practices on firm risk can vary significantly across industries. For example, in high-impact industries like oil and gas, environmental practices may have a more pronounced effect on risk compared to industries with lower environmental footprints. The effectiveness of ESG practices may also differ based on regional factors, such as the strength of regulatory

frameworks and cultural attitudes towards sustainability. These contextual differences mean that ESG practices may reduce firm risk in some settings while having little to no effect in others. A more comprehensive analysis that considers industry and regional specifics is necessary to understand the varying impact of ESG practices on firm risk.

Thus, to identify the research gap, the present study specifically assesses the extant literature concerning ESG practices and firm risk. An analysis of existing works discovered that preceding studies interchangeably use the terms ‘sustainability’, ‘CSR’, and ‘corporate social performance (CSP)’. Hence, those related studies are included as part of the search outcome. Table 2.2 elaborates on the identified research scope of prior studies from 2011 to 2023.



Author / Year Journal	Measures of ESG	Measures of Firm Risk	Sample	Main Findings
Ayton et al. (2022) Int review of Fin Analysis	ESG	Total risk Systematic risk Idiosyncratic risk	Large UK firms	Not significant for total risk & systematic risk Idiosyncratic risk (-)
Sciarelli et al., (2023) Social Responsibility Journal	ESG ENV SOC GOV	Systematic risk, Idiosyncratic risk	S&P 500 companies	ESG (-) idiosyncratic risk ENV & SOC (-) idiosyncratic risk. No significant results for systematic risk
Shakil (2021) Resources Policy	ESG	Total risk, Systematic risk	Global (Oil and Gas)	Total risk (-) Not significant for systematic risk
Lueg et al. (2019) Journal of Cleaner Production	ESG	Total risk Systematic risk Idiosyncratic risk	South Africa	Systematic risk (-)
Sassen et al. (2016) Journal of Business Economics	ESG ENV SOC GOV	Total risk, Systematic risk, Idiosyncratic risk	Europe	ESG (-) on total and idiosyncratic risk ENV (-) idiosyncratic risk SOC (-) on all three risk measures GOV is not significant for all risk
Thuy et al. (2021) Sustainability	ESG	Systematic risk	Vietnam's publicly listed companies	ESG (-) on systematic risk
Albuquerque at al. (2019) Management Science	ESG	Systematic risk	USA	Systematic risk (-)
Chollet & Sandwidi, (2018) Global Finance Journal	ESG ENV	Total risk Systematic risk	International sample	SOC & GOV (-) on total and idiosyncratic risk

	SOC GOV	Idiosyncratic Risk		ENV is not significant for all risk
Benlemdih et al., (2018) <i>Journal of Business Ethics</i>	Asset4	Total risk Systematic risk Idiosyncratic risk	UK listed companies	ENV (-) total and idiosyncratic risk SOC (-) total and idiosyncratic risk
La Rosa et al., (2018) <i>European Management Journal</i>	SOC	Credit risk	Europe	SOC (-) on credit risk
Chollet and Sandwidi (2018) <i>Global Finance Journal</i>	Asset4	Total risk, Systematic Risk, Idiosyncratic risk	World	SOC and GOV (-) systematic risk
Chang et al. (2014) <i>Journal of Business Ethics</i>	KLD	Total risk, Systematic risk	S&P 500 (USA)	SR (-) total risk and systematic risk
Oikonomou et al. (2012) <i>Financial Management</i>	KLD	Systematic risk	S&P 500 (USA)	Corporate Social Irresponsibility (+) systematic risk
Salama et al. (2011) <i>Business Ethics: A European Review</i>	DJSI	Systematic risk	UK	ENV (-) systematic risk
Brogi et al. (2022) <i>Journal of International Financial Management & Accounting</i>	ESG ENV SOC GOV	Credit risk	World	ESG and SOC (-) credit risk
Abdul Razak et al. (2020) <i>Journal of Risk and Financial Management</i>	ENV SOC	Credit risk	World	Climate change, natural resources use, human capital (-) credit risk
Stellner et al., (2015) <i>Journal of Banking & Finance</i>	ESG	Credit Risk	Europe	ESG (-) credit risk

Table 2.2 Main Literature on ESG – Firm Risk Relationship

The previous discussions evidenced the gap that exists in the ESG practice literature. It can be emphasized that three critical research gaps emerged, namely, the empirical gap, the population gap, and the methodological gap. Figure 2.2 illustrates the research gap.

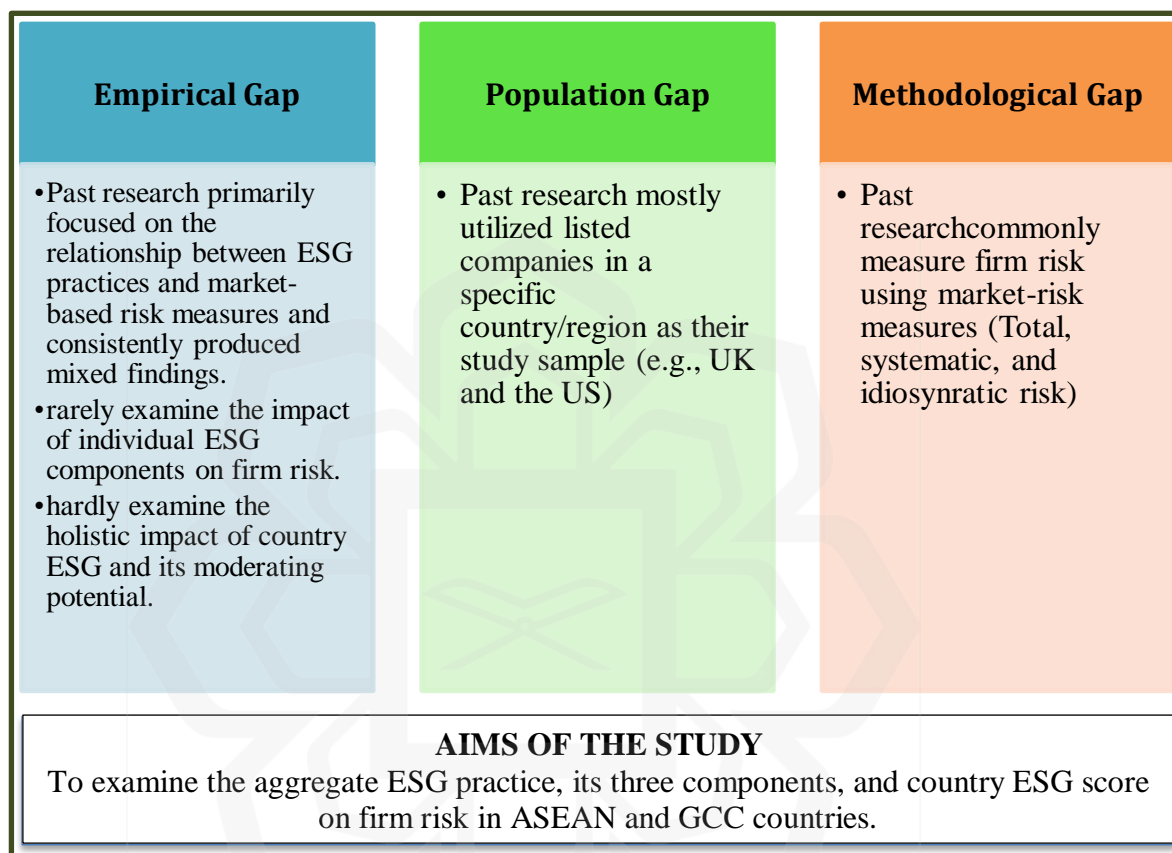


Figure 2.2 The Research Gap

This study aims to address the empirical, population, and methodological gaps identified in existing research on the relationship between ESG practices, country ESG scores, and firm risk. To fill these gaps, the study expands the scope of firm risk. While previous studies predominantly linked ESG practices with market-based risk measures, this research introduces accounting-based risk measures, specifically focusing on default and credit risk. This inclusion is critical, as it provides a more thorough understanding of risk factors affecting firms.

Emphasizing the importance of individual ESG components, as suggested by Serafeim and Yoon (2016) and Sassen et al. (2016), this study acknowledges that each component of ESG may exert distinct impacts on firm outcomes. Such impacts might be masked when solely relying on aggregated ESG scores. By dissecting ESG into its three components, the study offers a more detailed examination of how environmental, social, and governance components individually and collectively influence firm risk.

Furthermore, this study contributes significantly to the body of literature by exploring ESG practices and firm risk within the specific contexts of the ASEAN and GCC regions. These regions provide a unique setting due to their distinct economic, cultural, and regulatory landscapes. By examining these geographically diverse areas, the study enriches existing knowledge and offers comprehensive insights into how ESG practices are implemented and how they impact firm risk in different regional settings.

2.3 GLOBAL ESG REPORTING FRAMEWORKS

Firms are expected to contribute to social and environmental protection as part of their responsibilities. This is due to the awareness that their corporate activities can significantly impact not just shareholders but also communities and the environment at large, potentially leading to adverse outcomes (Safrina, 2021). ESG issues are significant to investors for a variety of reasons. Some investors may view them primarily for 1) financial returns, while others approach ESG issues from 2) ethical considerations, risks, and opportunities or both.

Several frameworks, guidelines, and organizations serve as standard guidelines for investors interested in integrating ESG into their investment decisions. Among these are the United Nations Sustainable Development Goals (SDGs), the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), and the Principles for Responsible Investment (PRI). These organizations shape ESG practices by promoting sustainable and responsible investment practices.

2.3.1 International Frameworks and Guidelines

There are several internationally accepted sustainability frameworks and guidelines with complementarities and synergies. Some have a comprehensive scope of sustainability, while others are aimed at specific sectors or are focused on a single issue, such as greenhouse gas emissions, climate change, or the impacts of business activity on the sea or forests. Table 2.3 lists these frameworks, along with brief explanations of each.

Table 2.3 Sustainability Frameworks

No.	International Framework	Brief Description of Framework
1	Sustainable Development Goals (SDGs)	The SDGs are intended to apply to all countries – rich, poor, and middle-income – to promote prosperity while safeguarding the environment and addressing climate change. They emphasised equity to meet the unique needs of women, children, and disadvantaged populations to ensure that "no one is left behind" (<i>World Health Statistics</i> , n.d.)
2	Global Reporting Initiatives (GRI)	Corporate social responsibility with equal weight on environmental, social, and governance factors. Heavy on stakeholder engagement to determine materiality. GRI requires the company to conduct a materiality assessment to identify the topics relevant to their business (<i>GRI - Standards</i> , n.d.)
3	The Sustainability Accounting Standard Board (SASB)	SASB's mission is to bring organisations and investors together to discuss the financial implications of ESG. Industry-specific standards prioritise the material aspects of a business's sustainability performance (<i>SASB Standards Overview - SASB, 2023</i>). While SASB focuses on sector-specific materiality, the IFRS Foundation has developed IFRS S1 and S2 to provide a more global, comprehensive framework for sustainability and climate-related disclosures.
4	Principle for Responsible Investment (PRI)	The PRI defines responsible investment as a strategy and practice incorporating environmental, social, and governance (ESG) factors in investment decisions and active ownership (<i>An Introduction to Responsible Investment I PRI</i> , n.d.)
5	Task Force on Climate-related Financial Disclosures (TCFD)	The Task Force was created to develop voluntary, consistent climate-related financial disclosures useful to investors, lenders, and insurance

		underwriters to appropriately assess and price climate-related risks (<i>Climate Risk and TCFD Programme</i> , n.d.)
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As mentioned in Table 3, The United Nations adopted the SDGs in 2015 as a universal call to action to end poverty, protect the environment, and ensure that by 2030, all people will enjoy peace and prosperity. The SDGs, which have become part of national public policy in many countries, are an official declaration of the unacceptable economic and financial behaviour of individuals, firms, and corporations that has caused enormous disruption to nature and human life (World Health Statistics, n.d.). The call for all economic and financial decisions to include the sustainability of all stakeholders has been central to international organisations' policies, led by the UN SDGs. The nature of global crises is not limited to a single country but calls for organised, systemic, and global mobilisation. Every stakeholder, including banks and financial institutions, must participate. The 17 SDGs are interconnected; they recognise that actions taken in one area affect outcomes in other areas and that development must strike a balance between social, economic, and environmental sustainability (World Health Statistics, n.d.).

According to the KPMG Report in 2020, GRI is the world's most widely adopted sustainability reporting framework. GRI was named the UN Global Compact's official reporting standard, making it the default reporting framework for more than 5,800 associated businesses (KPMG, 2020). It is one of the world's oldest, most widely used, and most respected reporting methodologies. GRI provides companies with standards by which to report their ESG information to all stakeholder groups (KPMG, 2020). It is a holistic approach to reporting and strives to provide information comparably. They are intended to deliver a high-level overview and a detailed breakdown of the organisation's material topics.

SASB offers disclosure standards for over 75 industries to ensure that the information disclosed is most pertinent to an organisation's financial performance (SASB Standards Overview - SASB, 2023). The standards prioritise financially material aspects to aid in the decision-making process for business and investment. SASB Standards guide how to report material information and can be used with other

frameworks (SASB Standards Overview - SASB, 2023). While SASB focuses on material ESG risks that are most relevant to specific industries, IFRS S1 and S2 provide a global framework that ensures companies report their sustainability and climate risks in a way that is consistent across regions. Together, these frameworks complement one another, providing both the global and industry-specific perspectives needed to give investors a clearer understanding of a company's sustainability performance and financial impact. In a world where the global economy needs common reporting standards to reduce fragmentation and drive comparability in climate-related financial data, the adoption of IFRS S1 and S2 is a critical step forward. These standards aim to provide clarity and consistency, ensuring that companies disclose their sustainability-related risks and demonstrate how these risks influence their financial performance, resilience, and long-term sustainability.

An international group of institutional investors developed the Principles for Responsible Investment (PRI) in response to the growing importance of environmental, social, and corporate governance issues in investment practices (PRI | Home, n.d.). Kofi Annan, the then-Secretary-General of the United Nations, invited a group of the world's largest institutional investors to participate in developing the PRI in early 2005. A 20-member investor group comprised of representatives from institutions in 12 countries was aided by a 70-member expert panel of representatives of the investment industry, intergovernmental organisations, and civil society. The PRI works to achieve this sustainable global financial system by encouraging the adoption of the principles and collaboration on their implementation, promoting good governance, integrity, and accountability, and addressing impediments to a sustainable financial system inherent in market practices, structures, and regulation.

The Task Force on Climate-related Financial Disclosures (TCFD) is an initiative launched in December 2015 by the FSB (Financial Stability Board), an international organisation founded with the support of G20 members to promote global financial stability (TCFD, n.d.). The TCFD's mission is to assist investors, lenders, and insurance underwriters in identifying the information necessary to appropriately assess and price climate-related risks and opportunities and make recommendations regarding consistent corporate disclosures to assist financial market participants in assessing their climate-related risks.

2.4 COUNTRY SUSTAINABILITY FRAMEWORK

Recent trends in market development and heightened regulatory oversight indicate that the significance of transparency and accuracy of ESG reporting is increasing. Regulators and investors increasingly call for clear communication of a firm's sustainability initiatives and management of associated risks and opportunities. This transparency is critical for stakeholders who are placing greater emphasis on responsible investment and corporate accountability. Hence, firms are encouraged to strengthen their ESG disclosures and align their corporate practices with investor and regulator expectations for sustainable growth.

2.4.1 National Sustainability Frameworks

The ESG reporting framework has become a cornerstone in global business and is pivotal in enlightening investors and stakeholders about a company's sustainability practices. The international call for uniform ESG reporting standards is motivated by the necessity for a standard framework that aids in cross-comparison, which is especially vital as businesses navigate global value chains and confront international risks. Recognising that sustainability issues can influence long-term value creation leads to heightened expectations for companies to disclose their ESG information. The transition towards more cohesive and standardised reporting is an ongoing journey, with significant advancements anticipated as these frameworks and regulations are refined and implemented globally.

From the comprehensive sustainability disclosure mandates of the European Union (EU) to the progressive ESG integration efforts in emerging economies, countries worldwide are crafting policies and regulations to promote transparency, accountability, and sustainable development. This global effort underscores the diverse approaches to ESG adoption and highlights a collective movement towards a more responsible and resilient global market. The following sections delve into these varied country-specific ESG and sustainability frameworks, exploring the unique characteristics and the common goals that unite these international efforts towards environmental stewardship, social responsibility, and governance excellence. Table 2.4

delves into significant initiatives of specific countries' ESG frameworks to enhance the ESG reporting landscape.

Table 2.4 Initiatives by Countries to Enhance ESG Reporting

No.	Country	Brief Description of Initiatives
1	Malaysia	Bursa Malaysia published Sustainability Reporting Guidelines for firms to adopt and embed sustainability in their organisation, which help them identify, evaluate, and manage material economic, environmental, and social (EES) risks and opportunities.
2	Indonesia	Under the Indonesia Financial Services Authority (OJK), all listed companies are required to publish sustainability reports.
3	Singapore	Singapore Exchange (SGX) introduced sustainability reporting on a "comply or explain" basis and mandated all SGX-listed issuers to prepare yearly sustainability reports.
4	Philippines	SEC Philippines released the Sustainability Reporting Guidelines for Publicly Listed Companies and required companies to attach their sustainability reports to their annual reports.
5	Thailand	Thailand's SEC issued a new Corporate Governance Code requiring a company's board to ensure adequate sustainability reporting.
6	Vietnam	The State Securities Commission of Vietnam (SSC) developed the Vietnam Corporate Governance Code of Best Practices. The SSC recommends that public companies comply with the practices set out and disclose the detailed level and roadmap of compliance in their annual report.
7	Saudi Arabia	The Saudi Arabia stock exchange Tadawul announced sustainability disclosure guidelines in 2021 for listed companies to promote greater ESG reporting.
8	United Arab Emirates (UAE)	Listed public companies on the Abu Dhabi Securities Exchange and Dubai Financial Market (DFM) must publish a sustainability report annually outlining their long-term strategy and impact on ESG and the broader economy.
9	Bahrain	The Bahrain Bourse introduced the ESG Voluntary Reporting Guideline in June 2020 to encourage ESG disclosures among listed companies and stakeholders.
10	Qatar	The Qatar Stock Exchange has published optional ESG guidelines to help listed companies incorporate these standards into their disclosures and has indicated plans to make reporting mandatory.

No.	Country	Brief Description of Initiatives
11	Kuwait	Boursa Kuwait has launched a voluntary ESG Reporting guide for listed companies to encourage corporate sustainability. It has also created a comprehensive guide to encourage market participants to embrace ESG reporting.
12	Oman	The Omani Capital Markets Authority introduced voluntary ESG reporting guidelines for companies on the Muscat Stock Exchange.

Source: Own interpretation.

In summary, the initiatives outlined in Table 4 indicate a positive development where different policies and regulations are being developed to promote ESG or sustainability reporting. As this development gains momentum, it is poised to drive a fundamental shift in how companies operate and report, paving the way for a future where sustainable practices are deeply integrated into global business operations.

2.4.2 ESG Practices in ASEAN and GCC Countries

The evolving commitment to ESG issues in the ASEAN and GCC regions signifies a broader global trend towards sustainability and responsible corporate practices, showcasing each region's unique response to contemporary challenges and opportunities.

In the ASEAN region, the focus on ESG, particularly in green infrastructure, has been amplified by the response to the COVID-19 pandemic (Broadstock et al., 2021). Countries like the Philippines, Indonesia, Malaysia, Singapore, and Thailand increasingly leverage green bonds to fund sustainable projects with a strong emphasis on social impact commitments (Azhgaliyeva et al., 2019). This approach aligns with the UN's SDG and is accompanied by a noticeable surge in ESG investment, driven by investors' attraction towards responsible investment criteria.

This present study dives into the nuances of ESG practices in the ASEAN region, drawing on a diverse range of academic research to provide a detailed understanding of ESG's influence on corporate performance, financial markets, and sustainable development. Pratama et al. (2022) offer insights into the region's progress

and challenges in sustainability reporting, highlighting the need for improvement in disclosure practices. Adding to this narrative, Setiarini et al. (2023) explore how strategic orientations influence ESG adoption, emphasising the link between strategy and ESG engagement. Junius et al. (2020) and Makhdalena et al. (2023) further investigate ESG's impact on firm valuation and performance, particularly in developing economies within ASEAN.

Additionally, Adeneye et al. (2022) examine the relationship between ESG performance and capital structure dynamics, offering insights into the financial implications of ESG. Complementing this, Lestari and Adhariani (2022) study the role of intellectual capital in enhancing organisational performance, while Ramadhani (2019) and Budiarto and Nainggolan (2023) extend the discussion to sustainable finance and sovereign bond markets.

Concurrently, the GCC region has witnessed significant ESG-related developments, aligning with international commitments like the Paris Agreement and the UN SDGs. A report from PWC Middle East in September 2023 highlighted that governments in the GCC region are setting ambitious net-zero carbon emissions targets and enacting policies related to sustainable finance, ESG reporting, and gender parity in corporate governance. Sustainable finance is also gaining traction, with Bahrain and the UAE developing green finance frameworks and Saudi Arabia initiating the Saudi Green Initiative.

Additionally, there is a focus on corporate governance practices and their impact on firm performance in the GCC countries, with the UAE being highlighted as having the highest corporate governance index (Nobanee and Ellili, 2021). Moreover, the GCC countries have been implementing advanced CSR practices, with some aiming to reduce oil dependency through enhancing transparency, increasing foreign direct investments, and reforming governance structures (Farah et al., 2021; Jizi et al., 2021). This indicates a shift towards sustainable practices and a focus on long-term sustainability benefits for companies and the environment. Additionally, there is a growing interest in sustainable construction practices and urban planning in the Gulf cities, with initiatives to alter the urban landscape and implement renewable energy technologies (Zaidan and Abulibdeh, 2020). Furthermore, there is a focus on the influence of corporate governance features

on organisational outcomes in the GCC countries, with specific assessments conducted in Qatar (Abdullah and Ahmed, 2021). This demonstrates a concerted effort to understand the impact of governance on organisational performance within the region.

In conclusion, while ASEAN and GCC regions demonstrate a strong commitment to ESG, challenges remain in implementation and enforcement. However, the efforts in these regions are promising indicators of their alignment with global sustainability trends, highlighting their potential to enhance resilience and ethical practices within their economies.

2.4.3 The Moderating Role of Country ESG in The Relationship Between ESG Practices and Firm Risk

The relationship between ESG performance and firm risk can be moderated by the country where a firm operates (Stellner et al., 2015; Abdul Razak et al., 2020). This is because different countries have varying regulatory environments, cultural norms, levels of economic development, and market conditions that can influence how ESG factors impact firm risk. For instance, firms with better ESG practices may face lower regulatory risks in countries with stringent environmental regulations. Conversely, in countries with less emphasis on ESG standards, the impact on firm risk might be less pronounced. Additionally, the level of investor and consumer awareness about ESG issues can vary by country, affecting how ESG factors affect a firm's reputation and financial performance.

Based on the idea that businesses are embedded in a diverse collection of political and economic institutions, it has been established that country sustainability attributes play a critical role in influencing company behaviour (Breuer et al., 2018; Cai et al., 2016; Eliwa et al., 2019; Stellner et al., 2015; Wang et al., 2021). Governments and financial regulators remain the most active in providing sustainability reporting requirements and guidelines, followed by stock exchanges and industry groups. However, the primary challenge in publishing sustainability information is to disclose all sustainability aspects (economic, environmental, social, and governance). Another challenge to the publication of sustainability reports is the absence of mandatory

disclosure legislation, which creates a gap between what businesses do and what is reported (Buallay, 2019).

New voluntary and mandatory regulatory standards have been established, with a stronger emphasis on human rights, labour, and climate change. Simultaneously, there has been a drive for more stringent mandatory reporting rules in more developed markets to promote transparent and comparable disclosure. Laws mandating sustainability reports mitigate debates about the credibility of the reports (Dhaliwal et al., 2014).

The firm's management often balances the benefits and costs of ESG as they choose to invest in any ESG activities. If the marginal benefits from investing in ESG exceed the marginal costs, firms should be willing to proceed with the investment. These benefits and costs vary from country to country by culture, institutions, and stages of economic development (Cai et al., 2016). According to Campbell (2007), institutional factors such as public and private regulations and institutionalised norms of appropriate corporate behaviour can enhance or exhibit a firm's investment in CSR. Campbell (2007) also argues that companies will act more socially responsible if states or countries enforce strong regulations.

According to Stellner et al. (2015), stakeholders of a firm based in a country that scores below average in ESG criteria are less concerned about CSR issues. For instance, customers in a country where the environmental score of ESG is below average should be less willing to pay a premium for a product from a firm dedicated to the highest environmental standards.

The relationship between a country's sustainability practices and firm risk is complex and not straightforward. Sustainability reporting is aimed at shareholders and a broader audience that includes employees, creditors, suppliers, and government bodies. This wide range of stakeholders adds layers of complexity to understanding how sustainability at the country level influences the risks faced by individual firms. Several studies examine how a firm's ESG or CSR activities related to the sustainability characteristics of the markets in which it operates and found that firm risk is lower in

the presence of institutional voids (Abdul Razak et al., 2020; Cai et al., 2016; Eliwa et al., 2019; Stellner et al., 2015).

Abdul Razak et al. (2020) discovered that in countries with a high level of sustainability performance, firms failing to align with elevated societal norms and expectations might see a decline in their legitimacy. This misalignment exposes them to increased legal and reputational risks, potentially incurring higher costs. Conversely, in countries with lower sustainability performance, engaging in CSR activities can reduce transaction costs and enhance firms' access to capital. This suggests that the impact of CSR activities on a firm's operations and risk profile is significantly influenced by the country's sustainability performance.

2.5 ESG PRACTICE AND ISLAMIC FINANCE

The Chartered Financial Analyst (CFA) Institute has recognised that Islamic finance and ESG practices share core principles dedicated to societal and environmental stewardship, emphasising the prevention of harm and promoting beneficial products and services. In Islamic finance, a prevalent strategy aligning with these principles is negative screening, which is essential for compliance with Islamic law. This approach precludes investment in activities forbidden by Islam, such as riba-based (interest) businesses, excessive gharar (uncertainty), alcohol, pornography, or gambling.

While Western markets have historically led the responsible finance sector, the potential for growth in emerging markets, particularly within the Organization of Islamic Cooperation (OIC) countries, is substantial. With a significant Muslim population often living in these emerging markets, aligning investment values with social responsibility is crucial. Research by Hussain et al. (2016) and Qoyum et al. (2022) suggests that Islamic entities typically exhibit more robust environmental and social practices. Islamic banks, for instance, are well-positioned to excel in ESG's environmental aspect, offering products like Green Sukuk that support eco-friendly investments. The Islamic prohibition of riba, combined with profit/loss and risk-sharing

practices and commitment to social equity through zakat, positions Islamic banks as active advocates of social responsibility.

Islamic banks have traditionally focused on narrowly defined Islamic law prohibitions such as alcohol, tobacco, and gambling but are now expanding their scope to include broader ESG considerations. This shift is evidenced by findings from Refinitiv's EIKON database, which shows a positive correlation between Shariah compliance and enhanced ESG performance. Refinitiv's Islamic Finance ESG Outlook 2019 reports that Shariah-compliant companies score, on average, 6% higher in ESG than non-compliant firms, suggesting that integrating Shariah and ESG screening could bolster risk-adjusted returns.

Islamic finance has witnessed substantial growth, with assets expected to reach \$3.69 trillion by 2024, per Refinitiv and the Islamic Corporation for the Development of the Private Sector's 2020 report. This growth coincides with significant developments in financial markets, such as the emergence of green bonds and green Sukuk, underscoring the sector's potential in sustainable finance.

The alignment of Islamic finance and ESG represents an opportunity for the sector to contribute significantly to global sustainable investment. Islamic finance, grounded in principles of justice, ethical behaviour, and social responsibility, complements ESG's sustainability focus, offering an integrative approach to capital investment. As the sector expands, Islamic finance and ESG have the potential to converge further, driving sustainable investment practices worldwide.

2.5.1 ESG Practice in Shariah and non-Shariah Compliant Firms

Islamic finance and ESG practices share fundamental principles of being excellent stewards of society and the environment. This is evident in Shariah-compliant firms, where negative screening, a common ESG strategy, ensures compliance with Islamic restrictions. Such institutions must avoid investments in activities prohibited by Islam, like riba-based businesses or industries involved in alcohol, pornography, or gambling. This ethical alignment is discussed by Alamer et al. (2015), who emphasise the inherent

alignment of Islamic finance principles with ESG, emphasising the ethical dimension of investments and the importance of social welfare and environmental stewardship in Shariah-compliant firms. Grassa (2013) also highlights social justice and responsible business practices in Islamic finance, which can lead to a natural convergence with ESG goals.

In contrast, the approach of non-Shariah-compliant firms to ESG practices varies and is influenced by broader market trends and regulatory frameworks. For instance, a study by Amran et al. (2014) indicates that in regions with robust regulatory frameworks for sustainability and corporate governance, non-Shariah-compliant firms often demonstrate strong ESG practices driven by regulatory compliance and market expectations.

Shariah and non-Shariah firms' comparative performance in adopting ESG practices reveals distinct outcomes. For instance, as observed by Dahawy et al. (2018) in their comparative analysis in the Egyptian context, Shariah-compliant firms tend to have better performance in certain ESG aspects due to their adherence to Islamic ethical principles. Meanwhile, Jo and Harjoto (2012) have found a positive correlation between robust ESG practices and firm performance across various firms. However, the specific impact may vary depending on the regulatory environment, market conditions, and the intrinsic values embedded within Shariah-compliant firms.

Studies consistently show that Shariah-compliant firms not only surpass their non-Shariah counterparts in corporate ESG performance (Gati et al., 2020; Alam and Rajjaque, 2010; Al-Awadhi and Dempsey, 2017) but also exhibit operational profitability advantages, as highlighted by research focused on the GCC countries (Akguc and Al Rahahleh, 2018). This trend underlines the significant impact of ethical corporate conduct on overall corporate performance, with Gati et al. (2020) and Lee and Isa (2020) affirming that Shariah-compliant entities that engage in ESG activities report better performance outcomes.

The relationship between ESG performance and corporate practices, including earnings conservatism and the cost of equity capital, further illustrates the benefits of Shariah compliance. Wan Ismail et al. (2015) and Karimov et al. (2020) underscore the

financial prudence and reduced capital costs associated with adhering to Shariah principles.

The distinct effects of Shariah compliance on corporate cash holdings (CCH) shed light on the strategic financial management within Shariah and non-Shariah firms. Bugshan et al. (2021) detail how Shariah restrictions influence various financial decisions, impacting firms' ability to access external financing and necessitating higher cash reserves for Shariah-compliant firms due to their constrained financial channels and the higher costs of external financing transactions. Mohamad Ariff et al. (2023) add a crucial dimension to this analysis by showing that firms with superior ESG performance maintain higher cash reserves, with this positive correlation being more pronounced among Shariah-compliant firms than their non-Shariah counterparts. This finding supports stakeholder theory, suggesting that Shariah-compliant companies with heightened ESG commitments strategically prioritise higher cash holdings as part of their corporate strategy.

Islamic finance's commitment to ethical principles and social responsibility extends to its stance on environmental protection. Refinitiv's Islamic Finance ESG Outlook 2019 highlights that Shariah-compliant companies often have higher ESG scores than non-compliant ones. This finding suggests that combining Shariah and ESG screening may improve overall risk-adjusted returns. This synergy is further reinforced by the increasing focus of Islamic banks on products that support climate-friendly investments, such as Green Sukuk, and their advocacy for social equity and justice through mechanisms like zakat.

The rising interest in Islamic finance and its alignment with ESG investing is evident in the sector's growth. The AAOIFI and the IFSB have been instrumental in standardising practices within Islamic finance, with the AAOIFI's guidelines on corporate social responsibility providing a reference for Islamic financial institutions. Additionally, the alignment of Islamic finance with ESG is increasingly recognised by investors outside Islamic jurisdictions looking to diversify their portfolios.

In conclusion, the convergence of Islamic finance and ESG investing presents a unique opportunity for driving global sustainable investment. By merging ethical,

social, and environmental stewardship, Islamic finance offers a unique proposition that aligns with the global sustainability agenda, marking a pivotal moment for Shariah-compliant firms and investors aiming to contribute to a sustainable financial future.

2.6 SUMMARY

This chapter explains the prior literature on ESG practice, firm risk, and the direct and moderating effect of a country's ESG. This chapter began with a clear definition of what constitutes firm risk. This foundation is crucial for comprehending the subsequent discussion on the effect of ESG practices on various types of firm risks.

Next, this chapter discusses the evolution of ESG practices and their growing importance in the corporate world. The chapter breaks ESG into its three core components—Environmental, Social, and Governance. It explains how each component interacts with firm risk and influences overall corporate strategy. This part is essential to understand how comprehensive ESG practices (as a whole) and individual ESG components impact a company's risk profile.

The chapter also reviewed global ESG reporting frameworks like GRI, SASB, and TCFD. This section is pivotal in understanding how these frameworks guide companies in reporting their ESG practices. We then discussed national ESG frameworks, especially in the ASEAN and GCC regions. Lastly, the chapter covered ESG reporting in Islamic finance. An insightful comparison between Shariah-compliant and non-Shariah-compliant firms is presented to highlight how Islamic finance naturally integrates ESG practices. This part of the chapter highlighted the unique role of Islamic finance in ESG practices.

In summary, Chapter 2 provided a thorough review of the current research on ESG practices and how they impact firm risk, including exploring the moderating effects of a country's ESG. The insights gathered here are crucial for setting the stage for the empirical investigations that follow in subsequent chapters.

CHAPTER THREE

THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

3.1 INTRODUCTION

This chapter discusses the study's theoretical framework and hypothesis development based on the related ESG theories and empirical studies. The chapter is divided into three main sections. Section 3.2 explains the theoretical framework, whereas section 3.3 describes the development of the study's hypotheses. Section 3.4 presents the summary of the chapter.

3.2 THE THEORETICAL FRAMEWORK

This section provides the theoretical framework linking ESG practice and firm risk. Based on the study's objective, theoretical explanations related to the study will be discussed. ESG practice and firm risk are important areas in contemporary business studies, given the increasing importance of sustainability and corporate responsibility in global markets. Here is a critical analysis of fundamental theories that relate ESG to firm risk:

3.2.1 Stakeholder Theory

One of the most often cited social and environmental accounting research theories is the stakeholder theory (Freeman, 1984). It posits that a firm's responsibilities extend beyond its shareholders to include all internal and external stakeholders impacted by its activities. Employees, managers, and shareholders are examples of firm internal stakeholders, whereas external stakeholders are consumers, suppliers, creditors, the government, and other people indirectly involved with a business. Firms must strive to connect their actions with society's moral, legal, and collective ambitions (Jamali et al., 2008).

The stakeholder theory's concept was first introduced by Freeman (1984) in his seminal book *Strategic Management: A Stakeholder Approach*. Freeman argued that businesses should create value for all stakeholders, not just shareholders, and that doing so enhances the company's performance and longevity. The theory emphasises the importance of balancing the interests of various stakeholder groups in decision-making to ensure long-term success and sustainability. Stakeholder theory closely aligns with ESG principles because ESG factors—environmental protection, social responsibility, and governance standards—are mechanisms through which companies address stakeholder interests. Firms that adopt strong ESG practices tend to manage relationships with stakeholders more effectively, reducing reputational risks and enhancing stakeholder trust. Research suggests that firms that prioritise ESG can mitigate risks associated with stakeholder dissatisfaction, such as regulatory risks, legal liabilities, and consumer backlash (Freeman et al., 2010).

The argument presented in stakeholder theory is that high levels of ESG are linked to reduced financial risk. This connection stems from the notion that responsible corporate behaviour fosters more stable relationships with various stakeholders, including the government, financial community, customers, employees, suppliers, and public interest groups (McGuire et al., 1988). Furthermore, according to Cheng et al. (2014), high ESG can lead to fewer lawsuits, legal fines, and enhanced capital allocation from market participants.

Additionally, stakeholder theory underscores the benefits of good management practices in stakeholder relations, suggesting that meeting and maximising the demands and interests of diverse stakeholders can reduce uncertainty and increase firm value. This theory, as described by Donaldson and Preston (1995) and Sassen et al. (2016), indicates that ESG initiatives, which are often firm-specific, can significantly mitigate a company's idiosyncratic risk. For example, ESG engagement can boost brand recognition, increase employee satisfaction and productivity, and minimise supply chain disruptions (Brown and Dacin, 1997; Aguilera et al., 2007; and Carter, 2000).

In addition to these benefits, stakeholder theory also highlights the positive impacts of high ESG on a company's reputation, brand value, and product image among consumers, as well as its appeal as an employer. These aspects, discussed by Cornell

and Shapiro (1987), Brown and Dacin (1997), and Turban and Greening (1997), suggest that good ESG can also signal superior management skills, as observed by Waddock and Graves (1997).

Collectively, these insights from stakeholder theory and empirical research suggest that better ESG practices lead to lower financial and stock market risks, reducing the likelihood of company crises. The literature, including studies by Oikonomou et al. (2012), provides robust evidence for this relationship, further reinforcing the theory's premise that responsible corporate behaviour is not only ethically imperative but also beneficial for a firm's financial health and risk profile.

3.2.2 Risk Management Theory

The concept of risk management is deeply embedded in corporate finance, and seminal contributions were made by Modigliani and Miller (1958) in their work on capital structure and risk. Though initially focused on financial risk, the scope of risk management has broadened to include non-financial risks, such as those addressed by ESG.

As articulated by Godfrey (2005), risk management theory offers an understanding of how CSR or ESG can serve as a strategic tool for mitigating risk by generating "moral capital". Risk management theory focuses on identifying, assessing, and prioritising risks, followed by coordinated efforts to minimise, monitor, and control the impact of unfortunate events. The theory emphasises that firms should actively manage risks, including financial, operational, and strategic risks, to protect the company's assets and ensure long-term sustainability. This theory posits that by fostering positive stakeholder relations, CSR activities create a reservoir of goodwill that can protect a company in times of crisis, leading to more stable financial outcomes.

According to Godfrey (2005), engaging in CSR activities leads to the accumulation of moral capital due to favourable interactions with stakeholders. This moral capital is a buffer during poor performance or crisis, softening negative stakeholder perceptions and reactions. The theory underscores the importance of proactive risk management approaches, focusing on actions that can potentially harm

businesses and implementing strategies to mitigate damage caused by uncertainty. This is exemplified by firms engaging in socially responsible operations to avoid penalties and fines related to environmental and social issues (Benlemdih, 2017).

ESG practices are increasingly recognised as part of risk management strategies, particularly in mitigating non-financial risks such as environmental liabilities, social unrest, and governance failures. Firms that integrate ESG factors into their risk management frameworks will likely anticipate and respond to potential risks more effectively. Godfrey (2005) further suggests that a company's ESG can generate moral capital during crises, providing "insurance-like" protection. This concept is rooted in the idea that positive assessments of a company's ESG lead stakeholders to maintain favourable attitudes and loyalty toward the company (Luo and Bhattacharya, 2009). In the event of a crisis, this loyalty alleviates stakeholders' sanctions against the company, leading to less volatile future cash flows and reduced risk (Chang et al., 2014). Empirically, Godfrey et al. (2009) demonstrate that firms engaging in CSR activities experience smaller losses in shareholder value in response to adverse events. Additionally, SRI investors are found to be less sensitive to negative returns than conventional investors (Bollen, 2007; Renneboog et al., 2011), indicating a higher resilience to financial downturns among stakeholders with a focus on ESG.

The theory also posits that companies with better CSR attract and retain more investors as they generate positive moral capital. This capital alleviates sanctions in crises and leads to less volatile future cash flows, thereby reducing firm-specific risk (Chang et al., 2014; Luo and Bhattacharya, 2009). The theory emphasises the role of CSR in creating a supportive stakeholder base that can provide a measure of security against financial volatility and crises. Moreover, by attracting more investors, these firms rely less on other funding sources, such as debt, which directly impacts financial leverage and reduces firm risk (Cheng et al., 2014).

In summary, risk management theory articulates how CSR and ESG can be strategically utilised to build moral capital, which protects against various firm risks. This moral capital, cultivated through responsible corporate practices, not only ensures stakeholder loyalty and support but also contributes to the financial stability and resilience of the firm.

3.2.3 Managerial Opportunism Theory

On another avenue, there are arguments to explain a positive relationship between ESG and risk-taking, which comes from managerial opportunism theory (Preston and O'Bannon, 1997; Bansal et al., 2013). Managerial opportunism theory suggests that managers may act in their self-interest rather than in the best interest of shareholders or other stakeholders. Managers may exploit their control over the company to pursue personal gains, including manipulating business practices like ESG for reputational benefits rather than substantive improvements.

Managerial opportunism is closely associated with Jensen and Meckling (1976), who discussed the potential conflicts between managers and shareholders in their agency theory framework. Although agency theory focuses on aligning interests between managers and shareholders, managerial opportunism highlights the potential for managers to pursue their interests under the guise of corporate decisions, including ESG initiatives. There is growing concern that managers can exploit ESG practices to signal corporate responsibility without meaningful change—commonly referred to as greenwashing. In such cases, ESG activities are used to boost managerial reputation or increase executive compensation without delivering the anticipated risk reduction. Therefore, opportunistic behaviour in ESG initiatives can increase firm risk if stakeholders and investors discover that the firm's ESG efforts are superficial (Hamrouni et al., 2019).

According to Bansal et al. (2013), managerial opportunism theory posits that managers are motivated by short-term profit objectives, and the firm's risk profile can influence their actions regarding ESG investments. In periods of low default risk, managers might underinvest in ESG activities, preferring to maintain higher cash levels to reduce shareholders' risk. Conversely, during high default risk periods, there is a tendency to overinvest in ESG to justify poor financial results. This behaviour aligns with the principal-agent problem, where managers' actions may not always coincide with the best interests of the shareholders.

Bouslah et al. (2013) and Preston and O'Bannon (1997) emphasise that managerial opportunism leads to an investment pattern in CSR contingent on the firm's financial performance. In times of high corporate financial performance, managers might underinvest in ESG to capitalise on short-term gains and for personal reputational benefits. In contrast, during periods of low corporate financial performance, managers might overinvest in ESG to enhance their reputation as responsible corporate citizens, even if such investments may not be in the best interest of shareholders. This overinvestment can destroy value and increase both systematic and idiosyncratic risks. Cespa and Cestone (2007) suggest that managers employ this entrenchment strategy to gain stakeholders' support and secure their position, potentially increasing company risk.

In summary, managerial opportunism theory provides a critical perspective on the relationship between ESG activities and firm risk, highlighting how managerial self-interest and short-term objectives can influence corporate behaviour in complex ways. This theory underscores the need for effective corporate governance mechanisms to align managerial actions with long-term shareholder interests and sustainable corporate practices.

3.2.4 Institutional Theory

Institutional theory posits that the environment in which firms operate—including laws, norms, and regulations—heavily influences corporate behavior. According to this theory, firms conform to the social and legal frameworks that govern their industries, shaping their corporate governance and sustainability practices. The theory was first proposed by DiMaggio and Powell (1983) in their seminal work on institutional isomorphism, arguing that organisations tend to adopt similar practices due to regulatory pressures, social expectations, and the desire to gain legitimacy in their institutional environment.

Institutional theory seeks to explain the interaction between corporations and their broader environment. Meyer and Rowan (1977) further contributed to this framework by highlighting that firms adhere to institutional norms and regulations to

increase their stability and chances of survival. As a result, businesses disclose environmental and social information in response to institutional pressure (Levy et al., 2010; Chen and Roberts, 2010). This aligns with the view that companies are shaped by their institutional settings, compelling them to incorporate sustainability practices in response to external influences (Fernando and Lawrence, 2014; Gracia and Siregar, 2021).

This theory is relevant to ESG because firms often adopt ESG practices to respond to pressures from governments, investors, and societal norms. Companies operating in countries with strong ESG regulatory frameworks are more likely to engage in meaningful ESG practices that mitigate risks, while those in weaker regulatory environments may adopt more superficial measures. Hoepner et al. (2016) found that firms in countries with robust institutional frameworks experience greater benefits from ESG practices, including reduced risk exposure.

Each country provides a unique institutional framework characterised by specific sustainability-related norms and legitimacy requirements. These characteristics significantly influence how firms execute sustainability practices. Baldini et al. (2018) and Chappe and Moon (2005) document empirical evidence showing that a country's socio-cultural diversity and regulatory frameworks strongly affect corporate behaviour. In countries with strong stakeholder orientation, firms tend to demonstrate better sustainability performance and more comprehensive sustainability disclosures due to efficient monitoring and the effective enforcement of regulations (Ramanna et al., 2013; van der Laan Smith et al., 2005).

Previous research has highlighted the moderating role of country sustainability characteristics in influencing the relationship between a firm's sustainability practices and financial outcomes, such as the cost of debt. Dhaliwal et al. (2014) found significant evidence that the inverse relationship between CSR disclosure and the cost of capital is more pronounced in countries with strong stakeholder orientation, where CSR disclosures provide more relevant information for stakeholders to monitor and evaluate firms. Similarly, Eliwa et al. (2019) reported that the impact of ESG practices on reducing the cost of debt is more substantial in countries with stronger sustainability

frameworks. This reduction in the cost of debt is attributed to the sustainability characteristics of the firm's country of origin, aligning with institutional theory.

However, the role of country-level sustainability characteristics, particularly in regions like ASEAN, has not been thoroughly explored in relation to firm risk. This oversight is significant given the remarkable diversity in ASEAN's economy, culture, legal frameworks, and public awareness of sustainability issues (ASEAN CSR Network, 2018). Firms in such diverse regions are regulated by multiple interconnected forces, including the state, market, and community, which vary in influence across different contexts (Streeck and Schmitter, 1985).

According to institutional theory, firms adapt their processes to align with external rules, norms, laws, and best practices in the sector (DiMaggio and Powell, 1983). This suggests that ESG practices are influenced not just by internal organisational factors but also by broader institutional frameworks. The country's sustainability framework plays a crucial role in shaping the extent of ESG performance and disclosure and the market's valuation of these practices. Therefore, this study examines whether the sustainability characteristics of a country, indicative of institutional forces, exert a moderating effect on the relationship between a firm's ESG practices and its cost of debt.

Despite existing research, a gap exists in understanding how country sustainability characteristics, especially in regions like ASEAN and GCC, influence the relationship between ESG practices and firm risk. These regions' diverse economic, cultural, and legal landscapes provide a unique context for exploring these relationships (ASEAN CSR Network, 2018).

This study aims to address this gap by examining the moderating role of country ESG on the relationship between firms' ESG practices and their risk, contributing to the broader discourse on institutional theory, firm ESG practices, and firm risk.

3.2.5 The Research Theoretical Framework

To illustrate the influence of ESG on firm risk, this research employs a multi-theoretical framework. This is because finance is impacted by various other disciplines, including social sciences, economics, accounting, management, and politics (A-Adeem, 2010; Buallay, 2019). Fernando and Lawrence (2014) discovered that theories are not opposing; instead, they are complementary, and their integration may aid in comprehending certain occurrences. As a result, this thesis's theoretical framework is constructed on various theories to understand the link between sustainability reporting and firm risk.

According to Buallay (2019), ESG practices may be considered from a different angle – one of them is from the standpoint of the stakeholder. From the viewpoint of the firm's stakeholders, stakeholder theory is a method of communicating with numerous stakeholders. Stakeholder theory plays a critical role in understanding a firm's sustainability reporting. Under stakeholder theory, a company must balance stakeholders' requirements and the firm's profitability (Hahn and Kuhnen, 2013; Parmar et al., 2010). Keynes (1936) classified stakeholders into three broad categories: internal, external, and shareholders or investors. According to Atkins and Maroun (2018), the stakeholders' attention must be caught to influence and create change.

Risk management theory suggests that ESG practices can be a strategic tool for mitigating firms' various risks. According to Godfrey (2005), engaging in responsible ESG activities builds "moral capital" with stakeholders, which can serve as "insurance-like" protection during adverse events. This theory posits that firms with strong ESG practices will likely experience less volatility in future cash flows and, consequently, reduced overall risk. This is because positive stakeholder relationships, fostered through effective ESG practices, can alleviate potential crises' negative impacts, stabilising the firm's financial and operational environment (Chang et al., 2014). In essence, risk management theory underscores the protective benefits of ESG engagement, suggesting that firms with proactive ESG strategies may enjoy a lower risk profile.

On the other hand, managerial opportunism theory offers a more critical view of the relationship between ESG practices and firm risk. This theory contends that

managerial decisions around ESG investments can sometimes be driven by self-serving motives, particularly in pursuing short-term profits (Bansal et al., 2013). For instance, in periods of low default risk, managers might underinvest in ESG, prioritising cash retention over long-term sustainability initiatives. Conversely, during heightened risk, there may be a tendency to overinvest in ESG activities to justify poor financial results or enhance personal reputation, which could inadvertently increase firm risk (Barnea and Rubin, 2010; Cespa and Cestone, 2007). Managerial opportunism theory highlights the potential for ESG practices to be manipulated for personal gain, leading to misaligned investments and increased risk exposure for the firm.

Together, these theories illuminate the dual nature of ESG practices in the context of firm risk. While risk management theory emphasises the potential of ESG to safeguard against risk through stakeholder engagement and moral capital accumulation, managerial opportunism theory cautions against the risk-enhancing effects of ESG practices when driven by short-term managerial incentives. This study aims to explore these dynamics further, investigating how ESG practices directly influence firm risk independent of external moderating factors.

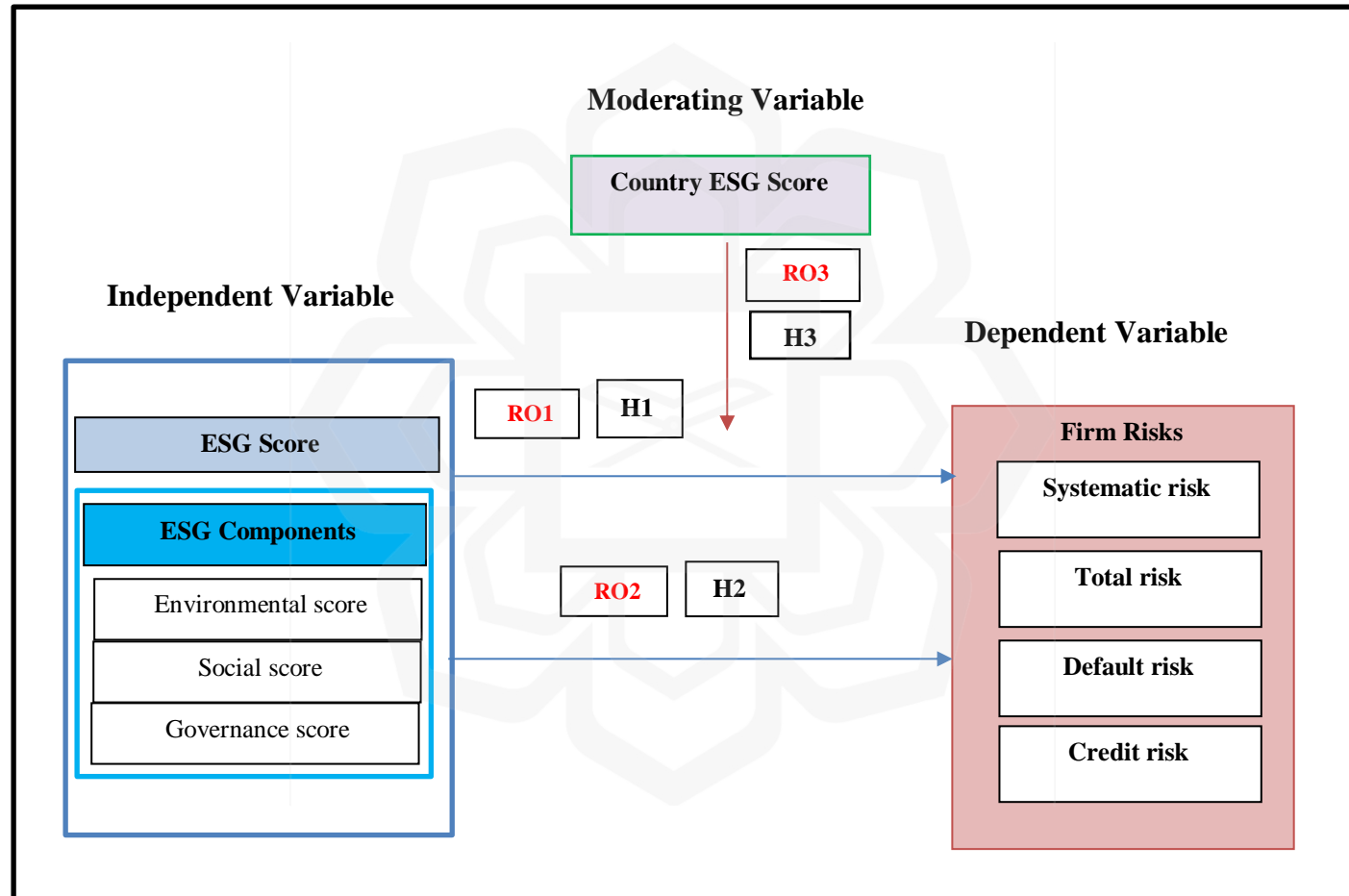
From a firm-country viewpoint, the institutional theory asserts that companies modify their operations to conform to externally defined rules, standards, or regulations, as well as industry best practices (DiMaggio and Powell, 1983). Thus, rather than being moulded only at the company level, ESG practices are formed by ingrained institutions. Institutional theory suggests that a country's ESG framework can significantly influence how corporate ESG practices impact firm risk, particularly in diverse regions like ASEAN and GCC. This theory posits that firms adapt their strategies to align with external regulations, norms, and best practices. In regions with robust ESG frameworks, such as certain ASEAN and GCC countries, these practices will likely be more effective in reducing firm risk due to greater alignment with institutional expectations and better access to supportive resources. This alignment can enhance a firm's legitimacy and stability, leading to risk mitigation. Conversely, in countries within these regions where ESG frameworks are less developed, the impact of ESG practices on firm risk might be less pronounced. This insight is crucial for understanding the variance in the effectiveness of ESG practices across different institutional contexts in the ASEAN and

GCC regions, providing a perspective on the interplay between ESG practices and firm risk.

Based on the above discussion, Figure 3.1 depicts the research framework of the study.



Figure 3.1 The Research Conceptual Framework



The theoretical framework of this study is built upon stakeholder, risk management, managerial opportunism, and institutional theories. Figure 3.1 illustrates the theoretical framework, which presents an overview of this study, focusing on the relationships between ESG practices (aggregate and individual components), country ESG scores, and various types of firm risks (systematic, total, default, and credit risks).

As for H1, the relationship between ESG practices and firm risk is explained through the lens of stakeholder theory and risk management theory. According to stakeholder theory, firms are not solely responsible to shareholders but also to a broader array of stakeholders, including employees, customers, society, and the environment. The integration of ESG practices is viewed as a holistic approach to meeting stakeholders' needs, thereby mitigating various risks. As Sassen et al. (2016) argue, firms with strong ESG practices gain the trust of stakeholders, which leads to enhanced resilience and a reduced risk profile. In line with risk management theory, incorporating ESG practices helps firms to anticipate, avoid, and manage potential risks, thereby reducing systematic and credit risks.

On the contrary, managerial opportunism theory suggests that managers might engage in ESG practices for self-serving motives, potentially leading to increased firm risk. This view posits that ESG initiatives could be a form of overinvestment if driven by managerial interests rather than genuine risk management strategies. This theoretical perspective adds complexity to the hypothesised relationships in H1, suggesting that while ESG practices can reduce risk, they might also expose firms to higher risks if used opportunistically by managers.

The same theories apply to H2, which explores the impact of individual ESG components (environmental, social, and governance) on firm risk. Stakeholder theory argues that addressing specific concerns (e.g., environmental practices) meets stakeholder expectations and reduces risk exposure. Risk management theory supports the idea that firms implementing robust practices across different ESG components are better equipped to manage sector-specific risks. However, managerial opportunism theory cautions that such practices could lead to resource misallocation, affecting the firm's risk profile.

For H3, which posits that the country's ESG score moderates the relationship between firm-level ESG practices and firm risk, the study draws on institutional theory. Institutional Theory, as introduced by DiMaggio and Powell (1983), suggests that firms operate within a framework of social, legal, and regulatory norms that shape their corporate behaviour. In this context, firms in countries with stronger institutional environments and ESG frameworks are expected to experience more significant risk mitigation benefits from their ESG practices. According to institutional theory, the broader institutional environment, including country-specific regulations, cultural norms, and sustainability-related policies, can either enhance or constrain the effectiveness of firm-level ESG practices in reducing risk. Previous research, such as Hoepner et al. (2016), found that firms in countries with robust sustainability frameworks are better positioned to reduce their cost of debt and other risk factors. This theory underpins the rationale for H3, suggesting that the country's sustainability context influences the effectiveness of a firm's ESG practices in mitigating risk.

This theoretical framework integrates multiple theories to provide a comprehensive view of how ESG practices influence firm risk and how country-level factors shape this relationship. H1 and H2 leverage stakeholder theory and risk management theory to explain the risk-reducing potential of ESG practices while acknowledging the managerial opportunism theory viewpoint that ESG might be misused for self-serving interests. H3 is informed by institutional theory, emphasising the role of the country's ESG score as a moderating factor, which affects the risk mitigation effectiveness of firm-level ESG practices.

Overall, this study expects that the above variables will contribute to the body of knowledge, particularly on ESG practices, firm risk, and country sustainability. This study also incorporated several control variables in the framework to enhance the model of this study. The firm-specific control variables include firm size, profitability, financial leverage, and market-to-book value equity, whereas country-specific control variables include GDP growth, governance indicators, and inflation.

3.3 HYPOTHESES DEVELOPMENT

Past empirical evidence rendered various arguments about the influence of ESG practice on firm risk. Besides, there are also debates regarding the direct and indirect impacts of country sustainability on firm risk. Based on the contentions made by the proponents and opponents of ESG practice, this study forms several hypotheses that may help determine the direction of the relationship. This sub-section consists of the hypothesis on 1) aggregate ESG score and firm risk, 2) three components of ESG on firm risk, and 3) the moderating role of country ESG score in the relationship between ESG practice and firm risk. Four variables (systematic, total, default, and credit risk) are used as proxies for measuring risk based on current empirical and theoretical work on ESG and firm risk.

3.3.1 ESG Practice and Firm Risk

The relationship between firm risk and financial performance is a critical aspect of finance theory, often explored through the risk-return trade-off. According to traditional finance theory, particularly the Capital Asset Pricing Model (CAPM), there is an expectation that higher risk leads to higher returns (Sharpe, 1964). Investors typically demand a risk premium for holding riskier assets, meaning firms with higher systematic risks are expected to generate higher returns to compensate for the additional risk (Sharpe, 1964). For example, firms with high levels of systematic risk may experience greater stock price volatility, but investors expect higher returns to compensate for this volatility. Similarly, firms with high credit risk may offer higher yields on debt instruments to attract investors. However, the empirical evidence on this relationship is often mixed, particularly when ESG factors are involved.

While traditional finance theory suggests that higher firm risk should lead to higher returns, the evidence is mixed, especially when considering the role of ESG. High-risk firms may offer higher returns in some cases, but excessive risk can also lead to financial instability. In contrast, firms that adopt strong ESG practices may not always generate the highest returns in the short term, but they often achieve lower risk and better risk-adjusted performance over the long term. This aligns with recent

research that shows a positive relationship between ESG and financial performance (Brogi et al., 2022; Bualay, 2019; Friede et al., 2015; Cheng et al., 2014), especially in contexts where investors increasingly prioritise risk management and sustainability.

In recent years, the relationship between ESG practices and financial performance has been researched extensively, particularly in non-financial organisations, with mixed findings (Hassan et al., 2021). Several studies suggest that firms with strong ESG practices often experience lower risk and better financial performance due to better risk management, enhanced reputation, and more sustainable business models (Brogi et al., 2022; Bualay, 2019; Friede et al., 2015; Cheng et al., 2014). On the other hand, some studies, such as those by Revelli and Viviani (2015), argue that the relationship between ESG and financial performance is not universally positive. In certain industries or regions, firms may face higher costs associated with ESG implementation, which can negatively impact short-term financial performance. This is particularly relevant in emerging markets, such as ASEAN and GCC, where ESG practices are still evolving, and firms may struggle with balancing ESG costs and financial returns.

Due to the additional investment required, ESG may become a financial burden for businesses. Some businesses decide to invest in ESG initiatives to be socially responsible. The firm's excessive involvement in ESG efforts is being questioned as to whether it puts them in a disadvantageous financial position compared to others (Liu et al., 2017). A substantial body of evidence demonstrates a negative correlation between ESG and firm risk (Brogi et al., 2022; Shakil, 2021; Abdul Razak et al., 2020; La Rosa et al., 2018; Kim et al., 2014; Becchetti et al., 2015; Cheung, 2016). The primary rationale is that organisations that practice ESG have lower market risk because of investor and consumer appreciation (Cheung, 2016).

As firm risk increases, the uncertainty of investors increases. Rising uncertainty raises the risk premium investors require, reducing their patience with long-term investments, including sustainability initiatives, and reducing ESG performance (Husted and Sousa-Filho, 2017). Firms may face significant risk as a result of ESG controversies. ESG controversy includes negative ESG news regarding companies, such as questionable actions and product controversies in the media (Cai et al., 2012;

Aouadi and Marsat, 2018). Due to investor reactions over ESG scandals and CSR concerns, stock price volatility in the market has increased enormously, affecting the firms' risk (Nguyen and Nguyen, 2015).

ESG performance is influential in decreasing stock volatility and risk (Jo and Na, 2012; Sassen et al., 2016; Lueg et al., 2019; Shakil, 2020). Investors will penalise companies that ignore ESG considerations and do not include ESG standards in their business operations (Shakil, 2020). Furthermore, morally irresponsible companies perpetuating social and environmental scandals will suffer investor backlash (Aouadi and Marsat, 2018).

According to stakeholder theory, ESG performance has a mitigating influence on corporate risk. More precisely, it advocates for stakeholder communication to enhance firm value. A firm's superior ESG performance demonstrates its social and environmental responsibility, which reduces the information asymmetry and volatility of its stock price in the market (Lueg et al., 2019; Jia et al., 2020; Shakil, 2020). Due to their irresponsible character, businesses with poor ESG performance are often volatile.

Stakeholders penalise market players for poor ESG performance. According to Shakil (2020), socially irresponsible businesses may face significant legal risks and future claims. Investors may discount the likelihood of future expenses and request more significant projected returns on their investments. Stakeholder theory may be used to explain ESG and company value by demonstrating how investing in ESG raises shareholder wealth. It simply encourages other stakeholders to contribute their resources to its success (Freeman, 1984). This is reinforced by risk management theory, which also asserts that improved ESG performance shields enterprises from adverse market conditions (Benlemdih and Girerd-Potin, 2017).

Additionally, prior research confirms the risk management notion that ESG considerably decreases firm risk (Chakraborty et al., 2019; Benlemdih and Girerd-Potin, 2017). Over the last several years, evidence of a negative correlation between ESG and risk has surfaced. For example, Oikonomou et al. (2016) discovered a negative correlation between CSR and systematic risk. Luo and Bhattacharya (2009) and Sassen et al. (2016) argue that by engaging in ESG activities, firms contribute to societal goals

and create a more stable and resilient operating environment. This stability reduces the firm's exposure to total risk (market and firm-specific) and idiosyncratic risk (firm-specific factors), leading to improved long-term financial performance and greater risk-adjusted returns. By addressing potential vulnerabilities early and maintaining strong relationships with stakeholders, firms can protect themselves against risks that would otherwise negatively affect their operations and financial health.

In addition, Ahmad et al. (2021) find that an ESG rating reduces the residual risk of the firm through its non-accounting parameters, suggesting that ESG performance can contribute to lowering firm-specific risk. This aligns with the argument by Orlitzky and Benjamin (2001), who support the theoretical argument that higher corporate social performance is associated with lower financial risk. Moreover, Ting et al. (2019) highlight that firms incur costs due to ESG initiatives, but these costs are expected to be compensated by the advertising effect of increased brand image, stable revenues from loyal clients, improved employee productivity, decreased risk, and reduced capital cost. This indicates that while there may be costs associated with ESG initiatives, the potential benefits in terms of risk reduction and improved financial performance are significant.

An alternative viewpoint is that investing in ESG diverts valuable corporate resources away from more productive endeavours, such as establishing new product lines or strengthening research and development skills (Barnea and Rubin, 2010). Therefore, ESG operations may erode its competitiveness and increase its vulnerability to external shocks. For example, excessive environmental sensitivity may raise manufacturing costs and place enterprises at a competitive disadvantage. By increasing the likelihood of company failure, ESG might increase shareholders' risk.

Using managerial opportunism theory, Cespa and Cestone (2007) argue that managers are prone to employ CSR initiatives to garner support from local communities and politicians. CSR is more likely to intensify managerial entrenchment by preventing aggressive takeovers. Given the unfavourable consequences for the business's performance, it is inevitable that the firm would be seen as riskier. Contrary to previous research demonstrating a negative correlation between ESG practices and different forms of risks, Becchetti et al. (2015) argue that CSR raises the firm's idiosyncratic risk.

The authors claim that this conclusion occurs due to a firm's lack of flexibility in reacting to adverse productivity shocks generated by its CSR initiatives, which affect stakeholder welfare. On the other hand, Humphrey et al. (2012) find no difference in idiosyncratic risk across UK enterprises with high and poor CSR ratings.

The empirical research has revealed inconsistent findings on the link between ESG and firm risk. In line with stakeholder theory, firms that adopt robust ESG practices are expected to demonstrate greater accountability and transparency, thereby gaining investors' trust and reducing systematic and credit risks. Moreover, by proactively addressing environmental and social concerns, firms can mitigate potential regulatory risks and improve operational efficiency. However, aligning with managerial opportunism theory, there is a possibility that some firms engage in ESG practices primarily for self-serving reasons, which might not translate into genuine risk reduction and could instead lead to resource misallocation. By extension, socially irresponsible businesses should face greater risk than socially responsible businesses. Therefore, while the overall expectation is a negative relationship between ESG practices and firm risk, the impact may depend on the firm's motivation and the context in which ESG practices are implemented. Consistent with this perspective, this research hypothesises the following:

H1: There is a significant negative relationship between a firm's ESG practices and firm risk.

- H1.1: There is a significant negative relationship between a firm's ESG practices and firm systematic risk.
- H1.2: There is a significant negative relationship between a firm's ESG practices and firm total risk.
- H1.3: There is a significant negative relationship between a firm's ESG practices and firm default risk.

H1.4: There is a significant negative relationship between a firm's ESG practices and firm credit risk.

3.3.1.1 Environmental Performance and Firm Risk

It has been widely documented that environmental performance influences financing costs (Erragragui,2018). Regarding the environment, prior research indicates that company activism reduces investor risk perception and increases stakeholder engagement (Feldman et al., 1997; Cheng et al., 2014). Reduced compliance costs, enhanced reputation, and stakeholder loyalty may explain the influence of environmental performance on risk (Bouslah et al., 2013).

Similarly, although green technology adoption seems pricey, it results in less severe and frequent mishaps since the technologies should be more responsive to these difficulties. According to Godfrey (2005), firms build moral capital by contributing to environmental and social events. This moral capital protects firms during market downturns. Apart from mitigating the impact of a negative shock, ESG may assist organisations in avoiding experiencing such occurrences in the first place. For example, environmental protection reduces the danger of unintentional contamination. It also mitigates the likelihood of hefty penalties, which should be considered a good return on ESG spending. Spicer (1978) showed in one of the first CSR studies that enterprises with a track record of environmental stewardship are less susceptible to costly punishments.

The relationship between environmental performance and credit risk has been extensively studied, with researchers like Chava (2011) and Sharfman and Fernando (2008) examining the repercussions of environmental risks on financial metrics such as the cost of capital. Chava (2011) identified that companies facing environmental risks often incur higher expenses when borrowing due to perceived higher risks, while Sharfman and Fernando (2008) found that although companies with effective environmental risk management strategies tend to enjoy a lower overall cost of capital, paradoxically, they might still face higher debt costs. This could be due to the initial investments required for implementing sustainable practices. Seltzer et al. (2020)

establish a link between a firm's bond credit ratings, yield spreads, environmental scores, and regulatory risk associated with climate change. Businesses that do poorly on environmental metrics often have lower credit ratings and higher yield spreads, mainly if they are situated in countries with stricter environmental restrictions.

Schneider (2011) delved into specific industries, namely the pulp, paper, and chemical sectors within the United States, and concluded that companies with subpar environmental performance experienced higher financial spreads. However, this negative impact was mitigated in companies with solid credit ratings, suggesting that good financial health can cushion the adverse effects of environmental risks. This finding is consistent with the work of Bauer and Hann (2010) and Graham et al. (2001), who also linked poor environmental practices to increased borrowing costs and lower credit ratings as part of broader ESG concerns. These outcomes suggest that the financial markets penalise companies with poor environmental stewardship, likely due to the potential for regulatory fines, cleanup costs, and reputational damage, all of which can affect a company's financial stability and risk profile.

However, the connection between strong ESG performance and reduced credit risk is unclear. Stellner et al. (2018) provided limited evidence to support the hypothesis that robust ESG practices directly lead to lower credit risk. This ambiguity highlights the complexity of the relationship between environmental sustainability and financial risk, suggesting that while good environmental practices are generally favourable, their direct impact on credit risk may vary based on other factors such as industry specifics, regulatory environment, and the broader economic context. Therefore, based on risk management theory and past studies, the present study proposed the following hypothesis:

H2.1: There is a significant negative relationship between a firm's environmental practices and firm risk.

H2.1a: There is a significant negative relationship between a firm's environmental practices and firm systematic risk.

- H2.1b: There is a significant negative relationship between a firm's environmental practices and firm total risk.
- H2.1c: There is a significant negative relationship between a firm's environmental practices and firm default risk.
- H2.1d: There is a significant negative relationship between a firm's environmental practices and firm credit risk.

3.3.1.2 Social Performance and Firm Risk

Previous research indicates a significant inverse relationship between corporate social performance and company risk (Oikonomou et al., 2012; Sassen et al., 2016; Chollet and Sandwidi, 2018). The most pressing challenges are the community and employment. Salama et al. (2011) examine the link between the community and environmental responsibility and systematic risk in the United Kingdom and find that a strong negative association exists.

Generally, a focus on ESG contributes to developing a strong safety culture among workers and other stakeholders. ESG may help prepare a business for negative situations by increasing risk awareness, minimising their severity, and lowering their probability. For example, investing in maintenance reduces the chance of workplace accidents and communicates to employees that safety is a priority for the business. Consideration for product safety and thorough testing may also help lower the likelihood of customer-involved incidents. Overall, ESG is projected to increase producers' sensitivity to various hazards.

Public perceptions of poor ESG are likely to exaggerate the severity of a backlash. It increases the likelihood that the business will be held accountable and face unfavourable publicity. The corporation may face more pressure to repair the harm to its reputation by increasing its advertising and public relations investment. Customers

may change suppliers, and staff may quit the company when times are rough. In any situation, the firm's troubles will be worsened, indicating a greater risk to shareholders.

The social dimension of the ESG is associated with lower risks due to better cooperation and trust (Kane et al., 2005) or more commitment, loyalty, and fewer litigations (Bauer et al., 2007). Therefore, based on stakeholder theory, the current study filled the gap by postulating that:

H2.2: There is a significant negative relationship between a firm's social practices and firm risk.

- | | |
|--------|---|
| H2.2a: | There is a significant negative relationship between a firm's environmental practices and firm systematic risk. |
| H2.2b: | There is a significant negative relationship between a firm's environmental practices and firm total risk. |
| H2.2c: | There is a significant negative relationship between a firm's environmental practices and firm default risk. |
| H2.2d: | There is a significant negative relationship between a firm's environmental practices and firm credit risk. |

3.3.1.3 Governance Performance and Firm Risk

Globally, it is believed that a company with good corporate governance processes would be viewed as more transparent and reliable by stakeholders and hence will influence its risk assessment in the financial markets. Research by Sengupta (1998), Bhojraj and Sengupta (2003), and Anderson et al. (2004) has been instrumental in establishing a link between corporate governance quality and financial outcomes, particularly in the context of bond pricing. These studies collectively illustrate that the financial markets reward companies adhering to high governance standards and superior disclosure practices with more favourable borrowing terms, notably lower

interest rates. This trend can be attributed to the reduced information asymmetry and enhanced credibility that comes with good governance practices, making these firms more attractive to lenders and investors.

Conversely, lacking robust governance mechanisms can harm a company's image and financial health. Bedard and Johnstone (2004) highlight how weak governance structures can erode external stakeholders' confidence in a firm, elevating its perceived risk and potentially leading to higher capital costs. This perspective is supported by empirical findings from researchers like Fich and Slezak (2008) and Goss (2009), who document a tangible correlation between governance deficiencies and increased financial distress or bankruptcy among firms. These outcomes underscore the critical influence of governance attributes on a company's stability and resilience, emphasising the governance-risk nexus.

The evidence suggests a clear interplay between corporate governance quality and firm risk, with strong governance practices associated with enhanced transparency, stakeholder trust, and financial stability. This dynamic reinforces the notion that effective governance is not only a matter of regulatory compliance or ethical management but a strategic imperative that can significantly influence a firm's risk profile and, by extension, its financial performance and sustainability. Based on the prior observations suggesting that firms with high good governance practices enjoy a lower risk, this study proposes that:

H2.3: There is a significant negative relationship between a firm's governance practices and total risk.

H2.3a: There is a significant negative relationship between a firm's governance practices and systematic risk.

H2.3b: There is a significant negative relationship between a firm's governance practices and total risk.

H2.3c: There is a significant negative relationship between a firm's governance practices and default risk.

H2.3d: There is a significant negative relationship between a firm's governance practices and credit risk.

3.3.2 Moderating Impact of Country Sustainability on ESG Practice

The role of country sustainability characteristics in shaping firm behaviour is a critical area of study, particularly in the context of ESG practices. Institutional theory, as outlined by DiMaggio and Powell (1983), suggests that firms adapt their operations to meet external regulations and industry standards. This theory indicates that ESG practices are primarily influenced by the broader institutional environment rather than isolated organisational factors. Baldini et al. (2016) demonstrate that country-level elements such as the legislative framework and cultural system significantly impact a firm's ESG disclosure. Similarly, Ionnu and Serafeim (2012) demonstrate that a country's financial, political, educational and labour systems influence the firm's social and environmental performance. Jackson and Apostolakou (2010) reveal that enterprises in Anglo-Saxon nations disclose CSR information greater than firms in Continental Europe.

The implications of various institutional variables and business reporting practices on the anticipated economic consequences are constantly being debated (Li, 2010; Daske et al., 2008; Ahmed et al., 2013; Moscarriello et al., 2014; Manganaris et al., 2015; Christensen et al., 2016). According to Daske et al. (2008), capital-market advantages (market liquidity and cost of capital) associated with IFRS adoption occurred exclusively in nations with robust legislative enforcement. Similarly, Manganaris et al. (2015) demonstrate that banks from countries with vigorous enforcement demonstrate more value relevance after implementing IFRS than banks from countries with weak enforcement. On the other hand, Houque et al. (2014) discovered a more significant correlation between IFRS and accounting quality in nations with weak investor protection. Ahmed et al. (2013) also found that the

enforcement regime does not affect accounting quality and has an associated impact if laws are more vulnerable and allow greater management discretion. Similarly, Moscariello et al. (2014) discovered that mandatory adoption of IFRS has a largely beneficial influence on the debt-contracting process in Italy, a country with a poor investor protection system, but has had little effect on the UK country's robust enforcement. In summary, the implications of institutional variables and business reporting practices on economic consequences are intricately linked to firm risk. The adoption of IFRS, particularly in countries with strong enforcement, can lead to greater market liquidity and lower cost of capital, both of which are indicators of reduced firm risk. This underscores the importance of the institutional environment in determining the effectiveness of reporting practices and ESG disclosures in mitigating firm risk.

Florou and Kosi (2015) demonstrate that the reported debt market advantages persist even in EU countries that did not implement financial reporting enforcement or other institutional reforms simultaneously. Dhaliwal et al. (2012) discovered that CSR disclosure relates to more accurate profit projections in countries where stakeholders such as workers, customers, governments, and communities likely impact enterprises' operational decisions. In subsequent research, Dhaliwal et al. (2014) demonstrate that the negative correlation between cost equity capital and CSR disclosure is more pronounced in stakeholder-oriented countries.

The importance of country sustainability characteristics as a moderating influence in the nexus between sustainability practices and financial outcomes was further underscored by Dhaliwal et al. (2014) and Eliwa et al. (2019). Their research indicated that ESG disclosures could substantially lower the cost of capital in stakeholder-oriented countries, enhancing the value of these disclosures for evaluating firms. Despite these insights, the impact of country sustainability characteristics on the interplay between ESG practices and firm risk, particularly in the ASEAN context, has not been thoroughly examined. The ASEAN region's rich economic, cultural, and legal diversity offers a fertile ground for investigating how various sustainability frameworks and institutional settings shape ESG practices and firm risk relationships. This unexplored area in the literature highlights the necessity for more detailed research to decipher these complex dynamics within varied institutional contexts, aiming to enrich

the understanding of ESG practices and firm risk, especially in the ASEAN and GCC regions. Drawing on institutional theory and existing research, this study proposes that:

H3: Country sustainability (ESG) moderates the relationship between ESG practices and firm risk.

The sub-hypotheses are developed based on different risk measures and different sustainability dimensions:

H3.1: Country sustainability (ESG) moderates the relationship between ESG practices and firm systematic risk.

H3.2: Country sustainability (ESG) moderates the relationship between ESG practices and firm total risk.

H3.3: Country sustainability (ESG) moderates the relationship between ESG practices and firm default risk.

H3.4: Country sustainability (ESG) moderates the relationship between ESG practices and firm credit risk.

3.3.3 Firm and Country Variables as Control Variables

This study employs several firm-specific and country-specific variables commonly associated with firm risk as control variables. Using control variables is necessary to isolate the firm's and country-specific variables' impacts on firm risk.

3.3.3.1 Firm-Specific Variables

a) Firm Size

Firm size is often considered a significant determinant of a company's ability to manage and mitigate risk, owing to the resources and strategic advantages that larger firms

typically possess (Chakraborty et al., 2019; Shakil, 2021). The relationship between firm size and risk is generally characterised by a negative correlation, suggesting that as firms grow, their risk exposure tends to decrease. This is primarily because larger firms are usually better positioned to absorb financial shocks, leverage their market power, and exploit economies of scale that can lead to cost efficiencies and higher profit margins (Bukair and Rahman, 2015).

The advantages of being a large firm extend beyond financial strength; they also include a more diversified product portfolio, a wider geographical presence, and access to a broader customer base. These factors contribute to risk diversification, as the impact of a downturn in one segment can be offset by stability or growth in another. Moreover, large firms often have better access to capital markets, allowing them to secure funding on more favourable terms and further enhancing their ability to manage risk.

b) Firm Profitability

Firm profitability, often measured by the Return on Assets (ROA), the ratio of pretax income to total assets, is a critical indicator of a company's financial health and operational efficiency. ROA reflects how effectively a firm utilises its assets to generate earnings, serving as a proxy for management's ability to convert resources into profit (Shakil, 2021).

The relationship between firm profitability and risk is multifaceted. Higher profitability can imply a stronger financial position, potentially leading to lower perceived risk by investors and creditors. Profitable firms are typically seen as more capable of weathering economic downturns, meeting financial obligations, and investing in growth opportunities, all of which can contribute to a lower risk profile. Furthermore, higher profitability may enhance a firm's resilience against operational and market challenges, enabling more effective risk management practices (Chakraborty et al., 2019).

c) Financial Leverage

Financial leverage, often quantified as the ratio of total debt to total assets, is a critical indicator of a firm's financial structure (Fischer and Sawczyn, 2013; Shakil, 2021). It reflects how much a company relies on debt financing to fuel its operations and growth. While leverage can enhance returns in favourable market conditions, it also amplifies the firm's exposure to financial risk. This is because higher leverage entails increased interest obligations, which, in turn, can erode earnings per share and elevate the company's vulnerability to financial distress (Benlemdih and Girerd-Potin, 2017).

The relationship between financial leverage and firm risk is complex and multifaceted. On the one hand, leverage can provide the necessary capital for growth initiatives, potentially leading to higher profitability. On the other hand, an overreliance on debt financing can strain the firm's cash flows, especially in times of economic downturn or when the market conditions are unfavourable. This increased financial obligation can constrain the firm's operational flexibility, making it more susceptible to external shocks and market volatility (Mishra and Modi, 2013).

d) Market to Book Value of Equity

The market-to-book value ratio, an essential metric for evaluating a company's valuation in financial markets, compares a firm's market capitalisation to its book value. This ratio is instrumental for investors to discern whether a stock is undervalued or overvalued relative to its intrinsic value, thus shaping the market's perception of the company's worth (Luo and Bhattacharya, 2009). A higher market-to-book ratio often indicates that investors expect the firm to generate future solid earnings and growth, reflecting a positive investor outlook towards the company.

Firms that are perceived positively by the market, as indicated by a higher market-to-book value, are generally considered to have better access to capital, lower cost of financing, and greater financial flexibility. This financial leeway enhances their capacity to undertake ESG initiatives, which can further improve their reputation and operational efficiency (Abdul Razak et al., 2020; Lee et al., 2016; Hoepner et al., 2016). Moreover, companies with a favourable market valuation, as suggested by their market-to-book ratio, are often in a stronger position to manage risks associated with their operations and strategic decisions. Their ability to invest in ESG practices can reflect

their financial health and strategic orientation towards sustainability and long-term value creation.

3.3.3.2 Country-Specific Variables

a) Gross Domestic Product Growth Rate (GDPGR)

GDP measures the total value of all goods and services produced within a country over a specific period, providing an essential indicator of the country's economic health and prosperity. GDP growth, especially per capita, reflects the increase in economic output relative to the population, indicating improved living standards and business prospects. The annual percentage growth rate of GDP per capita (GDPGR) is used to control the countries' economic development (Abdul Razak et al., 2020; Breuer et al., 2018), and economic growth should be associated with better business prospects and lower risk (Tang and Yan, 2010). Economic growth often leads to increased consumer demand, greater investment opportunities, and overall market expansion, providing firms with better opportunities to grow and generate profits. Consequently, firms operating in a thriving economy are perceived to have a lower likelihood of default, reducing their default and credit risks.

Moreover, economic development is frequently accompanied by improvements in infrastructure, legal frameworks, and governance standards, further enhancing the business environment. These advancements facilitate better ESG practices by providing regulatory support and shaping societal expectations for sustainable and responsible business conduct. For instance, a country with robust legal institutions and infrastructure is likely to have more stringent regulations on environmental and social practices, compelling firms to adhere to higher standards of corporate governance. This compliance with regulatory norms reduces systematic risk by aligning firms with broader market expectations and mitigates idiosyncratic risks by ensuring consistent business practices.

In summary, GDP growth is a critical control variable in this study, as it reflects the overall economic climate in which firms operate. A growing economy provides a stable and supportive environment for businesses, which is expected to correlate with lower

firm risk, enhancing the overall reliability of the study's analysis on the impact of ESG practices.

b) Governance Indicator

The country's public governance encompasses six key indicators: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. These indicators were drawn from the Worldwide Governance Indicators (WGI), which collectively offer a comprehensive view of the institutional environment in which firms operate.

Voice and accountability reflect the extent to which citizens can participate in selecting their government, as well as the freedom of expression, association, and media. Political stability and absence of violence measure the likelihood of political unrest or violence, which can directly impact a firm's operational environment. Government effectiveness assesses the quality of public services, policy formulation, and implementation, indicating how well government actions support a stable business environment. Regulatory quality examines the government's ability to create and enforce sound policies and regulations that promote private sector development. The rule of law reflects the degree to which agents have confidence in and abide by the rules of society, including property rights and the judicial system. Finally, control of corruption gauges the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, which can significantly affect market efficiency.

By incorporating these governance indicators into the analysis, this study accounts for the institutional quality at the country level, which can either support or hinder corporate practices, including those related to risk management and ESG adoption. Strong public governance can mitigate systematic risk by providing a stable environment for businesses, ensuring regulatory compliance, and fostering investor confidence. Conversely, weak governance structures can amplify risks by increasing the potential for market volatility, corruption, and operational inefficiencies. Therefore, controlling for public governance allows this study to more accurately isolate the effects

of ESG practices on firm risk, providing a thorough understanding of how institutional factors shape firm behaviour and risk profiles.

c) Inflation

As a critical country-level control variable, the inflation rate plays a significant role in corporate governance and performance studies, illustrating the broader economic environment's impact on firm operations and strategies. Inflation reflects the rate at which the general level of prices for goods and services is rising and, subsequently, eroding purchasing power. Scholars such as Zouari and Taktak (2014), Bukair and Rahman (2015), and Mollah and Zaman (2015) have highlighted the importance of considering inflation in the context of corporate governance and firm performance analysis.

The relationship between inflation and firm performance is multifaceted, contingent upon whether inflation is anticipated and effectively incorporated into strategic planning and decision-making processes. Al-Kayed et al. (2014) emphasise that the impact of inflation on firm performance is influenced by the firm's ability to anticipate and adapt to expected inflationary trends.

3.4 SUMMARY

This chapter discusses the theoretical framework, and the development of hypotheses based on the related theories and empirical studies. The chapter is divided into two main sections. The first explains the theoretical framework, whereas the second describes the development of the study's hypotheses.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 INTRODUCTION

This chapter presents the methodology of the study and the relevant analysis procedures. It is organised into five main sections. The first section involves the introduction of this chapter, followed by Section 4.2, which discusses the research design describing the sample size, data, and study period. Section 4.3 describes the variables used in this study and its measurements. Data analysis procedures are discussed in Section 4.4, while Section 4.6 presents the regression models. Section 4.6 concludes the overall discussion of Chapter 4.

4.2 RESEARCH DESIGN

According to Sekaran (2003), to design a research study that effectively addresses its goals, several key factors must be considered, including the study's objectives, setting, methodology, level of analysis, and time frame. The research design is foundational, setting the stage for data collection, evaluation, and analysis, which are detailed in subsequent chapters. According to Creswell and Creswell (2018), research design encompasses inquiry strategies within qualitative, quantitative, and mixed-methods approaches, offering a structured plan for conducting research. This study employs a quantitative approach to investigate the relationship between ESG practices, country sustainability, and firm risk. It is structured as a longitudinal study that spans 11 years. This design allows for the observation of the same entities over time, facilitating the detection of shifts in ESG practices and firm risk levels.

Data for this study were sourced primarily from Refinitiv Eikon, which provided comprehensive information on the variables of interest, including independent, dependent, moderating, and control variables. The World Bank's website also served as a secondary data source, particularly for information on countries' economic

development and governance structures. Following data collection, Stata software was employed for data analysis. The statistical findings from this analysis are instrumental in addressing the research questions and achieving the study's objectives. The subsequent sections will describe the research process, from data collection to analysis.

4.2.1 Sample Selection and Period of Study

This study uses secondary data. The data used in this thesis were collected from the Refinitiv Eikon Datastream. They included all listed firms in the database from the six ASEAN (Indonesia, Malaysia, Singapore, Thailand, Philippines, and Vietnam) and six GCC (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates) countries. This thesis chose these two regions as the research focus for several reasons. First, little comprehensive research links ESG to different firm-risk measures within the ASEAN and GCC contexts. Western markets have dominated responsible finance, which has grown dramatically but should not overshadow emerging markets' future growth potential. As these regions represent emerging markets with growing significance in the global economy, understanding how ESG practices impact firm risk is critical for expanding the current literature and providing insights specific to these regions.

In addition, ESG is particularly important in these regions as both ASEAN and GCC countries have experienced rapid economic growth, making it crucial to integrate ESG principles to ensure sustainable development. However, this rapid growth has introduced challenges related to sustainability and the need for responsible business practices. Integrating ESG principles is crucial to ensure sustainable and equitable growth (OECD, 2020). Focusing on these regions allows us to examine how ESG practices can support long-term economic stability and sustainable development in rapidly evolving markets. These regions are also vulnerable to environmental issues such as climate change, deforestation, water scarcity, and pollution. Moreover, Islamic finance principles in the GCC overlap with ESG values, emphasising ethical investment. ESG research can explore how Islamic finance contributes to sustainable development. In ASEAN, diverse cultural values can influence ESG practices, making localised research crucial.

The initial sample consisted of all publicly listed companies from six ASEAN and six GCC countries whose ESG information is available in the Refinitiv Eikon Database from 2011 to 2021. This period has been chosen because the Refinitiv Eikon Database ESG scores have been available on a comprehensive basis only since 2008. Disclosures were published before 2008, but the data regarding country and sector coverage was limited, especially outside European countries. The database was formerly known as Thomson Reuters Eikon (Refinitiv Eikon Datastream, 2021). The database comprises 35 million individual indicators across all asset classes, including 8.5 million economic indicators (Refinitiv Eikon Datastream, 2021). Academics and researchers regularly use the database to provide transparent and high-quality data (Batae et al., 2021; Ioannou and Serafaim, 2012; Eccles et al., 2014; Bae et al., 2021; Shakil, 2021). While the Refinitiv database provides a comprehensive and widely accepted dataset for ESG metrics, the nature of secondary data may limit the depth of insights into the intricate mechanisms through which ESG practices influence firm risk. Future studies can supplement the data with primary research, such as interviews with the firm's management, to address this limitation. This could offer qualitative insights into how ESG practices are integrated into strategic decision-making and risk management processes.

This research employs the availability of data to finalise the sample size—the initial sample comprised 5,609 firm-year observations. Following prior studies, companies that are categorised as financial institutions (banks and insurance companies) or REITs were excluded due to their diverse nature and different reporting practices (Amira et al., 2021; Kilic and Kuzey, 2018; Sriani and Agustia, 2020). Due to missing data in risk measures and control variables, the final sample has been narrowed down to an unbalanced panel of 2,898 firm-year observations from 2011 to 2021, as detailed in Table 4.1. Overall, our sample includes 643 firms with an ESG score with at least two observations during the analysis period (2011 – 2021), as in Beck et al. (2013) and Buallay (2018).

The sample contains diverse listed firms from 12 countries. As detailed in Table 4.1, the highest samples come from Thailand, Singapore, and Malaysia. These might be contributed by robust regulatory frameworks and government initiatives that promote ESG practices. For instance, Singapore's Green Plan and Malaysia's Green Technology

Master Plan are comprehensive strategies aimed at sustainable development. Thailand has also been proactive with its Thailand 4.0 policy, emphasising smart and sustainable industries. The stock exchanges in these countries also play a significant role in promoting ESG practices. For example, the Singapore Exchange (SGX) has mandatory sustainability reporting requirements for listed companies. Similarly, Bursa Malaysia has introduced an ESG index, and the Stock Exchange of Thailand (SET) actively promotes sustainability among its listed companies.

Table 4.1 Sample Distribution (by Country)

COUNTRY NAME	NO. FIRMS	NO. OBSERVATIONS
BAHRAIN	16	34
INDONESIA	51	358
KUWAIT	17	52
MALAYSIA	95	516
OMAN	12	27
PHILIPPINES	36	237
QATAR	37	122
SAUDI ARABIA	45	170
SINGAPORE	93	536
THAILAND	153	595
UAE	57	193
VIETNAM	31	58
TOTAL COUNTRIES		12
TOTAL FIRMS		643
TOTAL OBSERVATIONS		2,898

Table 4.2 shows a breakdown of the sample data across various sectors within the ASEAN and GCC regions. The data sample from these regions, characterised by their different stages of economic development and sectoral priorities, provides a rich context for analysing ESG practices. The ASEAN region, known for its diversity and growth potential, coupled with the wealth and investment capabilities of the GCC region, offers a contrasted landscape for studying how ESG factors are integrated across

different industries and how they might influence firm risk within these distinct markets.

As shown in Table 4.2, the consumer sector has the largest representation, with 160 firms and 734 observations, or 25.3% of the total sample. This could relate to the rapidly growing consumer markets, driven by increasing population and purchasing power in both regions. The industrial and real estate sectors are also well represented, with 21.4% and 16.5% of the total observations. This may reflect the ASEAN region's extensive industrial and manufacturing activities for its significant export-oriented industries and the diversification efforts in the GCC economies away from oil dependence. The significant urban development and infrastructure expansion in both regions also help to explain the notable representation of the real estate sector in the whole sample.

On the other hand, the telecommunications and utilities sectors are moderately represented in the sample. These sectors are critical to the development of both regions, with significant investments in connectivity and utilities as part of economic modernisation and development efforts. While not the most represented, the energy sector still holds a significant part of the sample, reflecting the GCC's global role in the energy market, the growing energy demand, and the shift towards renewable sources in the ASEAN region.

Meanwhile, the basic materials sector shows moderate representation, possibly due to the importance of natural resources and construction materials in both ASEAN and GCC economies, especially with the latter's investment in infrastructure to support economic diversification. The smaller representation of the healthcare and technology sectors may indicate the growing state of these sectors in the regions, particularly in GCC countries where healthcare and technology are growing focuses of national vision plans.

Table 4.2 Sample Distribution (by Sector)

SECTORS	NO. FIRMS	NO. OBSERVATIONS	PERCENTAGE
BASIC MATERIALS	47	191	6.6
CONSUMER	160	734	25.3
ENERGY	42	200	6.9
HEALTHCARE	33	116	4
INDUSTRIALS	128	620	21.4
REAL ESTATE	112	477	16.5
TECHNOLOGY	25	59	2
TELECOMMUNICATIONS	51	288	9.9
UTILITIES	45	213	7.4
TOTAL	643	2,898	100%

Table 4.3 Sample Distribution (by Region)

REGION	NO. FIRMS	NO. OBSERVATIONS	PERCENTAGE
ASEAN	460	2,300	79.4
GCC	183	598	20.6
TOTAL	643	2,898	100%

Finally, Table 4.3 summarises the sample used in this study across ASEAN and GCC regions. In the ASEAN region, the study includes a sample of 460 firms, which accounts for a substantial majority of the total sample at 79.4%. This higher percentage may reflect the region's larger number of publicly listed firms and active engagement with ESG, propelled by regulatory frameworks, market dynamics, corporate initiatives, and societal awareness, all of which contribute to the growing prominence of ESG practices in the region.

In contrast, the GCC region represents a smaller portion of the sample, with 183 firms constituting 20.6% of the total sample. The smaller percentage was due to fewer firms within the GCC region that meet the study's criteria and less publicly reported ESG data available than firms in the ASEAN region.

4.3 VARIABLE MEASUREMENT

Variables are categorised into dependent and independent, moderator and control variables (see Table 4.4). The dependent variables in this study are various measures of firm risk, including systematic risk, total risk, default risk, and credit risk. These metrics provide insights into firms' financial stability and vulnerability to external and internal factors. The independent variables are the aggregate ESG score and its three components—environmental, social, and governance scores. These scores represent a firm's adherence to responsible practices in these areas, potentially influencing its risk profile. The moderator variable in this study is the country's ESG score, which represents the ESG framework at the national level. This variable is used to explore how the broader ESG environment in a country influences the relationship between a firm's ESG practices and its risk. Control variables are included to account for other factors affecting the relationship between ESG practices and firm risk. These include firm size, firm profitability, leverage, market-to-book value, growth in GDP, corporate governance indicators, and inflation. By examining these variables, the study aims to provide a comprehensive understanding of how ESG practices relate to firm risk and how this relationship is moderated by the country's ESG framework while controlling for other influential factors.

4.3.1 Measurement of Risk (Dependent Variables)

There is no consensus on the measurement of risk. It has been proposed that ESG can affect many types of risk through a different channel. The present study defines the risk using four measures: systematic, total, default, and credit risk.

i. Systematic Risk

Systematic risk, often represented by market beta, reflects a firm's sensitivity to changes in market returns, distinguishing it from risks unique to the individual firm. In financial studies, market beta is a widely accepted proxy for measuring systematic risk, as it

quantifies the correlation between the returns on a firm's stock and the returns on a market portfolio. The concept of beta originates from the Capital Asset Pricing Model (CAPM), which posits that the expected return on a security is a function of its systematic risk relative to the overall market (Sharpe, 1964; Lintner, 1965).

Understanding systematic risk is crucial in ESG practices and firm risk as it helps gauge how external, market-wide factors such as economic downturns, geopolitical events, or broad market trends impact a firm. Firms with a high beta are considered more volatile and, thus, riskier than the market, while firms with a low beta are seen as less volatile and less risky. This is particularly relevant in studies examining the impact of ESG practices on firm risk, as firms with strong ESG practices may demonstrate different risk profiles compared to their counterparts.

Sassen et al. (2016), Benlemdih et al. (2018), and Shakil (2021) utilise market beta as a measure of systematic risk in their analyses to understand the relationship between various corporate practices, including ESG and the risk profile of firms. Researchers can accurately assess firms' systematic risk across different industries and regions by employing market beta data from comprehensive financial databases such as the Refinitiv Eikon Database (Refinitiv Eikon DataStream, 2021). This approach ensures that risk assessment is grounded in robust and widely recognised financial metrics. This facilitates a clearer understanding of how ESG practices might influence a firm's susceptibility to market-wide risks.

ii. Total Risk

Total risk in a firm is often represented by its stock price volatility, which encompasses all risks the firm is exposed to, both systematic and unsystematic. This measure reflects the overall uncertainty or variability in the returns investors expect from the firm's stock over time. To quantify total risk, researchers commonly use the annualised standard deviation of monthly stock returns over 12 months (Bouslah et al., 2013; Sassen et al., 2016; Jo and Na, 2012; Shakil, 2021). The standard deviation, a statistical measure, captures the dispersion of stock returns around their mean, providing a clear picture of how widely returns can vary.

In this context, volatility is determined based on the stock price movements within the last fifty-two weeks, highlighting the extent of price fluctuations during this period (Sassen et al., 2016; Shakil, 2021). This approach to measuring volatility considers the highs and lows of the stock price during the last twelve months, offering insights into the stock's stability or proneness to sudden price changes. This information is crucial for investors and analysts as it helps gauge the risk of investing in a particular stock.

The relationship between total risk and ESG practices is multifaceted. Bernadi and Stark (2016) underscore the significance of information quality, particularly in South Africa, where enhanced disclosure was linked to improved accuracy in performance forecasts. Similarly, Bouslah et al. (2013) discovered that governance disclosure, in particular, plays a crucial role in mitigating risk among S&P 500 companies. This ties into the broader framework of risk management theory, which provides a systematic approach to dissecting company risk and understanding how different factors, including ESG practices, influence a firm's risk profile (Lueg and Knapik, 2016).

In summary, total risk is a comprehensive measure of a firm's risk, encompassing all factors contributing to the variability in stock returns. The connection between ESG practices and total risk suggests that improved transparency and governance can lead to a better understanding and management of risks, ultimately contributing to a firm's stability and attractiveness to investors.

iii. Default Risk

Default risk, indicative of a firm's likelihood to face bankruptcy, is critical to assessing financial stability. Bankruptcy transpires when a company cannot fulfil its financial obligations, leading to a legal process to resolve creditors' claims (Baird, 1987). This study utilises the Z score, a widely recognised metric, to gauge the probability of bankruptcy, following the methodologies of Richardson et al. (2015) and Boubaker et al. (2020). The Z score provides a comprehensive view of a firm's financial health through a multivariate formula by considering various financial ratios and indicators.

The connection between ESG practices and default risk is multifaceted. Stakeholder theory suggests that high ESG can enhance a firm's capability to implement effective countermeasures against financial distress. This is partly due to increased stakeholder loyalty and the firm's capacity for innovation, which are bolstered by responsible ESG practices (Hofmann et al., 2018; Vishwanathan et al., 2020). Each pillar of ESG—environmental, social, and governance—contributes positively, potentially lowering the risk of bankruptcy. For instance, sustainable investments can safeguard supply chain resilience, leading to more stable and reliable relationships with key stakeholders like suppliers and enhancing the firm's ability to navigate financial challenges.

In essence, the Z score is a predictive tool for assessing a firm's bankruptcy risk, incorporating a range of financial metrics to offer a snapshot of financial health. By integrating ESG practices into their operations, firms may improve their standing in each ESG pillar and reduce their overall default risk, contributing to long-term financial stability and resilience against market fluctuations and distress.

iv. Credit Risk

Credit risk, represented by the cost of debt in this study, is crucial for firms, particularly in terms of how ESG practices influence it. Engaging in CSR activities signals a firm's commitment to long-term sustainability, potentially enhancing its reputation and being perceived as a lower risk by the market. This favourable perception can lead to a reduced cost of debt, reflecting lower credit risk (Francis et al., 2005; Gray et al., 2009; Eliwa et al., 2019).

The relationship between ESG performance and the cost of debt remains debated within academic circles. Several studies highlight a negative correlation, suggesting that improved ESG performance leads to lower financing costs (Hasan et al., 2017; Ge and Liu, 2015; Goss and Roberts, 2011; Ye and Zhang, 2011; Crifo et al., 2017). In contrast, others find no significant or positive relationship, indicating that higher ESG performance might not always translate to lower credit risk (Erragragui, 2017; Stellner et al., 2015; Hoepner et al., 2016).

This study explores how ESG practices influence a firm's credit risk, employing the cost of debt as a proxy for credit risk. The cost of debt is calculated as the ratio of a firm's interest expenses to its average debt, providing an accounting-based measure of credit risk. This approach aligns with the findings of Orlitzky, Schmidt, and Rynes (2003), who assert that ESG performance is more closely linked to accounting-based measures than market-based ones.

By examining the impact of ESG practices on the cost of debt, this study aims to shed light on whether socially responsible behaviour can effectively mitigate financial risks and contribute to a more favourable assessment of creditworthiness among firms. This exploration is vital for understanding the broader implications of ESG initiatives on a firm's financial structure and risk profile.

4.3.2 Measurement of Independent Variables

Next, the independent variable, the ESG factors, is measured using the ESG ratings published in the Refinitiv Eikon Datastream. The database rates the ESG disclosure score using four different disclosure scores that summarise a firm's level of disclosure on environmental (E), social (S), and governance (G) scores and an overall ESG disclosure score. They are considered a comprehensive evaluation of the company's sustainability impact and conduct based on the reported data in the public domain and Thomson Reuters ESG controversy score (Thomson Reuters, 2022). The ratings are available on over 12,500 companies globally, with time series data from 2002. They are available and straightforward in percentages and letter grades from D- to A+ (Refinitiv, 2022). All data is weighted in importance, and higher weights are given to more relevant disclosures.

This study follows the approach of previous ESG research in measuring ESG and its components from the Refinitiv Datastream database (Sassen et al., 2016; Shakil, 2021; Cheng et al., 2014; Eccles et al., 2014; Eccles et al., 2015; Ioannou and Serafeim, 2012; Mackenzie et al., 2013). Refinitiv's methodology encompasses over 750 data points to gauge a company's non-financial performance across the ESG pillars. The database's coverage extends to more than 12,500 companies worldwide, including

major indices sourced from various public information such as CSR reports, company websites, and annual reports.

The overall ESG score utilised in this study is an equally weighted average of the scores from the three ESG pillars, reflecting a holistic view of a company's sustainability performance. The ten dimensions assessed within these pillars include resource use efficiency, emissions and waste reduction, environmental innovation, workforce and human rights, community involvement, product responsibility, management and oversight, shareholder rights, and CSR strategy, offering a detailed and multidimensional perspective on corporate sustainability.

i. ESG Scores

The Refinitiv Eikon Datastream ratings assess a company's ESG performance, dedication, and effectiveness through three primary components that span ten themes. These dimensions include 1) environmental, focusing on resource use, emissions, and innovation; 2) social, covering workforce, human rights, community, and product responsibility; and 3) governance, which evaluates management, shareholders, and CSR strategy. This comprehensive approach provides a multi-faceted view of a company's ESG engagement and impact. Refinitiv Eikon Datastream offered this data in an aggregate (ESG score) and disaggregated dimensions (E, S, and G score). The weights assigned to the categories within the environmental and social pillars differ by industry, reflecting the varying relevance of specific ESG aspects across sectors. However, the weightings for the governance pillar are consistent across all industries, underscoring the universal importance of governance practices.

Refinitiv Eikon assesses ESG performance using 68 environmental, 62 social, and 56 corporate governance variables. It provides a percentage score between 0 and 100 (Refinitiv Eikon Datastream, 2022). An ESG score of 75 to 100 is regarded as excellent relative ESG performance, while an ESG score of 0 to 25 is considered poor relative ESG performance (Refinitiv Eikon Datastream, 2022). The environmental indicator comprises 20 measures for resource usage, 28 for emissions, and 20 for innovation (Refinitiv Eikon Datastream, 2022). The social indicator includes 30 workforce measures, eight human rights metrics, 14 community metrics, and 10 product

responsibility metrics (Refinitiv Eikon Datastream, 2022). The governance indicator comprises 35 management metrics, 12 shareholder metrics, and nine corporate social responsibility strategy metrics (Refinitiv Eikon Datastream, 2022).

ii. Environmental Score

The environmental dimension of the ESG score (ENV) evaluates a company's influence on the environment, covering living and non-living components like air, land, and water. This score reflects the extent of a firm's commitment and effectiveness in minimising environmental emissions, fostering the development and deployment of environmentally friendly products or services, and utilising natural resources efficiently in their production processes, Refinitiv, 2022).

The environmental score comprises a comprehensive set of metrics, including 20 metrics on resource utilisation, 28 on emissions, and another 20 on environmental innovation (Refinitiv Eikon Datastream, 2022). These metrics collectively offer insights into various environmental aspects such as CO₂ emissions, total waste generated, the use of nuclear energy, expenditure on environmental research and development, total water usage, and the monitoring of environmental practices within the supply chain. This robust evaluation framework aims to provide a detailed and thorough understanding of a company's environmental impact and its efforts towards sustainability.

iii. Social Score

The social pillar score (SOC) measures a company's ability to foster trust and loyalty among its employees, customers, and the broader society, reflecting on the company's reputation and the sustainability of its business operations (Refinitiv, 2022). This score is derived from a comprehensive set of metrics: 30 metrics related to workforce management, eight metrics concerning human rights practices, 14 metrics focused on community engagement, and ten metrics about product responsibility (Refinitiv Eikon Datastream, 2022).

SOC assesses a company's dedication and effectiveness in delivering value-added products and services that ensure customer safety, maintain a positive community reputation, uphold human rights, promote workforce diversity and equal opportunities, provide quality job conditions, and ensure a safe working environment. It also evaluates the company's commitment to employee training and development. Specific performance indicators include the company's involvement in harmful industries (like tobacco), adherence to fair trade practices, charitable contributions, participation in human rights or child labour controversies, availability of flexible working arrangements, workplace injury rates, and trade union representation. Collectively, these metrics offer insights into how well a company manages its social responsibilities and its impact on various stakeholder groups.

iv. Governance Score

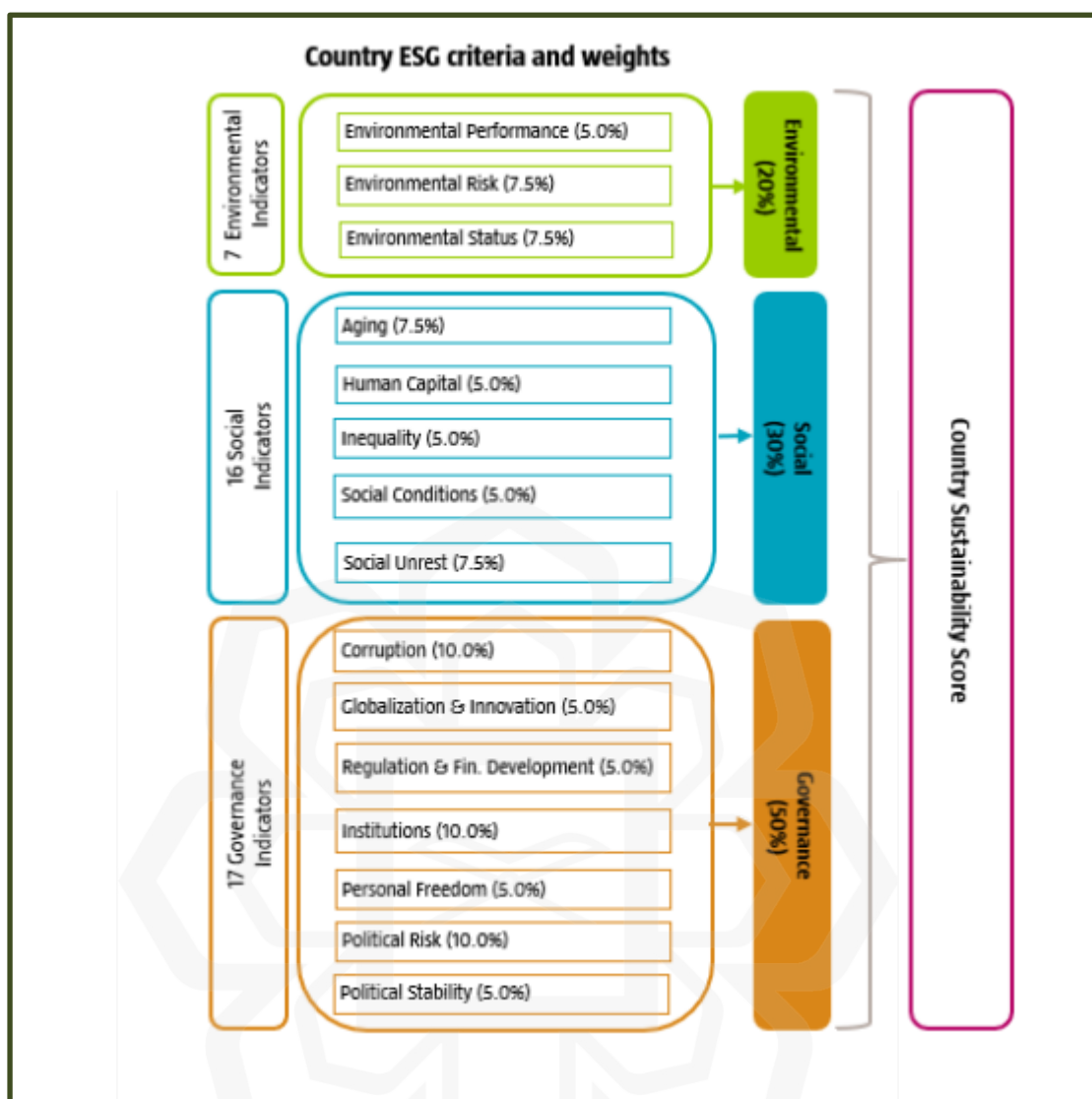
The governance pillar score (GOV) evaluates how well a company implements systems and procedures designed to ensure that its executives and board members prioritise the long-term interests of shareholders. This score is determined using a broad set of metrics, encompassing 35 related to management practices, 12 focused on shareholder rights, and nine about the company's corporate social responsibility strategy (Refinitiv Eikon Datastream, 2022). GOV assesses a company's dedication to and effectiveness in adhering to the highest standards of corporate governance, as recommended by best practices in the field (Thomson Reuters, 2022).

The GOV looks explicitly at how well a company's board operates and fulfils its responsibilities, such as setting up necessary committees (e.g., audit, compensation, and nominating committees), ensuring a balanced board composition, establishing fair compensation policies, and integrating both financial and non-financial objectives into a unified vision and strategy for the company. It also evaluates how well the company upholds shareholder rights, ensuring all investors are treated fairly and have a voice in crucial company decisions. The GOV provides insight into a company's governance quality through these measures, highlighting its commitment to ethical leadership, transparency, and shareholder accountability.

4.3.3 Measurement of Moderating Variable

In this research, the country's ESG performance is the moderating role, measured through the RobecoSAM Country ESG Ranking. This ranking assesses long-term sustainability factors that traditional sovereign risk ratings often overlook, such as human and labour rights, climate change and energy use, corruption levels, institutional effectiveness, and environmental risks. The RobecoSAM ranking, when used alongside conventional bond ratings, provides a detailed understanding of governmental bond risks, aiding investors in making more informed decisions.

The Country Sustainability Ranking (CSR) spans 150 countries, including both emerging and developed markets, and is updated twice a year. It assigns an ESG score to each country based on an analysis of 40 indicators, further categorised into 15 criteria. The scoring system allocates 20% to environmental issues, 30% to social factors, and the largest portion, 50%, to governance aspects. The comprehensive nature of this ranking is due to its reliance on over 200 data series sourced globally from various authoritative bodies such as the World Bank, IMF, United Nations, and OECD, as well as esteemed academic institutions, private entities, and non-governmental organisations. This thorough approach ensures a holistic view of a country's sustainability strengths and challenges, enriching the analysis of ESG practices and their impact on firm risk within different national contexts. Figure 4.1 displays a snapshot of information on the country's sustainability score.



Source: Robeco as of December 2021

Figure 4.1 A Snapshot of Country ESG Criteria and Weights

4.3.4 Measurement of Control Variables

The firm characteristics (size, profitability, leverage, and market-to-book value) and country-specific variables (growth in Gross domestic product (GDP), corporate governance index (CGI) and inflation rate) that may affect firm performance are employed as control variables in this study following previous research (see, e.g. Chakraborty et al., 2019; Shakil, 2021; Benlemdih and Girerd-Potin, 2017; Abdul

Razak et al., 2020; Lee et al., 2016; Hoepner et al., 2016). A summary of variables and their measurements is provided in Table 4.4.

Table 4.4 Variable Measurement

VARIABLES	LABELS	MEASUREMENTS
<i>DEPENDENT VARIABLES (Source: Refinitiv Eikon Database)</i>		
Systematic Risk	BETA	Firm betas are extracted from Refinitiv Eikon Datastream
Total Risk	TRSK	Annualised standard deviation of monthly returns of stocks
Default Risk	DFSK	Altman's Z Score
Credit Risk	CRSK	Cost of debt
<i>INDEPENDENT VARIABLES (Source: Refinitiv Eikon Datastream)</i>		
ESG Score	ESG	Represents the weighted average of the ESG scores to comprehensively evaluate the impact of sustainability and corporate conduct.
Environmental Score	ENV	The environmental dimension of ESG performance.
Social Score	SOC	The social dimension of ESG performance.
Governance Score	GOV	The governance dimension of ESG performance.
<i>CONTROL VARIABLES (Source: Refinitiv Eikon Datastream)</i>		
Firm-specific		
Firm Size	SIZE	The logarithm of the annual total assets of the firm
Firm Profitability	ROA	Return on assets
Financial leverage	LEV	Total debt divided by total asset
Market-to-book value equity	MTB	Market-to-book value of equity
Country-specific		
Gross Domestic Product Growth Rate	GDPGrowth	Annual percentage growth rate of GDP per capita
Corporate Governance Index	CGI	The country's Worldwide Governance Indicator (WGI) measures six indicators (voice and accountability, political stability and absence of violence, governmental effectiveness, regulatory quality, the rule of law, and control of corruption).
Inflation	INF	Inflation rate

4.4 DATA ANALYSIS

This research employs Stata Software Version 17 for data analysis. The analysis begins by summarising the data through descriptive statistics, presenting the mean, standard deviation, and data range to outline each variable's characteristics and identify patterns. Further, a correlation matrix was produced to depict the correlation coefficients between sets of variables. To ensure the integrity and reliability of the data, several diagnostic tests were conducted to check for adherence to regression assumptions, including normality, outliers, multicollinearity, time and individual effect, heteroscedasticity, and autocorrelation assumption. The normality of the residuals was determined using the Shapiro-Wilk normality test. Winsorisation was utilised to cater to the issue of outliers. The study checked for multicollinearity using Pearson correlation and the variance inflation factor (VIF). The 'testparm' command helped identify any year and industry effects, while the Modified Wald test detected heteroscedasticity. Lastly, autocorrelation was examined through the Wooldridge test, ensuring the data's suitability for further regression analysis.

Following the diagnostic tests, regression analysis was employed to establish the relationship between a set of variables. This statistical technique is instrumental in estimating the potential impact of specific variables on a dependent variable, which is a firm risk. It allows the researcher to examine if the empirical relationships observed align with theoretical predictions. Subsequently, a moderation analysis was conducted to determine whether the relationship between two variables (ESG practice and firm risk) depends on the value of a third variable (country ESG). This part of the analysis describes a scenario where the relationship between two factors varies based on the influence of an additional variable.

This study conducted additional analyses to understand how ESG practices and their individual components influence firm risk. In the first additional analysis, the research evaluated the effect of ESG practices on firm risk by comparing Shariah-compliant firms with their non-Shariah-compliant counterparts. Additionally, it explored how each of the three ESG components affects different measures of firm risk in these firms. The study also conducted separate analyses for firms operating within the ASEAN and GCC regions, recognising the potential influence of geographical

factors. This approach allowed for examining whether regional differences could affect the study's main findings, facilitating a comparative analysis between firms in the ASEAN and GCC regions.

4.5 REGRESSION MODELS

The regression analysis was performed to investigate whether 1) Aggregate ESG score was the predictor of firm risk, 2) three components of ESG (environmental, social, and governance) were the predictors of firm risk, and 3) a country's ESG score was a moderator in the relationship between ESG practice and firm risk. A stepwise approach was performed to provide a better sense of the relative weighting of the investigated variables. The predictor variables were first entered into the regression, followed by the moderation effect. Thus, three regression models were developed and estimated. Model 1 and Model 2 examine the direct relationship between aggregate ESG and its three components with firm risk. Model 3 reflects the moderating role of a country's ESG score in the relationship between ESG practice and firm risk. The use of separate regression models in assessing direct and interaction effects can also be found in several studies (e.g., Shakil, 2021; Abdul Razak et al., 2022; Stellner et al., 2015). The following sub-section explains the regression models used in this study.

a. Model 1: Model specification for testing H1

Model 1 examined the direct impact of ESG practice (H1) on firm risk. Hypotheses 1 (H1.1 to H1.4) would be accepted if ESG practice was significantly and negatively related to firm risk measures (systematic, total, default, and credit risk). On the other hand, these hypotheses would be rejected when the relationship is inverse. The relationship between independent variable and firm risk is exhibited in the following equation:

$$\text{FIRM RISK}_{it} = \beta_0 + \beta_1 \text{ESG}_{it} + \beta_2 \text{SIZE}_{it} + \beta_3 \text{ROA}_{it} + \beta_4 \text{LEV}_{it} + \beta_5 \text{MTB}_{it} \dots (4.1) \\ + \beta_6 \text{GDPGrowth}_{it} + \beta_7 \text{CGI}_{it} + \beta_8 \text{INF}_{it} + \varepsilon_{it}$$

Where,		
I	=	Refers to firm
T	=	Refers to year
β_0	=	Intercept
FIRM RISK	=	Firm risks which are proxied by systematic risk, total risk, default risk, and credit risk
ESG	=	The independent variable is the ESG score, measured by the three components' ENV, SOC, and GOV scores.
SIZE	=	The logarithm of the annual total assets of the firm
ROA	=	Return on assets
LEV	=	Total debts divided by total assets
MTB	=	Firm growth is measured by the market-to-book equity ratio.
GDP Growth	=	Annual percentage growth rate of GDP per capita
CGI	=	The country's Worldwide Governance Indicator (WGI) measures six indicators (voice and accountability, political stability and absence of violence, governmental effectiveness, regulatory quality, the rule of law, and control of corruption).
INF	=	Inflation rate
E	=	Error term

b. Model 2: Model specification for testing H2

Model 2 examined the direct impact of environmental (H2.1), social (H2.2), and governance (H2.3) on firm risk. Hypotheses 2.1, 2.2, and 2.3 would be accepted if the components of ESG (ENV, SOC, and GOV) practice were significantly and negatively related to firm risk measures (systematic, total, default, and credit risk). On the other hand, these hypotheses would be rejected when the relationship is inverse. The relationship between these three variables and firm risk is exhibited in the following equation:

$$\text{FIRM RISK}_{it} = \beta_0 + \beta_1\text{ENV}_{it} + \beta_2\text{SOC}_{it} + \beta_3\text{GOV}_{it} + \beta_4\text{SIZE}_{it} + \beta_5\text{ROA}_{it} + \beta_6\text{LEV}_{it} + \beta_7\text{MTB}_{it} + \beta_8\text{GDPGrowth}_{it} + \beta_9\text{CGI}_{it} + \beta_{10}\text{INF}_{it} + \varepsilon_{it} \quad (4.2)$$

Where,

I	=	Refers to firm
T	=	Refers to year
β_0	=	Intercept
FIRM RISK	=	Firm risks which are proxied by systematic risk, total risk, default risk, and credit risk
ENV	=	The environmental score of ESG practice
SOC	=	The social score of ESG practice
GOV	=	The governance score of ESG practice
SIZE	=	The logarithm of the annual total assets of the firm
ROA	=	Return on assets
LEV	=	Total debts divided by total assets
MTB	=	Firm growth is measured by the market-to-book equity ratio.
GDP Growth	=	Annual percentage growth rate of GDP per capita
CGI	=	The country's Worldwide Governance Indicator (WGI) measures six indicators (voice and accountability, political stability and absence of violence, governmental effectiveness, regulatory quality, the rule of law, and control of corruption).
INF	=	Inflation rate
E	=	Error term

c. Model 3: Model specification for testing H3

Model 3 examined the moderating effects of a country's ESG on the relationship between ESG (aggregate ESG) and firm risk. Hypothesis 3 is accepted if the negative impact of ESG on firm risk is strengthened when the country's ESG is inserted into the equation. This relationship was analysed based on the following model:

$$\begin{aligned} \text{FIRM RISK}_{it} = & \beta_0 + \beta_1 \text{ESG}_{it} + \beta_2 \text{CS}_{it} + \beta_3 \text{ESG} * \text{CS}_{it} + \beta_4 \text{SIZE}_{it} + \beta_5 \text{ROA}_{it} \dots (4.3) \\ & + \beta_6 \text{LEV}_{it} + \beta_7 \text{MTB}_{it} + \beta_8 \text{GDPChange}_{it} + \beta_9 \text{CGI}_{it} \\ & + \beta_{10} \text{INF}_{it} + \varepsilon_{it} \end{aligned}$$

Where,

ESG*CS = The interaction term between ESG practice and Country's ESG

4.6 SUMMARY

This chapter discusses the research methodology employed in this study, which describes the research design, sample selection, period of study, and data collection method. A total of 643 listed firms in 12 countries were selected, covering the period from 2011 to 2021. Then, the measurement of all dependent, independent, and control variables is explained in detail. Finally, the data analysis procedures used in this study and the regression models used to test the hypothesis are also shown. This study is considered wholly quantitative, as the research design uses secondary data from databases. Data was extracted directly from the related databases and websites. The following chapter discusses the outcome of this quantitative investigation.

CHAPTER FIVE

RESULTS AND DISCUSSIONS

5.1 INTRODUCTION

This chapter explores the results derived from the data analysis. Initially, Section 5.2 offers a broad overview of the descriptive statistics for all the variables used in the study, focusing on ESG practice, ESG components, and firm risk. Section 5.3 discusses the outcomes of diagnostic tests, which verify the assumptions related to normality, outliers, multicollinearity, the effects of time and individual effects, heteroscedasticity, and autocorrelation. The rationale behind choosing a particular regression model is explored in Section 5.4. The findings from the regression analysis are then presented and examined in Section 5.5. To further explore the impact of independent variables on dependent variables, several additional analyses were performed and discussed in Section 5.6. Lastly, Sections 5.7 and 5.8 summarise the key findings and the overall content of this chapter.

5.2 DESCRIPTIVE STATISTICAL RESULTS

In this section, the descriptive statistics for all variables will be presented. This is followed by a thorough discussion of descriptive statistics for dependent and independent variables in this study.

5.2.1 Descriptive Statistics for Dependant Variables

This section offers an initial descriptive analysis of the variables under study, followed by a detailed examination across different periods, sectors, and regions. Table 5.1 presents the descriptive statistics, covering risk measures, explanatory variables, and control variables, providing a comprehensive overview of the dataset utilised in this research.

The descriptive statistics for the dependent variables within the dataset provide insight into the risk profiles of these companies. The mean values of the risk measures are comparable to prior research on firm risk (Bouslah et al., 2013; Sassen et al., 2016; Shakil, 2021; La Rosa et al., 2018; Erragragui, 2018; Eliwa et al., 2021). For instance, the mean for Beta, which represents a systematic risk in this study (0.799), sitting just below the market equilibrium of 1, indicates that the average firm in the sample is less volatile than the market. Beta measures the sensitivity of a firm's stock returns to overall market movements. However, a standard deviation of 0.443 points to a significant spread in the systematic risk among the firms, with the range extending from slightly negative to markedly above one (-0.17 to 2.06), suggesting a mix of both defensive and aggressive stock characteristics within the sample.

In terms of total risk, the average total risk score is 1.672, but the high standard deviation (3.576) and the broad range from 0.004 to 19.844 imply a diverse risk landscape, with some firms exhibiting nearly negligible risk and others facing extremely high levels of risk. As for the default risk, it shows a similar pattern of diversity with a mean of 4.09 and a substantial standard deviation of 4.529, which hints at moderate risk. However, the minimum and maximum values (-0.3 to 26) imply that some firms are viewed as nearly risk-free while others are considered highly prone to default.

Lastly, the average credit risk also indicates moderate risk (4.567) but with substantial variability among firms, as noted in the standard deviation of 3.269. The minimum value of 0.361 indicates that the lowest credit risk in the sample is above zero, while the maximum value of 23.618 suggests that some firms are perceived to have very high credit risk. In summary, while the average values for systematic risk (Beta) and credit risk indicate that the firms are, on average, less volatile than the market and have moderate credit risk, the wide ranges and high standard deviations for all risk measures indicate substantial heterogeneity in risk profiles within the sample. This suggests a diverse set of firms with varying degrees of risk.

5.2.2 Descriptive Statistics for Explanatory Variables

The dataset's independent variables, encompassing aggregate ESG scores and its three components (ENV, SOC, and GOV) scores, reveal various levels of ESG engagement among the firms within the datasets. ESG scores range between 0 to 100, with high scores indicating strong performance in the category. As shown in Table 5.1, the overall ESG score averages 41.623, indicating a moderate level of ESG performance among the firms. The minimum score is relatively low at 0.72; however, it suggests that all firms in the sample have some degree of ESG practices in place, while the maximum score of 92.09 shows that some firms are high performers in ESG practice.

For the three components of ESG, the results show that the mean for the GOV score had the highest value (48%), followed by the mean of the SOC score (43%), while the mean for the ENV score had the lowest value among the firms (34%). The ENV component of the ESG score shows a mean of 33.74 and a standard deviation of 25.62, the largest standard deviation among the ESG components. This suggests a wide range of environmental performance, from a minimum score of 0 (indicating no or low environmental initiatives) to a high of 97.52, which suggests very strong environmental practices in place.

The SOC score averages 43.01, with a standard deviation of 24.43. This variance indicates diverse social practices among the firms, with scores ranging from 0.05, nearly non-existent, to 97.34, which denotes strong social engagement. On the other hand, the GOV score has an average of 47.55 with a standard deviation of 22.16, showing a spread of governance standards within the sample. The range from 0.45 to 98.72 suggests that while most firms have some governance mechanisms, the extent and effectiveness of these mechanisms vary widely.

In summary, while the sample firms all engage in ESG practices to some degree, as indicated by the minimum scores above zero for all three components, there is considerable heterogeneity in how firms score across ENV, SOC, and GOV dimensions. This variability points to different levels of commitment and effectiveness in addressing ESG concerns, with some firms exhibiting very high ESG performance and others much less so.

Table 5.1 Descriptive Statistics (Whole Sample)

Variable	Obs	Mean	Std. Dev.	Min	Max
Beta	2898	.799	.443	-.17	2.06
Total risk	2898	1.672	3.576	.004	19.844
Default risk	2898	4.09	4.529	-.3	26
Credit risk	2898	4.567	3.269	.361	23.618
ESG	2898	41.623	20.263	.72	92.09
ENV	2898	33.738	25.622	0	97.52
SOC	2898	43.067	24.433	.05	97.34
GOV	2898	47.554	22.156	.45	98.72
SIZE	2898	14.922	1.447	11.21	18.226
ROA	2898	7.379	7.905	-12.32	44.82
MTB	2898	3.289	5.838	.15	46.92
LEV	2898	28.938	17.379	.2	72.2
CGI	2898	1.802	4.171	-2.566	9.909
INF	2898	1.635	1.93	-2.54	6.395
GDPChange	2898	2.249	4.066	-9.518	7.614

Where: BETA = systematic risk; Total risk = standard deviation of a firm's stock returns; Default risk = Altman Z-score; Credit risk = cost of debt; ESG = total ESG score; ENV = environmental score; SOC = social score; GOV = governance score; SIZE = natural logarithm of the firm's total assets; ROA = firm's profitability; MTB = Firm growth; LEV = total debt divided by total assets; CGI = country's governance indicators; INF = inflation rate; GDPChange = country economic growth

Table 5.1 also reports the descriptive statistics results for control variables in all samples. The descriptive statistics for the control variables in the sample firms provide a snapshot of their financial and economic context. The average firm size (SIZE) is moderately large (14.92), but the spread is relatively small (1.45), suggesting that most firms in the sample are of a similar size. The minimum and maximum values are 11.21 and 18.23, respectively, which reinforces this observation of a sample of firms that are relatively close in size. The firms' mean profitability (ROA) is 7.38, with a high standard deviation of 7.91, which suggests considerable variation in profitability among the firms. The range is quite broad, with a minimum of -12.32 (indicating losses for some firms) and a maximum of 44.82, pointing to high performers (highly profitable).

In addition, the average market-to-book (MTB) value is 3.289, with a standard deviation of 5.84, showing significant variability in how the firms are valued relative to their book values. This ratio varies from a low of 0.15 to a high of 46.92, indicating diverse growth and valuation characteristics in the sample, with some firms valued closely to their book value and others at a substantial premium. Leverage (LEV) ratios vary extensively, where the mean is high at 28.94, with a standard deviation of 17.38, reflecting a wide disparity in leverage across firms. Leverage ratios range from 0.2 to 72.2, suggesting a mix of conservative and highly leveraged firms.

For country-level control variables, the corporate governance quality index, indicated by CGI, varies significantly across countries, from poor to excellent standards. The country's average CGI is 1.80, with a standard deviation of 4.17, implying significant cross-country variation in governance quality. The minimum CGI is -2.57, which may indicate poor governance standards, while the maximum is 9.91. Inflation rates (INF) also differ, where the mean inflation rate is 1.64 with a standard deviation of 1.93, which indicates varying inflation environments across the sample countries. The range from -2.54 to 6.40 suggests that some countries experienced deflation while others had relatively high inflation rates. Lastly, GDP growth rates (GDPChange) across the sample offer a diverse economic dynamic. The average GDP growth rate across the sample is 2.25, with a standard deviation of 4.07, indicating varied economic growth rates across countries. The minimum of -9.52 could reflect an economic contraction, while the maximum of 7.61 suggests robust growth in others.

Together, these statistics offer an overview of the sample, highlighting significant diversity in profitability, growth characteristics, and economic contexts of the firms and countries represented in the dataset.

5.2.3 The Aggregate ESG and ESG Components

Figure 5.1 shows that ESG practice shows a general upward trend over the year except for 2020. Starting from a value of around 33.41 in 2011, there is a consistent increase each year, reaching the highest value of 44.7 in 2021. This suggests a growing emphasis or improvement in ESG metrics over this period. The downward trend of ESG practices

in 2020 can largely be attributed to the disruptions caused by the COVID-19 pandemic. Due to the crisis, many companies had to temporarily pause their ESG initiatives to focus on crisis management and business continuity. Economic challenges and reduced revenues due to the pandemic resulted in budget cuts, affecting investments in ESG projects. The immediate focus shifted towards addressing urgent health and operational challenges, possibly at the expense of broader ESG goals. Despite this temporary setback, the pandemic has also reinforced the importance of resilient and sustainable business models, potentially setting the stage for a stronger emphasis on ESG practices in the post-pandemic era. As a result, while there may have been a temporary dip in 2020, the long-term trajectory for ESG practices could be positively influenced by the lessons learned during the pandemic.

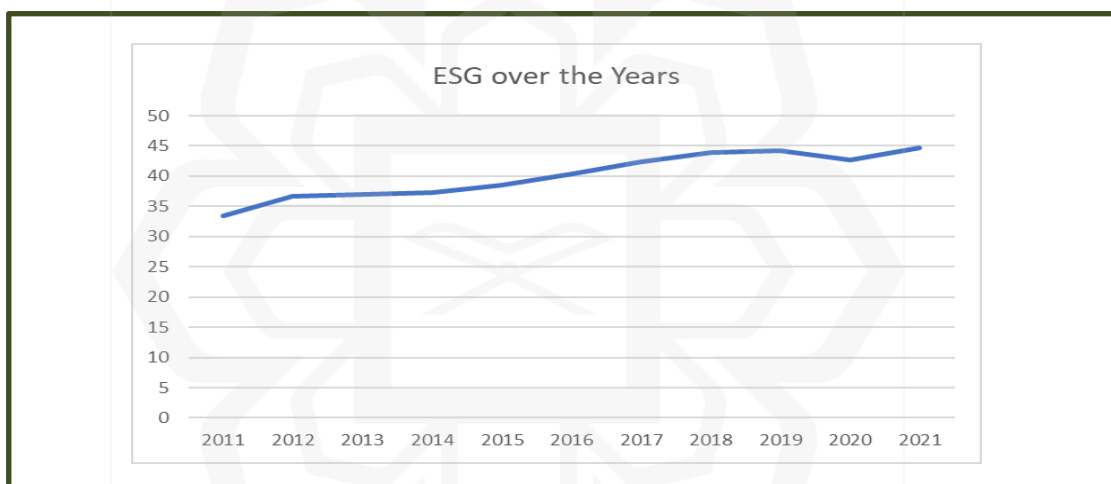


Figure 5.1 ESG Over the Years

Additional information is provided in Figure 5.2, which shows that E, S, and G scores have risen over time. Among these, governance scores were disclosed most frequently, whereas environmental information saw the least disclosure.

The environmental (ENV) scores start at 25% in 2011 and generally increase throughout the period, with some fluctuations. The highest value is observed in 2021 at 36%, indicating an overall positive trend in environmental factors. The social (SOC) scores also exhibit an upward trend, beginning with 32% in 2011 and ending with 46% in 2021. This suggests that social components have notably improved or increased focus over the decade. The governance (GOV) scores start at 44% in 2011 and show an overall

increase, reaching the peak in 2021 with a score of 50%. This indicates a progressive enhancement in governance aspects over these years.

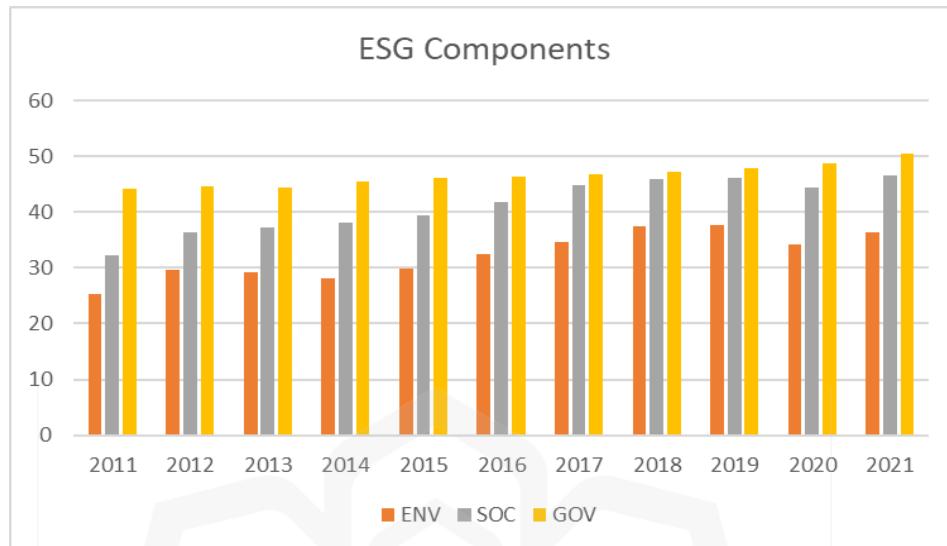


Figure 5.2 ESG Components over the Years

In summary, all four variables (ESG, ENV, SOC, and GOV) display positive trends over the decade, with each year generally increasing from the previous one. This data could reflect a growing commitment to environmental, social, and governance issues.

5.2.4 Performance of Firm Risk

Figure 5.3 presents this study's dependent variables (firm risks) from 2011 to 2021: Beta, Total risk, Default risk, and Credit risk. As shown in the figure, Beta displays a general downward trend, from 0.86 in 2011 to 0.72 in 2021, with a slight increase in the final year. Beta measures the volatility of an investment compared to the market as a whole; a beta less than 1 indicates less volatility than the market, while a beta greater than 1 indicates higher volatility. The decreasing trend suggests that the investment or portfolio became less volatile and potentially less risky than the market over this period.

The total risk fluctuates without a clear long-term trend, indicating variability in the total risk associated with the investment or portfolio over the years. Total risk

encompasses all the uncertainties associated with an investment and is measured using the standard deviation of the investment's returns. The lack of a clear trend suggests inconsistent changes in the investment's risk profile.

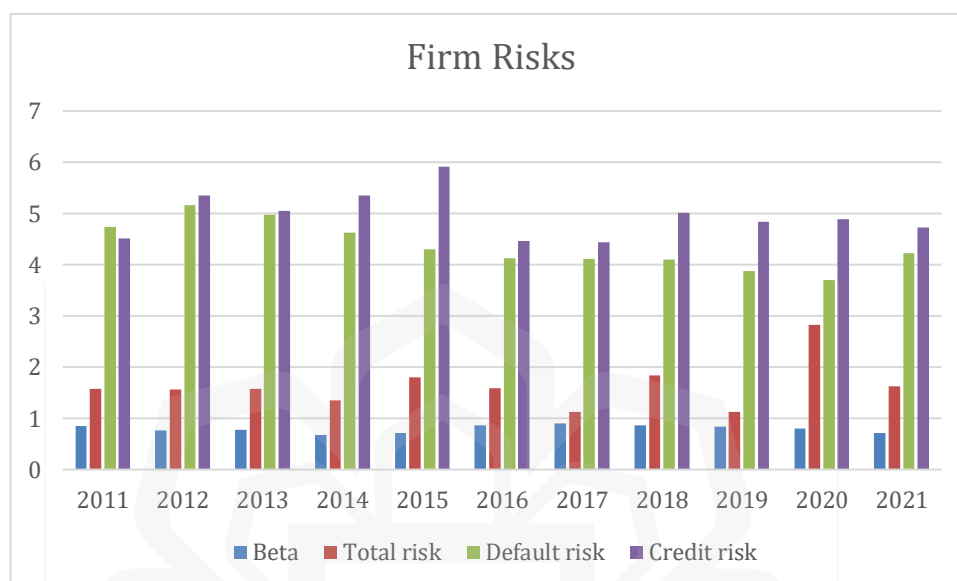


Figure 5.3 Average Firm Risk over the Years

As for the default risk, it also fluctuates throughout the years, starting at 4.7 in 2011 and decreasing to 4.2 in 2021. Default risk is associated with the possibility that a debt instrument issuer (such as a bond) fails to fulfil its payment obligations. The overall decrease suggests a reduction in the perceived risk of default over time, which could indicate an improvement in the financial stability of the issuers included in the investment or portfolio.

Lastly, the credit risk generally shows an upward trend, starting at 4.5 in 2011 and increasing to 4.7 in 2021, with a notable dip in 2016 and 2019. Credit risk refers to loss due to a borrower's failure to make payments as agreed upon in a contract. The increase in credit risk suggests that there may have been a perception of higher risk associated with the creditworthiness of the borrowers or issuers within the portfolio over time.

These trends are significant because they reflect the risk profile and stability of the investment or portfolio over time. A decrease in beta suggests that the investment

may have become more conservative or less speculative relative to the market. Changes in total risk reflect the volatility of returns, which is crucial for investors to understand when gauging the overall risk of their investment. Decreases in default risk suggest improved financial health of the entities holding securities in the portfolio. In contrast, increases in credit risk might imply a need for investors to reassess their risk tolerance and investment strategy.

5.2.5 ESG Performance by Sectors

Figure 5.4 shows the scores across different sectors for ESG and three of its components. The descriptive results reflect that the energy sector has the highest ESG score (53.1), indicating a strong overall performance in ESG criteria within this sector. The healthcare sector has the lowest score (36.9), which might suggest areas for improvement in integrating ESG practices or reporting them. Higher ESG scores typically indicate better risk-adjusted returns and may attract more investments.

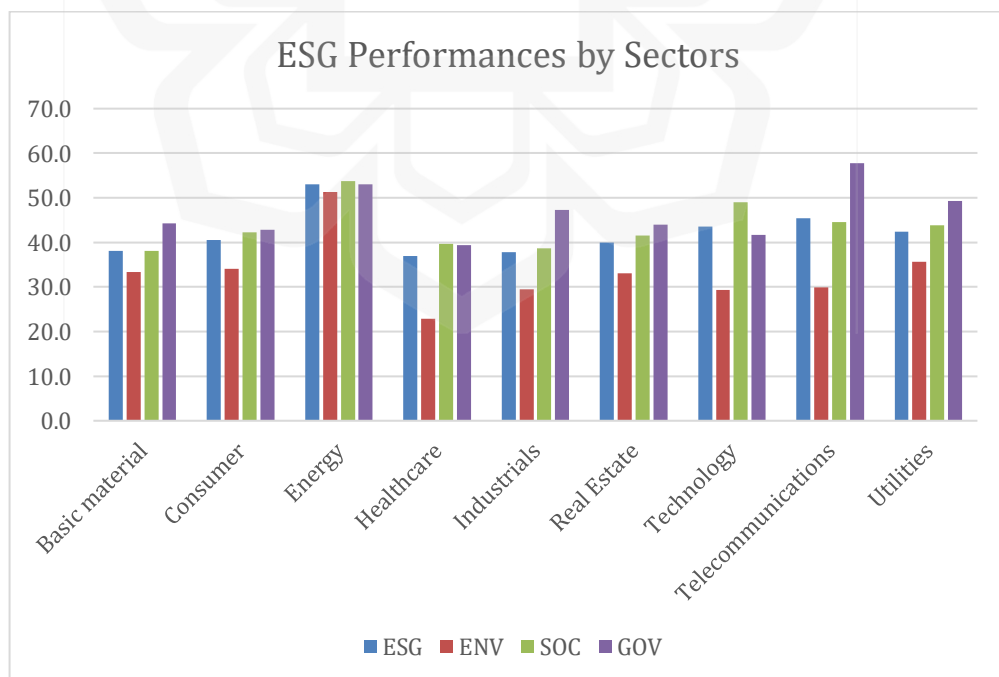


Figure 5.4 ESG and ESG Components Performance by Sectors

The energy sector scores the highest for ENV practices, similar to the ESG scores (51.3). This could suggest that this sector is making significant investments in reducing environmental impact or is more actively disclosing environmental practices. The healthcare sector again has the lowest score (22.9), indicating potential for improvement in environmental stewardship within this sector.

The energy sector leads again with the highest score (53.7) in SOC components, suggesting strong social practices, such as community engagement, labour standards, and human rights practices. Conversely, the basic material sector has the same score as its ESG score (38.1), the lowest in the social component, potentially indicating less focus on social issues or less disclosure in this area.

For the GOV component, the telecommunications sector has the highest governance score (57.7), which may reflect robust internal practices regarding leadership, audits, internal controls, and shareholder rights. The technology sector, however, has the lowest governance score (41.8), which might indicate a need for stronger governance structures or more transparency in corporate practices.

These scores are significant as they show how different sectors perceive ESG performance. They can influence investment decisions as many investors now incorporate ESG criteria into their analysis, seeking to minimise risk and ensure that their investments align with broader social and environmental objectives. Higher scores can also enhance a company's reputation and may indicate a lower risk profile, which can attract investors. Conversely, lower scores can highlight potential risks or areas for improvement that companies may need to address to remain competitive.

5.2.5.1 ESG Score Distribution by Year

Figure 5.5 analyses the ESG scores from sectors within ASEAN and GCC countries from 2011 to 2021. The data reflects not only global trends but also regional responses to ESG pressures that are influenced by unique socio-economic and political landscapes.

The upward trend in the energy sector's ESG scores could indicate the region's response to global demands for sustainability and cleaner energy, a key issue given the significant role of oil and gas industries in GCC economies. This sector has historically faced scrutiny over environmental concerns, leading to a stronger emphasis on sustainable practices and a transition to cleaner energy sources. As part of their vision for the future, the commitment to diversifying economies and investing in renewable energy sources may contribute to these improved scores.

The healthcare sector's rise in ESG scores might reflect the increased investments in healthcare infrastructure and services. This trend has been especially pronounced as the COVID-19 pandemic highlighted the critical importance of robust healthcare systems. In ASEAN and GCC countries, with a mix of mature and rapidly developing healthcare systems, such improvements are likely a response to international health standards and local health needs.

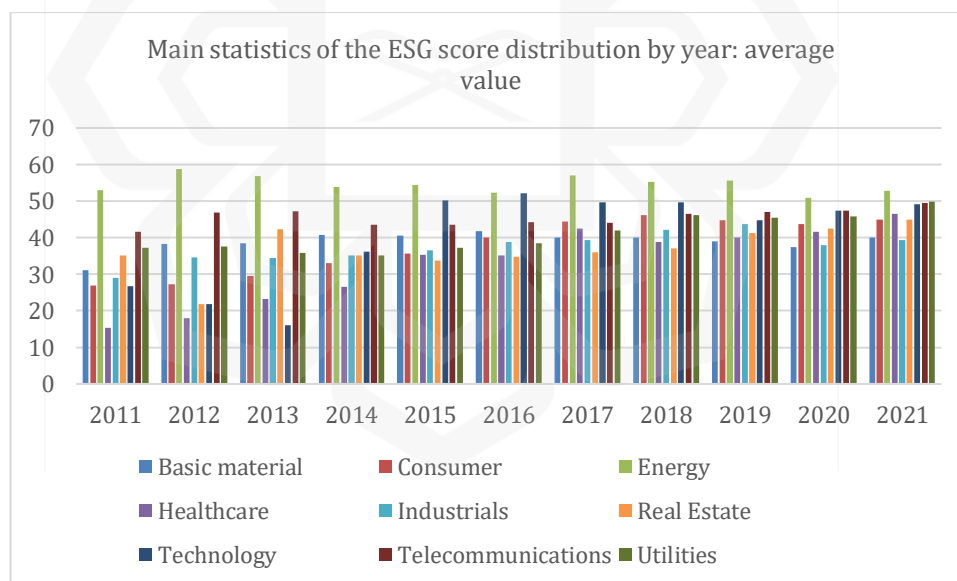


Figure 5.5 ESG Score Distribution By Year

For the technology sector, the increase in ESG scores post-2014 suggests that firms in the ASEAN and GCC regions are becoming increasingly aware of and responsive to issues such as cybersecurity, data privacy, and the ethical use of

technology. This reflects a global trend likely driven by these regions' rapid digital transformation and tech adoption rates.

The telecommunications sector's positive ESG trajectory could be due to the crucial role of telecommunications in supporting digital economies and the regions' initiatives to improve connectivity and digital infrastructure, which are key priorities in both ASEAN and GCC strategies for economic growth.

Utilities have shown steady ESG score improvements, likely reflecting investments in infrastructure that aim to increase energy efficiency and reduce environmental impact. This is particularly relevant in the GCC region, where water and electricity subsidies have been reduced, pushing utilities towards more sustainable practices.

The stability and slight increase in basic materials' ESG scores suggest a gradual adoption of more sustainable and responsible sourcing practices, which may be driven by regulatory frameworks and the global commodity market's increasing focus on sustainability.

The consumer and industrial sectors' volatility may reflect the diverse challenges and progress across different industries and countries. These sectors are influenced by various factors, including labour practices, supply chain management, and consumer behaviour, which can vary significantly across the ASEAN and GCC regions.

Lastly, the real estate sector's increasing ESG scores post-2012 could be attributed to a growing emphasis on sustainable construction and development practices. Sustainable real estate practices are becoming increasingly important in the ASEAN region, with its rapid urbanisation, and the GCC region, focusing on building smart cities.

Overall, the data suggests that while global trends influence ESG scores, regional factors such as economic diversification plans in the GCC and ASEAN's development objectives also play a significant role. The improvements in ESG scores

across sectors in these regions demonstrate a commitment to integrating sustainable practices in line with global standards while addressing regional priorities and challenges.

5.2.5.2 Environmental Score Distribution by Year

Figure 5.6 shows ENV scores by sector from 2011 to 2021 within ASEAN and GCC countries and offers insights into how various industries have prioritised environmental aspects of ESG over time.

Starting with the technology sector, which had an initial score of zero for the first two years, there was a remarkable increase from 2014 onwards, reflecting perhaps a growing recognition of environmental responsibilities within the tech industry. This may be due to the increased focus on reducing electronic waste, improving energy efficiency, and addressing the environmental impact of data centres and manufacturing processes.

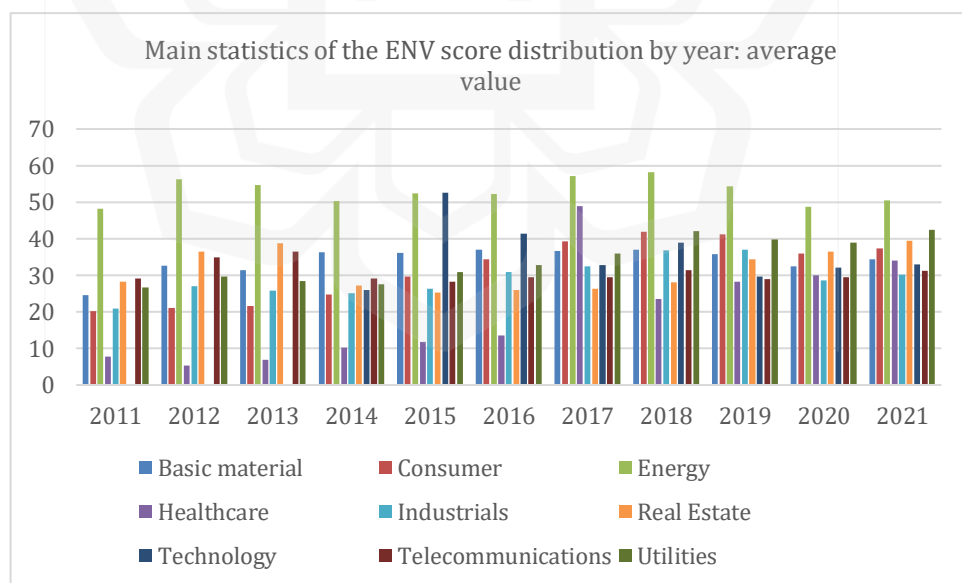


Figure 5.6 ENV Score Distribution by Year

The energy sector shows a mostly upward trend, with a peak in 2012 followed by some volatility. The high scores in the early years could be attributed to the sectors in these regions beginning to address environmental concerns, possibly due to external pressures such as international agreements on climate change and internal policies aimed at reducing carbon emissions. The subsequent variations could reflect these sectors' challenges in balancing profitability with environmental sustainability, especially in oil-rich GCC countries where the economy heavily depends on fossil fuels. Here, the struggle to align economic reliance on fossil fuels with the imperative of environmental sustainability becomes evident.

In the healthcare sector, the scores start low but consistently increase over the years. This could be due to the sector's gradual implementation of environmentally friendly practices, such as reducing waste and improving energy efficiency in healthcare facilities. The COVID-19 pandemic may also have played a role in further emphasising the need for sustainable healthcare practices.

Next, utility sectors present a steady increase, which could be linked to efforts in improving water and energy efficiency, reducing greenhouse gas emissions, and the gradual introduction of renewable energy sources. This shift is particularly significant, especially in the context of the GCC country's move towards diversifying its energy resources.

The basic material sector sees a general upward trend, potentially reflecting improvements in mining and manufacturing practices, such as reducing emissions and enhancing resource efficiency, driven by regulatory changes and sustainability initiatives.

On the other hand, the real estate sector fluctuates but generally trends upward from 2014 onwards, indicating a possible increase in green building practices and sustainable property management. This shift is especially pronounced in the rapidly urbanising ASEAN economies, which are facing dual development and sustainability challenges.

Though it shows some fluctuations, the telecommunications sector maintains a relatively stable trend overall. This sector's environmental impact is less direct. Still, the scores may reflect initiatives to reduce the environmental footprint of network infrastructure and operations, reflecting an industry-wide recognition of its environmental responsibilities.

Finally, the consumer and industrial sectors show some fluctuations. These variations might be due to the diverse sub-industries within these sectors and their different rates of adopting environmentally sustainable practices, such as reducing packaging waste or improving product lifecycle management.

The trends in the table suggest that while there has been a general improvement in environmental scores across sectors in ASEAN and GCC countries, the pace and consistency of these improvements vary significantly. These variations could be due to factors such as the inherent environmental impacts of the industries, the level of environmental regulation and enforcement in different countries, shifts in consumer behaviour towards more sustainable products and services, and the overall economic development stage of the country in question. The increasing scores over time also reflect a growing regional commitment to addressing environmental issues, which is becoming more important to investors, regulators, and consumers.

5.2.5.3 Social Score Distribution by Year

Figure 5.7 shows SOC scores by sector for ASEAN and GCC countries from 2011 to 2021. It offers a window into how various industries have evolved regarding their social responsibilities and stakeholder engagement.

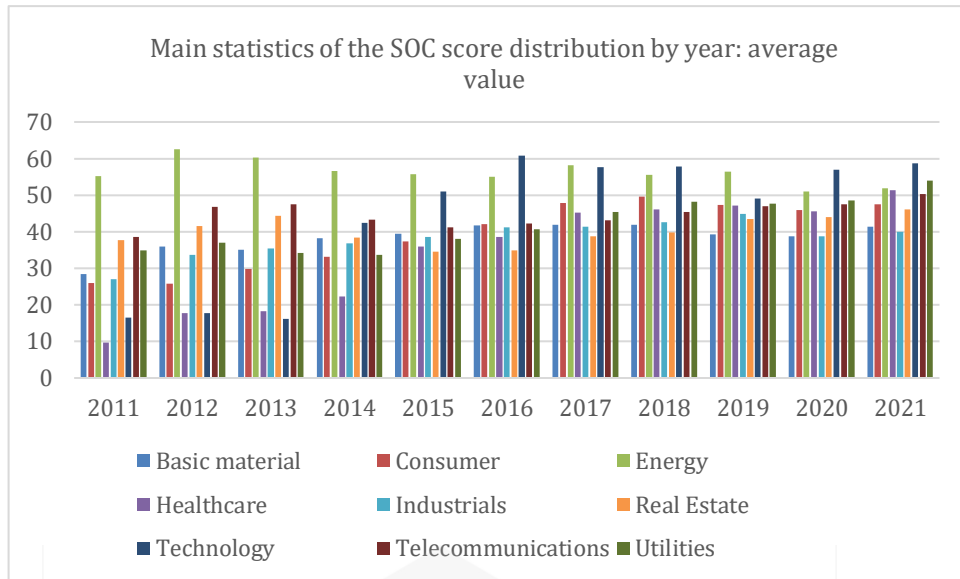


Figure 5.7 SOC Score Distribution by Year

The energy sector demonstrates a progressive increase in SOC scores, reaching a plateau in recent years. This trend likely reflects the sector's increased focus on community engagement, safety standards, and possibly initiatives aimed at social investment, particularly within regions that are significant oil and gas producers. The stabilisation may suggest that early initiatives have matured, and further advancements may require profound changes in corporate social strategies.

The healthcare sector's similar upward movement in SOC scores may be associated with the sector's critical societal role. The increase could be attributed to enhanced access to medical care, ethical practices, and responses to global health challenges, underscored by the sector's central role during the COVID-19 pandemic. This suggests a growing recognition of the importance of social factors in healthcare delivery within these regions, reinforcing the sector's commitment to societal well-being.

Moving towards the industrial sector, Figure 5.7 shows a general upward trend in SOC scores. Since this sector often involves significant labour forces and impacts local communities, the rise may reflect improvements in labour practices, safety measures, and community relations, possibly driven by regulatory reforms and increased social awareness.

The real estate sector has experienced a slight increase from 2014 onwards, possibly indicating a shift towards more sustainable community development, affordability, and stakeholder engagement. This could be in response to urbanisation challenges, where the integration of social factors is increasingly seen as vital to sector sustainability.

The technology sector has seen a marked increase since 2014, which may correspond with the sector's expanding influence on society. Issues such as digital inclusion, ethical data use, and the social implications of AI and automation have become central to the social footprint of tech companies.

The Telecommunications sector displays a steady increase, likely due to the sector's efforts to improve access to communication, which has become ever more critical in a world where digital connectivity is essential for social inclusion.

The utilities sector shows a consistent rise, potentially reflecting a commitment to improving service delivery and ensuring equitable access to utilities. This sector's social considerations are crucial, given its direct impact on the quality of life.

In the consumer sector, moderate variations, yet an overall upward trend, suggest an ongoing effort to address consumer welfare and ethical concerns. This movement is particularly relevant considering global consumer movements and the scrutiny of supply chains, reflecting a growing commitment to ethical business practices.

Lastly, the basic materials sector exhibits a similar pattern, with the upward trend possibly indicating improvements in working conditions and sustainable sourcing practices, driven by global sustainability initiatives and consumer demand for ethically produced materials.

These trends underscore a broader regional push within ASEAN and GCC countries towards greater corporate social responsibility. The scores reflect a dynamic interplay between global social issues, regional developments, and industry-specific factors. The upward trends across most sectors indicate a heightened awareness and

incorporation of social considerations into business operations, likely influenced by consumer advocacy, international pressure for social stewardship, and the social imperatives brought into sharp focus by the pandemic.

5.2.5.4 Governance Score by Year

The provided table of Governance (GOV) scores by sector from 2011 to 2021 for ASEAN and GCC countries shows how different industries have adapted and changed governance practices over the decade.

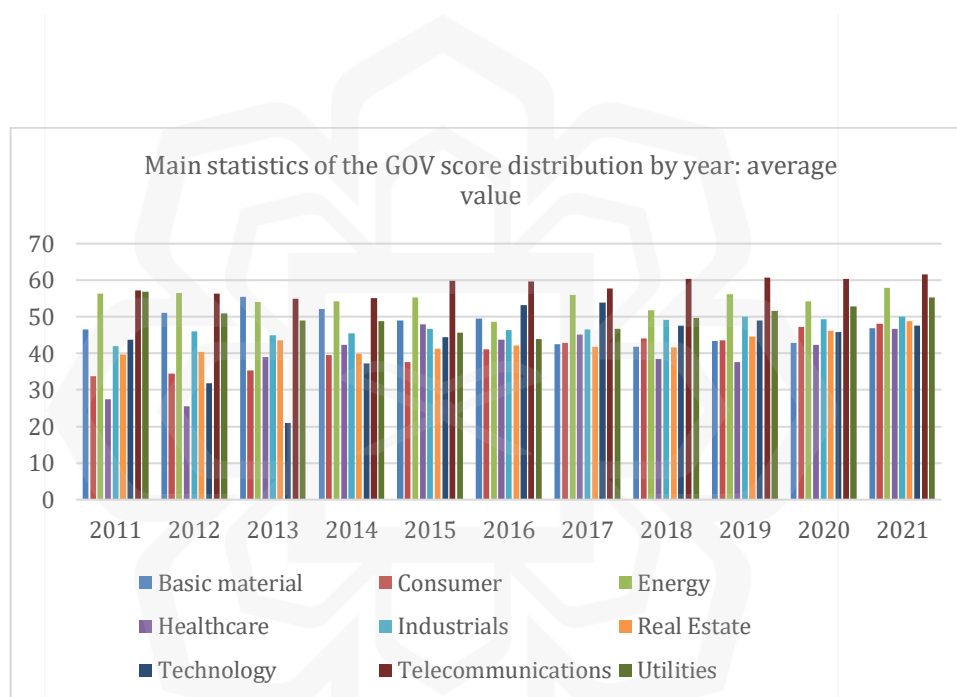


Figure 5.8 GOV Score Distribution by Year

An overall upward trend in GOV scores in the basic materials sector suggests improvements in corporate governance practices. This sector often deals with natural resources and can have significant environmental and social impacts, so the increased scores might reflect better management, transparency, and accountability in response to global and regional standards.

The consumer sector exhibits a rising trend until 2015, followed by a slight decline and then a plateau. This pattern could be due to evolving consumer expectations around corporate governance, transparency in supply chains, and ethical business

practices, with later years possibly indicating challenges in sustaining initial improvements or the need for more significant governance innovations.

The energy sector has shown relatively high GOV scores throughout the decade, with some fluctuations. The high scores could reflect the substantial regulatory oversight and public scrutiny that this sector typically faces, especially in the GCC countries, which are major energy exporters. The fluctuations might result from the changing dynamics in global energy markets and the push towards sustainability.

In the healthcare sector, there is a noticeable improvement in governance scores over time. This may be related to increased regulatory requirements and the critical nature of this sector to public welfare, highlighted by the global health crisis, driving the need for strong governance structures.

Industrials sectors also demonstrate an overall increase, potentially reflecting the sector's efforts to enhance governance in line with the growing emphasis on corporate responsibility and the complex operational risks that this diverse sector faces.

The real estate sector has seen a significant increase in GOV scores, especially in the early years of the decade, which could be due to the sector's response to the demand for better governance practices in the face of rapid urbanisation and the development of smart cities in both ASEAN and GCC countries.

The technology sector shows a remarkable increase post-2014, indicating a possible shift towards stronger governance as the sector grapples with issues like data protection, intellectual property rights, and the ethical use of technology.

Telecommunications sectors have a generally upward trend, suggesting improvements in regulatory compliance, privacy standards, and stakeholder engagement, which are critical in this sector and are central to information dissemination and connectivity.

Lastly, utility sectors demonstrate a stable trend with high GOV scores, likely due to their essential services and the consequent high level of regulatory scrutiny to ensure reliability, fair pricing, and ethical business conduct.

The overall trends suggest that governance practices have become a focal point across sectors in ASEAN and GCC countries. This increased focus may result from several factors, including international investment standards that demand robust governance, regional efforts to attract foreign investment by demonstrating sound corporate governance, and the global push towards transparency and accountability in the corporate sector. The upward trends in most sectors suggest that businesses in these regions increasingly prioritise governance as a key component of their operational and strategic frameworks.

5.2.6 Performance of Firm Risk by Sectors

Industry-specific factors heavily influence the risk profiles of different sectors, as illustrated in Figure 5.5. The basic material sector has the highest beta (1.03), which could indicate higher risk and potential for higher returns. In contrast, the telecommunications sector has the lowest beta (0.65), indicating it is less volatile and possibly offering more stability but potentially less growth opportunity. The basic materials sector, characterised by industries like mining and chemicals, typically exhibits higher beta values due to its cyclical nature and sensitivity to economic cycles and commodity prices. These industries are often capital-intensive and subject to regulatory and environmental risks, leading to higher volatility and risk and the potential for higher returns during economic upswings. Conversely, with its lower beta, the telecommunications sector represents a more stable and less cyclical industry. This sector's services are often essential, leading to consistent demand and revenues, making it less susceptible to economic downturns and providing investors with more stability, albeit with possibly lower growth opportunities than more volatile sectors.

For total risk, the healthcare sector shows the highest total risk (2.9), suggesting it has the most significant variability in returns. In contrast, the real estate sector shows the lowest total risk (0.77), indicating more stable returns. The healthcare sector's high variability can be attributed to factors such as regulatory approval processes for new treatments, reliance on clinical trial outcomes, and rapidly evolving technology, all of which can introduce significant volatility in stock prices. On the other hand, the real

estate sector tends to be more stable due to the long-term nature of property investments and leases, leading to more predictable cash flows and lower total risk.



Figure 5.9 Firm Risk Performance by Sectors

Default risk refers to companies within the sector that cannot meet their debt obligations. The basic material sector exhibits the highest default risk (2.73), which could suggest financial instability within that sector or a higher likelihood of default on obligations. The utilities sector has the lowest default risk (2.6), which may indicate better financial health and a lower likelihood of default among companies within that sector. Default risk is notably high in the basic materials sector, possibly due to high leverage and sensitivity to global demand and commodity prices, which can impact the sector's financial stability. In contrast, with its regulated nature and consistent demand, the utility sector typically generates steady cash flows, contributing to lower default risks as companies can more reliably meet their debt obligations.

For credit risk, the basic material sector ranks highest (5.9), implying a higher potential for credit loss. In contrast, the utility sector has the lowest credit risk (4.3), suggesting lower credit risk and potentially more reliable debt repayment. Credit risk follows a similar pattern, with the basic materials sector facing a higher potential for credit loss, likely due to the volatile revenues and higher borrowing levels that can affect

the sector's ability to service its debt. The utilities sector's lower credit risk reflects its stable revenue streams and generally strong financial health, making companies in this sector more dependable regarding debt repayment.

Understanding these industry-specific risk dynamics is crucial for investors, as it aids in making informed decisions based on their risk tolerance and investment goals. It also highlights the importance of diversification across sectors to manage portfolio risk effectively.

5.2.7 ESG Performance by Region

In this section, Figure 5.6 compares the scores of the ASEAN and GCC regions across four ESG and its components: the overall ESG score, Environmental (ENV), Social (SOC), and Governance (GOV).

The ASEAN region has a significantly higher overall ESG score (45%) than the GCC (29%). This suggests that as a collective, ASEAN countries may be integrating ESG principles more comprehensively into their policies and corporate practices, or they may be further along in reporting and transparency on ESG metrics. ASEAN has been increasingly oriented towards ESG standards across the board, focusing on green infrastructure, social impact, and transparency. This regional commitment is spearheaded by the coordinated efforts to boost ESG, which is seen as a mechanism to drive sustainable recovery from economic challenges, such as those posed by the COVID-19 pandemic. Another reason the ASEAN region has shown progress in ESG practices might be the pressure from their stock exchanges that require or recommend firms to disclose their ESG commitments, which is not yet uniformly seen in the GCC. For example, Thailand's stock exchange was ranked notably high based on sustainability disclosure, indicating a mature approach towards ESG transparency in the region. In Malaysia, Bursa Malaysia published sustainability reporting guides for companies to adopt Task Force on Climate-Related Financial Disclosures (TCFD) recommendations (Bursa Malaysia, 2022), and Singapore Exchange (SGX) introduced sustainability reporting on a "comply or explain" basis and mandated all SGX-listed issuers to prepare yearly sustainability reports (SGX, 2022).

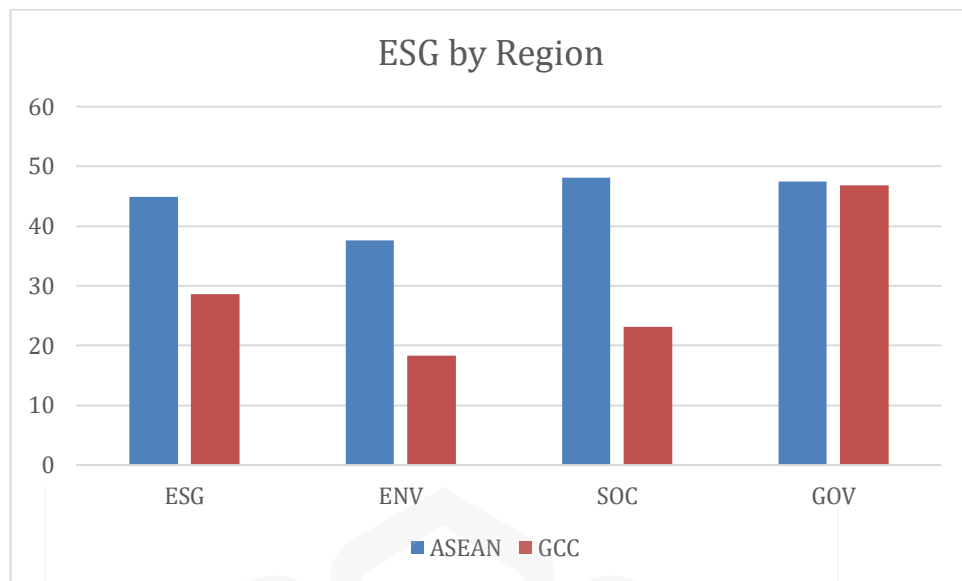


Figure 5.10 ESG Performance by Regions

Figure 5.6 also illustrates that ENV practices had the lowest scores in both regions, while GOV scores had the highest. For the ENV component, ASEAN leads with a higher ENV score (38%) than the GCC (18%). This could indicate that ASEAN is making greater efforts in environmental protection and sustainability initiatives and perhaps transitioning to greener economies more aggressively than the GCC. ASEAN governments have gradually shifted their policy focus from economic stabilisation to recovery and long-term growth, promoting sustainable, green projects through favourable policies and incentives, such as green bonds. This is complemented by swift actions to address the socio-economic implications of crises, with stimulus packages often targeting areas aligned with the UN's SDGs.

ASEAN's higher SOC score (48%) compared to the GCC (23%) suggests that ASEAN may emphasise social issues such as labour rights, community engagement, and social equity. This could stem from various influences such as cultural norms, societal values, or historical developments that prioritise social welfare and community cohesion. Additionally, ASEAN countries might have more mature and developed social policies and compliance mechanisms, possibly due to longer exposure to international norms and pressures from global organisations and trade partners advocating for social responsibility.

The GOV score is relatively close between ASEAN (47.5%) and GCC (46.8%), indicating that both regions significantly emphasise governance issues, though ASEAN has a slight edge. ASEAN countries have been integrating into the global economy for a longer period, which may have necessitated the adoption of international governance standards and practices to attract foreign investment and facilitate trade relations. This process likely encouraged the development of more transparent, accountable, and effective corporate governance mechanisms. Furthermore, the slight edge in ASEAN's governance scores could hint at more rigorous board oversight, shareholder rights protections, and ethical business conduct standards. Such differences could result from varied regulatory environments, with ASEAN countries potentially having more stringent requirements for corporate governance to align with global best practices.

The significance of these scores lies in their potential impact on investment decisions, as investors increasingly seek regions and businesses with strong ESG credentials due to their correlation with risk mitigation and long-term sustainability. Higher ESG scores can attract more foreign direct investment, as they often indicate stability, lower risk, and a commitment to maintaining standards that align with international norms. Moreover, these scores can influence geopolitical relations, as countries with higher ESG scores may be viewed as more progressive and responsible global citizens.

5.2.7.1 ESG and ESG Score Components Distribution by Year

Figure 5.11 outlines the ESG and its component scores for countries in the ASEAN and GCC regions from 2011 to 2021. In the ASEAN region, ESG scores show a general increase over the 11 years, indicating a strengthening in ESG practices. This trend may reflect increasing regulatory demands, a growing awareness of sustainability issues among consumers and investors, and overall corporate transparency and responsibility enhancement. Conversely, the GCC region's ESG scores start higher but demonstrate some fluctuation, with a noticeable decrease between 2014 and 2017, followed by a recovery period. The fluctuation in the GCC scores could be due to the impact of global oil prices, regulatory changes, and varying speeds at which these nations have embraced and implemented ESG practices.

Similarly, ASEAN countries consistently increase environmental scores, likely due to heightened environmental awareness and actions. This might be associated with international environmental and local sustainability initiatives to address climate change, pollution, and resource management. In contrast, the GCC's ENV scores fluctuate more significantly, possibly reflecting the region's complex relationship with environmental management within its predominantly fossil fuel industries.

Social scores in ASEAN also steadily increase, suggesting improvements in social aspects such as labour rights, community engagement, and social equity. This may be driven by social development goals and increasing societal expectations for businesses to contribute positively to social issues. The GCC's social scores also increase but with greater variability, which may indicate the varied pace of social reforms and developments, such as labour laws and social investments across the GCC countries.

Governance scores in the ASEAN region generally improve over the decade, implying improvements in corporate governance structures, transparency, and anti-corruption measures. This trend indicates strengthening legal frameworks and corporate policies that govern business practices in the region. The GCC region shows a slight decrease in governance scores from a higher starting point, with recovery in later years. This might reflect the region's efforts to improve corporate governance amidst global scrutiny and align with international standards.

The trends suggest a positive direction for ESG integration in both regions, with differences in each component score reflecting the unique environmental, social, and governance challenges faced by ASEAN and GCC countries. The reasons behind these trends could be diverse, including economic development, international trade and investment pressures, and socio-political reforms emphasising sustainability and responsible business conduct.

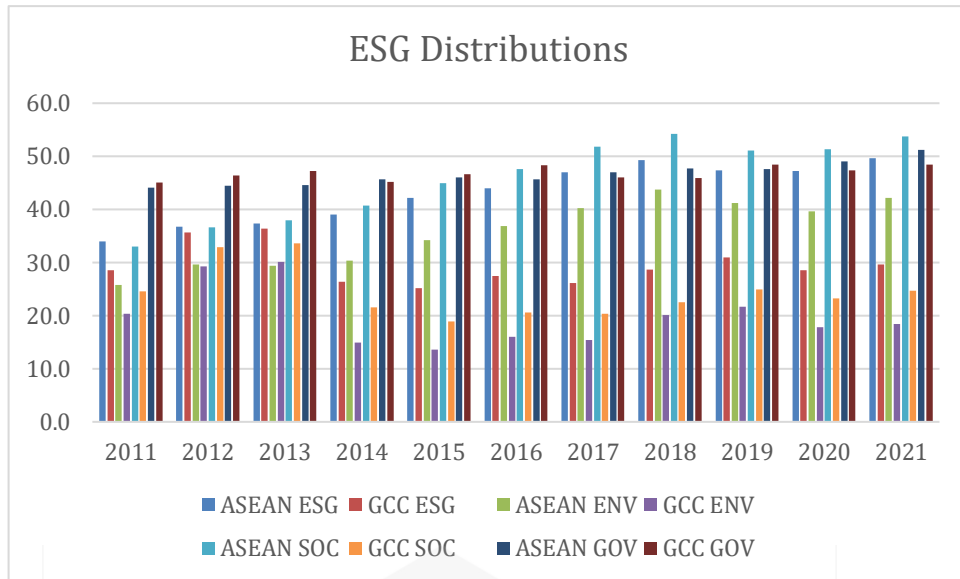


Figure 5.11 ESG Distributions by Regions

5.2.8 Firm Risk Performance by Region

Figure 5.12 presents the ASEAN and GCC regions' firm risk performance across four variables: Beta, total risk, default risk, and credit risk. These indicators are significant as they reflect firms' risk profiles and financial stability within these regions, impacting investment decisions, economic assessments, and policy-making. The differences in firm risk between the ASEAN and GCC regions can be attributed to various factors related to market dynamics, economic conditions, and regulatory environments.

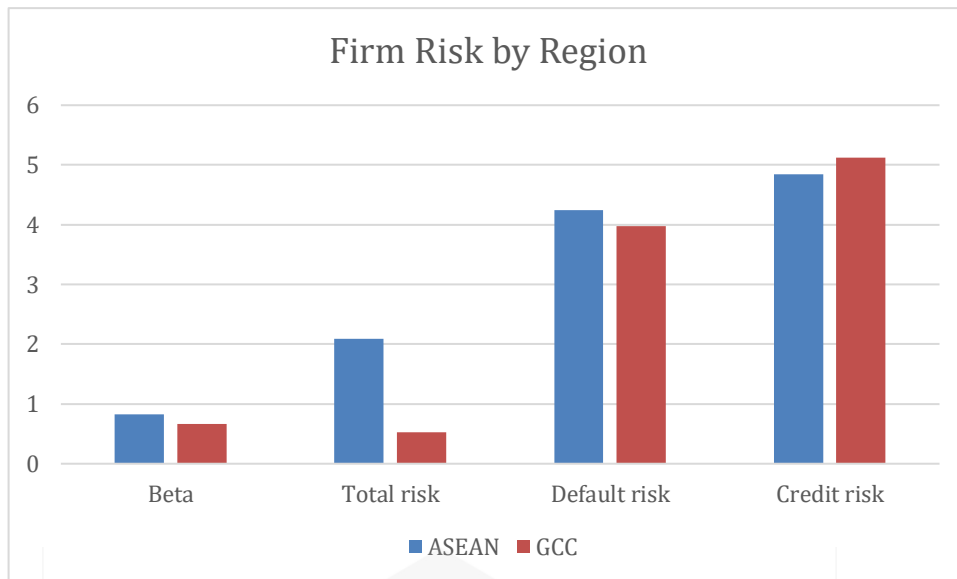


Figure 5.12 Firm Risk Performance by Regions

In assessing the comparative firm risk profiles between ASEAN and GCC, the data reveals that ASEAN firms exhibit a higher Beta of 0.83, reflecting greater market volatility than GCC firms, which have a Beta of 0.67. The higher Beta value for ASEAN firms indicates that these companies are more sensitive to market movements, possibly due to the diverse and dynamic nature of ASEAN economies, which include a mix of emerging and more developed markets. This diversity can lead to greater fluctuations in stock prices as investors react to regional and global economic news.

Furthermore, ASEAN firms face a higher total risk score of 2.09, indicating more significant variability in returns than GCC firms, whose total risk is 0.53. The greater total risk in ASEAN firms reflects a higher return variability, which could stem from the region's economic heterogeneity. ASEAN encompasses countries at different stages of development, with varying degrees of political stability, economic policies, and growth rates. This diversity can result in more pronounced fluctuations in business performance and, consequently, stock prices, contributing to higher overall risk.

When considering the possibility of default, ASEAN's default risk score of 4.42 surpasses that of the GCC's 3.98, suggesting a heightened risk. ASEAN's higher default risk score than the GCC might be influenced by the economic structure and external debt levels of the countries within these regions. With their varied economies, ASEAN

countries might have sectors more susceptible to global economic shifts, such as commodities or manufacturing, affecting firms' financial stability. Additionally, higher levels of external debt or less favourable credit conditions in some ASEAN countries could elevate the default risk for firms.

However, regarding credit risk, ASEAN's lower score of 4.84, compared to GCC's 5.12, points towards a lesser potential for credit loss in ASEAN than in the GCC. The lower credit risk in ASEAN than the GCC suggests that, despite higher market volatility and default risk, ASEAN firms may have better mechanisms for managing their debt obligations or benefit from more favourable lending conditions. This could be due to a more robust banking sector or effective financial management practices within ASEAN firms. Additionally, ASEAN's legal and regulatory frameworks regarding credit and financial transactions might provide more safeguards against credit default, contributing to a lower credit risk score.

Nonetheless, when discussing the risk for both regions, it is also important to consider the impact of the oil and gas sector, which is significant in many GCC economies. The volatility in oil prices can directly affect the financial stability and risk profile of GCC firms, particularly those directly or indirectly linked to the energy sector. In contrast, ASEAN's economies are more diversified, which might explain the variation in risk profiles between the two regions.

In summary, the differences in firm risk between ASEAN and GCC regions can be traced back to the economic diversity, market sensitivity, sectoral compositions, and prevalent regulatory frameworks. The higher market volatility and variability in returns in ASEAN are balanced by potentially more robust debt management practices, leading to lower credit risk. In contrast, the GCC's risk profile may be more influenced by its significant reliance on the energy sector.

5.3 DIAGNOSTIC TESTS

Before performing regression analysis, it is necessary to check whether Ordinary Least Square (OLS) assumptions are met. These prerequisites align with the assumptions of the Classical Linear Regression Model (CLRM), ensuring the integrity and reliability of the analysis. The process begins with examining the dataset to identify any missing values, an essential step for maintaining data integrity. Subsequently, the analysis proceeds with six assumption tests, which comprised the normality of residuals, outliers, multicollinearity, time and year effects, heteroscedasticity, and autocorrelation. Identifying and correcting issues related to these assumptions are crucial steps in the preparatory phase of regression analysis. They ensure that the variance of the residuals is neither artificially inflated nor deflated, thereby safeguarding the regression results against potential misinterpretation. Conducting this preliminary analysis fortifies the study's methodological rigour and enhances the credibility and reliability of the findings derived from the regression analysis.

5.3.1 Missing Values

Before analysing data for hypothesis testing, it is necessary to ensure that the data set contains complete information. In this study, missing data primarily refers to instances where certain observations were incomplete in the dataset. With respect to the missing data, the data has been deleted, and only complete data in the total usable observation are considered. Deleting the outliers is a choice for a large sample. Therefore, it is appropriate for this study due to the large sample size. Nevertheless, it was verified that the data set had no missing values.

5.3.2 Normality of Residuals

The empirical data used in this study have been tested for the normal or symmetrical distribution. The normality of the residuals depends on the sample size. The normality assumption assumes that the distribution of the sample is normal. De Vaus (2002), Tabachnick and Fidell (2007) and Howell (2007) stated that it is normal for secondary data to be non-symmetrical.

To verify the null hypothesis that the residuals are normally distributed, the Shapiro-Wilk normality test (Swilk) was used. The present study conducted the normality test for three regression models. The significant probability value ($p < 0.05$) indicates that the sample distribution significantly differs from a normal distribution. The results of the normality test are presented in Table 5.2.

Table 5.2 Shapiro-Wilk Test

Models	Prob>Z
Model 1	0.002
Model 2	0.002
Model 3	0.003

Note: Model 1 tests the relationship between overall ESG practices and firm risk; Model 2 tests the relationship between three ESG components and firm risk; and Model 3 tests the moderating effect of a country's ESG on the relationship between firm ESG practice and firm risk.

The test indicated a p-value of less than 5% in all models, suggesting that the null hypothesis was rejected and that the residuals were not normally distributed. Nevertheless, Alipour et al. (2019) cited that violating this assumption is not a significant concern when the sample size is large (Coakes and Steed, 2001). This is because as the sample is large, the abnormally distributed data are less likely to influence the credibility of the study (Buallay et al., 2022). Following Tabachnick and Fidell (2007) and Howell (2007), there are several options for handling non-normal data. The data can be transformed to enable further statistical analyses, including natural log transformation, to solve the normality data problems, especially for secondary data. The adoption of either a Fixed Effect Model (FEM) or a Random Effect Model (REM) is also one of the ways to address the issue of normality (Haji and Mubaraq 2015), which was confirmed in the following sub-section.

5.3.3 Outliers

OLS is sensitive to outlying observations as it may reduce the sum of squared residual (Wooldridge, 2013). According to Wooldridge (2013), the outlying observations may arise due to errors in data entry or the existence of population members that are significantly diverse in a certain aspect. The approach towards handling these outliers varies; researchers may exclude or adjust such observations to mitigate their impact on the regression analysis. To detect potential outliers, generating summary statistics is a valuable preliminary step (Wooldridge, 2013). This method can reveal inaccuracies in data entry, particularly through the examination of the minimum and maximum values of each variable. Identifying discrepancies in these ranges is an initial step towards rectifying data entry errors, thus addressing one of the primary sources of outliers (Wooldridge, 2013). Researchers may retain the outlying observation by winsorising the variable if the faraway issue persists¹. Variables that show significant dispersion in their minimum and maximum value are considered for winsorisation to limit the extreme value in the statistical data. In this case, MTB, leverage, and firm size were winsorised at the top and bottom 1% to limit the effect of outliers. This process replaced the largest and the smallest values with the observations nearest to them, as demonstrated in the study by Sial et al. (2018).

5.3.4 Multicollinearity

In addressing the concern of collinearity within the dataset, the Pearson correlation and VIF tests were conducted. These statistical tools serve dual purposes in our analysis: first, to discern potential collinearity issues among the variables within our model, and second, to explore the direction and strength of the relationships among key variables—namely, ESG and ESG's component scores, firm risks, and various control variables. Table 5.3 presents the Pearson correlation matrix alongside the VIF test statistics, providing a comprehensive overview of the interrelations among the studied variables. Based on this table, none of the correlation coefficients were above the cut-off of 0.80; hence, multicollinearity was unlikely to be a concern (Gujarati and Porter, 2009). The

¹ Before applying the winsorize command in Stata, data must be pre-processed to obtain an overview of the data by running descriptive statistics. This helps identify outliers and understand the distribution of the variables. Stata command '**describe [variables], detail**'.

high correlation between ESG and its components is because the overall ESG score is inherently composed of these individual components (ENV, SOC), and GOV) scores. Each component contributes to the aggregate ESG score, reflecting a firm's performance in these critical areas. Therefore, it is natural for the ESG score to correlate with its constituent parts closely. Moreover, the values of VIFs were below 10 (the mean of VIF values of the variables was 1.333), implying that multicollinearity was not a major issue in explaining the results (Gujarati and Porter, 2009).

In examining the influence of ESG and its components on systematic risk (Beta), the data reveals a pattern of slight positive correlations across most ESG components. Specifically, as companies' ESG scores improve, there is a minor but statistically significant tendency for their Beta values to rise, with correlation coefficients of 0.064 for ESG, 0.083 for ENV, and 0.077 for SOC scores. This suggests that stocks of companies with higher scores in these ESG areas may carry a marginally higher systematic risk. In contrast, GOV scores exhibit a weak and practically insignificant correlation with Beta, at -0.01, indicating no substantial linear association. These relationships are significant at the 10% level, highlighting a connection between ESG considerations and market risk as measured by Beta.

In the context of total and default risks, the ESG components again demonstrate distinct patterns. A small positive correlation is observed between total risk and the ESG factors, with ESG, ENV, and SOC scores showing coefficients of 0.085, 0.054, and 0.102, respectively, indicating a trend where companies with higher ESG-related scores carry a slightly higher total risk. Conversely, default risk presents a different scenario; higher ESG and ENV scores correlate with a minor reduction in default risk, with coefficients of -0.059 and -0.097. GOV scores similarly show a moderate negative correlation of -0.073, aligning with lower default risk.

Interestingly, credit risk has a moderate positive correlation with GOV (0.648), which stands out against the backdrop of non-significant correlations for other ESG components, suggesting that as governance standards improve, there may be a noteworthy increase in credit risk. These relationships signal that while ESG factors are generally associated with a slightly elevated risk profile, they may also confer some

protective effects against default, with governance quality particularly influencing credit assessment.

Essentially, the correlation analysis between dependant variables (firm risks) and control variables reveals intriguing insights into how firm size, financial ratios, and macroeconomic indicators correlate with different types of risk. Larger firms tend to have a slightly higher systematic risk (Beta) but lower total, default, and credit risks, suggesting size confers a degree of stability. Firms with higher ROA interestingly show lower systematic risk but unexpectedly higher default and credit risks, hinting at complexities that merit deeper analysis. Higher MTB ratios are associated with lower systematic risk and credit risk but increased total and default risks, reflecting a complex risk profile for firms with higher market valuations. Leverage increases systematic and default risks, aligning with conventional financial theory. At the same time, the World Corporate Governance Index (CGI) suggests that better governance standards are linked to lower systematic and default risks but a minor increase in credit risk. Inflation and GDP changes show mostly weak and mixed correlations with risks, indicating that their influence on firm-level risk measures may be less direct or overshadowed by other factors. Overall, these patterns underscore the multifaceted nature of risk and the importance of considering a broad range of factors when assessing a firm's risk profile.

Table 5.3 Correlation Matrix

.Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	VIF
(1) Beta	1.000															
(2) Total Risk	0.009	1.000														
(3)Default Risk	-0.115*	0.059*	1.000													
(4) Credit Risk	0.078*	-0.018	0.252*	1.000												
(5) ESG	0.064*	0.085*	-0.059*	-0.024	1.000											1.092
(6) ENV	0.083*	0.054*	-0.097*	-0.068*	0.875*	1.000										1.098
(7) SOC	0.077*	0.102*	-0.019	-0.011	0.921*	0.790*	1.000									1.027
(8) GOV	-0.010	0.034	-0.073*	0.006	0.648*	0.345*	0.404*	1.000								1.179
(9) SIZE	0.067*	-0.050*	-0.324*	-0.099*	0.189*	0.290*	0.134*	0.065*	1.000							1.323
(10) ROA	-0.146*	0.021	0.621*	0.198*	0.039	-0.011	0.068*	0.002	-0.209*	1.000						1.693
(11) MTB	-0.148*	0.098*	0.393*	0.113*	0.133*	0.078*	0.146*	0.050*	-0.207*	0.535*	1.000					1.52
(12) LEV	0.074*	-0.003	-0.528*	-0.196*	0.101*	0.114*	0.074*	0.068*	0.268*	-0.309*	-0.025	1.000				1.26
(13) CGI	-0.067*	0.046	-0.098*	-0.194*	-0.017	0.059*	-0.061*	-0.020	0.164*	-0.138*	-0.083*	-0.088*	1.000			1.164
(14) INF	0.037	-0.100*	0.098*	0.133*	-0.063*	-0.065*	-0.048	-0.052*	0.104*	0.214*	0.099*	-0.047	-0.200*	1.000		1.668
(15)GDPCh	-0.021	-0.078*	0.053*	0.056*	-0.027	-0.004	-0.030	-0.031	0.222*	0.171*	0.070*	-0.056*	0.054*	0.578*	1.000	1.648

Note: *, **, *** denote significance at the 10%, 5%, and 1%, respectively

5.3.5 Time and Individual Effects

The present study examined the dataset to determine the presence of any time-specific effect or firm-specific effect that could potentially impact the analysis, as highlighted by Law (2018). It involved assessing variables that change over time but not across entities (time effect) and variables that do not change over time but vary across entities (firm/individual effect). Specifically, the present study focused on the year effect and industry type in determining whether time and individual effects exist. Both year factor and industry type may influence the extent of firm risk. Such effects were verified using test parameters (testparm) in Stata.

Testparm function was performed in all regression models; Pooled OLS (POLS), FEM, and REM for Models 1, Model 2, and Model 3. Initially, this study separately performed testparm for year effect and industry effect. This process proceeded with a simultaneous inclusion of year and industry factors. Based on this testparm function, the outcome consistently showed the presence of a year and industry effects as the probability value was significant in all cases. Therefore, the two-way statistic was more suitable for this study, which implies the inclusion of year and industry effect in the regression model.

5.3.6 Heteroscedasticity

In the CLRM, one key assumption is that the variance of the error terms should be consistent, a concept known as homoscedasticity. Under this assumption, the residuals are supposed to be homoscedastic, which refers to the constant variance of each error term. The opposite of this is known as heteroscedasticity. Heteroscedasticity refers to a situation where the scattering of data points is unequal, which may impact the validity of hypothesis testing. The p-value below the 5% conventional significance level indicates that the estimation is violated by the heteroscedasticity problem (Buallay et al., 2022). To attest to the presence of heteroscedasticity, researchers may use the graphical method and statistical test (Hair, Black, Babin and Anderson 2014). In this study, a statistical test was performed to diagnose the heteroscedasticity problem.

a. Statistical test

The current study used two statistical tests to confirm the heteroscedasticity assumption. The Breusch-Pagan/Cook-Weisberg test (using the POLS model) was first utilised. Secondly, considering that the present study data set is a panel, a Modified Wald test (using FEM) was performed to measure the group-wise heteroscedasticity (Manrique and Martí-Ballester, 2017). Table 5.4 presents results for heteroscedasticity tests. Table 5.4 shows that the p-value for both POLS and FEM heteroscedasticity tests was below 0.05 for both models, thus confirming the presence of a heteroscedasticity problem. In panel data analysis, this problem can be treated with the robust coefficient covariance method under White cross-section standard error and covariance (Gujarati, 2004).

5.3.7 Autocorrelation

Autocorrelation describes how closely related a variable's values are over time. An autocorrelation problem may indicate that the regression model is not appropriate. To test for this issue, the present study performed the Wooldridge test for autocorrelation in panel data (Alipour et al., 2019). Similar to the interpretation of heteroscedasticity, there is a problem with autocorrelation if the p-value is less than 0.05. Table 5.5 suggests the problem was rectified using a robust White cross-section standard error and covariance.

Table 5.4 Heteroscedasticity Tests

TESTS	SYSTEMATIC RISK			TOTAL RISK			DEFAULT RISK			CREDIT RISK		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
POLS	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
FEM	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
Solution: Use the robust standard errors												

Table 5.5 Autocorrelation Tes

TESTS	SYSTEMATIC RISK			TOTAL RISK			DEFAULT RISK			CREDIT RISK		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
POLS	0.000***	0.000***	0.000***	0.0161***	0.0164***	0.0217***	0.0347***	0.0296***	0.004***	0.000***	0.000***	0.000***
Solution: Use the robust standard errors												

5.4 CHOOSING THE APPROPRIATE MODEL

In panel data, the model can be estimated using POLS, FEM, or REM. Three tests were conducted to decide which model was appropriate for this study. The three tests were the Poolability F-test, the Breusch and Pagan (1980) Lagrange Multiplier (BPLM) test and the Hausman (1978) test. Table 5.10 presents the three tests. Table 5.10 indicates that the p-value generated from the Poolability tests in both models was below 5%. Hence, it suggested that FEM was more appropriate than POLS. When performing the BPLM test, results discovered that REM was preferred over POLS, given the significant probability value for Models 1, 2, and 3. Finally, the Hausman test was utilised in concluding the preferred model between REM and FEM. The significant probability value (less than 5%) under the Hausman test supported that FEM was the preferred regression model for the analysis (Fatma and Chouaibi, 2023). Table 5.6 summarises the test carried out.

Table 5.6 Choosing between POLS, FEM, and REM

Models	Poolability F-Test (POLS vs FEM)	BPLM Test (POLS vs REM)	Hausman Test (REM vs FEM)
Model 1	Prob > F = 0.000	Prob > chibar2 = 0.000	Prob > chi2 = 0.000
	FEM preferred	REM preferred	Conclusion: FEM preferred
Model 2	Prob > F = 0.000	Prob > chibar2 = 0.000	Prob > chi2 = 0.000
	FEM preferred	REM preferred	Conclusion: FEM preferred
Model 3	Prob > F = 0.000	Prob > chibar2 = 0.000	Prob > chi2 = 0.000
	FEM preferred	REM preferred	Conclusion: FEM preferred

5.5 HYPOTHESES TESTING

The previous section highlighted that this study suffered from heteroscedasticity and autocorrelation problems. Hence, robust standard errors were used to account for these issues in the underlying data set (Gujarati, 2004). The standard errors were clustered at the firm level to permit errors of a similar firm to be correlated over time (Wahl et al., 2020). Therefore, the results from the analyses were subject to robust standard errors. Tables 5.7 and 5.8 present the results based on the two-way panel data regression model

for Model 1 and Model 2 (direct effects), while Table 5.9 exhibits the regression estimates for Model 3 (moderating effect).

In this section, we evaluate the hypotheses formulated in Chapter 4. The primary hypothesis was designed to examine the impact of ESG practices and their components on various firm risk metrics, including systematic, total, default, and credit risks. In contrast, the second main hypothesis aimed to explore the moderating effect of a country's ESG performance on the relationship between a firm's ESG practices and its associated risks.

5.5.1 The Relationship between ESG Practice and Firm Risks

Hypothesis 1 posited a negative relationship between ESG practice and firm risks. Table 5.7 presents the multivariate regression results of the risk measures: systematic risk (Beta), total risk, default risk, and credit risk as a function of ESG. The hypotheses posit a causal link between a firm's ESG score and risk, suggesting that the former influences the latter. Specifically, the ESG coefficients for credit risk are significantly negative, aligning with H1.4. This indicates that a higher ESG score is correlated with a lower credit risk for the firm. However, contrary to H1.4, the relationship between the ESG score and the other three risk measures (systematic risk, total risk, and default risk) is insignificant.

It was found that the ESG score has a negative impact on systematic risk (H1.1); however, this relationship is not statistically significant. The findings could not provide empirical evidence of the presence of ESG practice towards firm systematic risk. Thus, H1.1 for Model 1 is rejected. This is supported by a study from Oikonomou et al. (2010), which also found that ESG-type engagement is negatively but weakly related to systematic risk in a panel data set of S&P 500 firms. Recent studies by Sciarelli, M. et al. (2023) and Shakil, H.M (2021) have also indicated that overall ESG assessments do not significantly affect the systematic risk measured by Beta. This aligns with previous findings suggesting that Beta is more influenced by industry-specific dynamics than individual firm characteristics; hence, systematic risk is less responsive to ESG practice than other risk factors (Sassen et al., 2016). It is possible that the results of the study

were affected by the regional differences where it was conducted. The market characteristics in each region might have played a crucial role in the findings, where a more developed region could have more effectively incorporated ESG into its strategy. However, the findings are not in line with those of Lueg et al. (2019), El Ghou et al. (2011) and Luo and Bhattacharya (2009), whose findings find a significant adverse relationship between ESG practice and systematic risk.

Next, the results revealed that ESG practice has a non-significant positive impact on total and default risk, which indicates that ESG scores do not play a significant role in explaining those risks of the sample firms. Therefore, H1.2 and H1.3 for regression Model 1 are rejected. This aligns with results in the literature claiming that firms may react differently to being rated (Clementino and Perkins, 2021). The empirical findings from Aldieri et al. (2023) indicate that risk market performance does not properly depend on high or low ESG rates. According to Habermann and Fischer (2021), the positive effect of sustainability on profitability is diluted over time and, by extension, also on the default risk. When a firm initially adopts sustainability practices, it often experiences a boost in profitability due to increased efficiency, cost savings, improved brand reputation, and enhanced stakeholder trust. This immediate positive impact can also reduce default risk, as profitability increases the firm's ability to meet its debt obligations. As sustainability practices become more embedded within the firm and industry, the initial competitive advantage they provide may start to diminish. Over time, sustainability initiatives might become standard practices across the industry. This approach is in line with institutional theory, which emphasises that firms establish their organisational structure as conditioned by internal and external factors so that those belonging to the same field tend to resemble each other more and more as time goes by (Hannan and Freeman, 1984). Therefore, it can dilute their impact on profitability, as the firm's ability to leverage sustainability for competitive gains weakens.

As reported in Table 5.7, it was found that the ESG score has a significant negative relationship with firm credit risk. Thus, hypothesis 1.4 in Model 1 is accepted. Although the effect is relatively small (-0.0193), this negative relationship suggests that higher ESG scores could be associated with a decrease in credit risk, meaning that firms with higher ESG scores might be seen as having lower credit risk. This is in line with findings that based on the aggregate ESG measures, the majority of previous empirical

studies have indicated that socially responsible firms enjoy better credit ratings (Attig et al., 2013; Jiraporn et al., 2014; Sun and Cui, 2014), lower costs of equity capital and financing (Oikonomou et al., 2012; El Ghouli et al., 2011; Goss and Roberts, 2011; Kim et al., 2014) and smaller CDS spreads (Drago et al., 2019; Kölbel et al., 2017). This supports the risk mitigation and stakeholder theory that firm ESG practice plays a vital role in firm risk reduction. This is because creditors and investors generally perceive firms with high ESG scores as less risky, given their proactive approach to managing ESG issues. High ESG scores often indicate a firm's commitment to sustainable practices, ethical governance, and social responsibility, which can lead to more stable and predictable business operations. In addition, the reduction in perceived risk is partly because strong ESG practices can enhance a firm's reputation, leading to better relationships with stakeholders, including customers, employees, and regulators. A firm viewed favourably by these groups is less likely to face costly legal battles, boycotts, or strikes, which can negatively impact financial stability and increase credit risk. Moreover, firms with high ESG scores often have robust governance structures that reduce the likelihood of fraudulent activities, mismanagement, or ethical scandals that could jeopardise financial health and increase credit risk.

Overall, the results for aggregate ESG scores across different types of risk are mixed, with the most notable finding being the slight reduction in credit risk associated with higher ESG scores. This could indicate that creditors perceive firms with higher ESG scores as less risky. Therefore, hypothesis 1, which posited a negative relationship between ESG practice and firm risk, was supported only by the credit risk.

Table 5.7 Impact of ESG Scores on All Risk Measures (Model 1)

VARIABLES	BETA	TOTAL RISK	DEFAULT RISK	CREDIT RISK
ESG	-0.00212 (0.0151)	0.0296 (0.0515)	0.00407 (0.0637)	-0.0193* (0.0114)
SIZE	-0.0165 (0.0734)	-0.463** (0.211)	-0.346 (0.224)	-0.213 (0.356)
ROA	-0.00381* (0.00213)	-0.00231 (0.00996)	0.142*** (0.0276)	0.0168 (0.0226)
MTB	-0.00374 (0.00312)	-0.00100 (0.0261)	0.158*** (0.0558)	0.0383 (0.0459)
LEV	0.00240 (0.00174)	0.0131** (0.00667)	-0.0736*** (0.0120)	-0.0579*** (0.0145)
CGI	0.00973 (0.0322)	0.333*** (0.0919)	-0.113 (0.254)	-0.0175 (0.239)
INF	-0.00925 (0.00639)	-0.138*** (0.0236)	0.0551 (0.0390)	-0.0596 (0.0491)
GDPCh	-0.00457 (0.00347)	-0.0779*** (0.0161)	-0.0176 (0.0197)	-0.0372 (0.0229)
Constant	1.134 (1.045)	8.218*** (2.942)	9.502*** (3.337)	9.572* (5.030)
Observations	2,898	2,898	2,898	2,898
R-squared	0.071	0.120	0.329	0.110
Number of Ids	643	643	643	643

*Note: Robust standard errors were reported in parenthesis, estimated coefficients were on top of parenthesis, and *, **, *** denote significance at the 10%, 5%, and 1%, respectively*

5.5.2 The Relationship between ESG Components and Firm Risks

To understand which ESG factors affect firm risk, this study regressed the four risk measures on the three ESG component scores: ENV, SOC and GOV in Model 2. Based on the results presented in Table 5.8, this study observed a significant negative relationship between ENV and two risk measures (systematic and credit risk). In contrast, SOC has only a significant but positive relationship with default risk. However, GOV did not demonstrate any significant relationship with any risk measures. Accordingly, this study supports H2 for H2.1a and H2.1d.

Table 5.8 Impact of ESG Components on All Risk Measures (Model 2)

VARIABLES	BETA	TOTAL RISK	DEFAULT RISK	CREDIT RISK
ENV	-0.0129*	0.0952**	-0.0674	-0.0165***
	(0.00717)	(0.00457)	(0.0423)	(0.00593)
SOC	0.0123	-0.00469	0.00971**	0.00446
	(0.00795)	(0.00426)	(0.00469)	(0.00658)
GOV	-0.00537	-0.00341	-0.00189	-0.00562
	-0.0129*	(0.00331)	(0.00318)	(0.00446)
SIZE	-0.0130	-0.506**	-0.341	-0.188
	(0.0733)	(0.215)	(0.226)	(0.373)
ROA	-0.00374*	-0.00243	0.143***	0.0171
	(0.00212)	(0.00993)	(0.0276)	(0.0228)
MTB	-0.00369	0.000336	0.158***	0.0378
	(0.00313)	(0.0259)	(0.0560)	(0.0465)
LEV	0.00241	0.0128*	-0.0734***	-0.0575***
	(0.00175)	(0.00661)	(0.0120)	(0.0145)
CGI	0.0103	0.337***	-0.105	-0.0114
	(0.0319)	(0.0926)	(0.257)	(0.237)
INF	-0.00922	-0.136***	0.0548	-0.0614
	(0.00640)	(0.0234)	(0.0388)	(0.0491)
GDPCh	-0.00455	-0.0778***	-0.0180	-0.0374
	(0.00344)	(0.0161)	(0.0195)	(0.0229)
Constant	1.087	9.038***	9.364***	9.051*
	(1.042)	(3.030)	(3.370)	(5.348)
Observations	2,898	2,898	2,898	2,898
R-squared	0.073	0.123	0.331	0.113
Number of Ids	643	643	643	643

*Note: Robust standard errors were reported in parenthesis, estimated coefficients were on top of parenthesis, and *, **, *** denote significance at the 10%, 5%, and 1%, respectively*

The analysis of the relationship between the ENV component of ESG scores and various firm risk measures reveals a subtle interaction. A slight but statistically significant negative relationship exists between ENV scores and systematic risk, indicating that better environmental performance is associated with a minor reduction in systematic risk. The finding of this study is consistent with Kyaw (2020), which indicates that firms with superior environmental performance may be viewed as less risky by investors, thereby supporting the notion that better environmental performance can contribute to a reduction in systematic risk. The economic coefficients of beta and credit risk are extremely small, which aligns with previous studies (Khan et al., 2024; Shakil, 2021), which could limit the value-related benefits of ESG performances.

However, when it comes to total risk, the relationship inverts; a higher ENV score correlates with a marginal increase in total risk, and this association is statistically significant. As for default risk, the impact of environmental performance is not

statistically significant, suggesting no strong evidence that environmental factors influence a firm's likelihood of default. Most notably, the ENV score shows a significant negative relationship with credit risk, implying that firms with higher ENV scores are viewed as having lower credit risk. A higher ENV score is indicative of a firm's commitment to sustainable practices, which has been associated with a significant reduction in credit risk (Razak et al. (2020); Jang et al., (2020)). This correlation can be attributed to several factors: enhanced risk management that mitigates potential environmental liabilities, increased investor and lender confidence due to compliance with regulatory standards, and improved reputation leading to stronger customer relationships. Additionally, environmentally responsible firms enjoy operational efficiencies and cost savings from sustainable practices, contributing to better financial health and credit profiles. Such firms may also have preferential access to capital, primarily through green financing instruments. These attributes signal to creditors a company's proactive management and long-term viability, thereby reducing perceived credit risk.

With regard to the SOC dimension, it was found that SOC scores do not show a significant relationship with systematic, total, and credit risk, indicating that social factors do not have a visible impact on those three risk measures. However, the SOC dimension exhibits a statistically significant positive relationship with default risk. Higher SOC scores correlate with an increase in default risk, raising concerns that firms with higher SOC scores may be perceived as having an increased likelihood of bankruptcy. While socially responsible activities are generally viewed positively, they can carry significant costs and complexities that may inadvertently increase a firm's default risk, especially if not managed or communicated effectively. The correlation between high SOC scores and increased firm default risk can be attributed to various factors. Implementing comprehensive social initiatives often entails substantial costs that may not yield immediate financial returns, straining short-term cash flows. This focus on social responsibility could potentially divert resources from core business operations, impacting profitability and thus elevating default risk. Additionally, markets may undervalue or misinterpret social initiatives' long-term benefits, especially if such efforts are not directly aligned with the firm's core business strategies, further contributing to a higher perceived default risk.

The study suggests that the GOV dimension of ESG has no significant impact on the all-risk measures assessed in this study. This finding is consistent with Sassen et al. (2016), which found no significant relationship between GOV components and firm risk. The analysis reveals that governance practices do not significantly influence systematic, total, default, or credit risks. The assertion that governance factors within the ESG framework have no impact on risk measures for non-financial firms is supported by several considerations. Firstly, industry-specific risks such as market demand or commodity price fluctuations often have a more immediate and substantial impact on these companies than governance issues. Secondly, non-financial firms may already possess mature governance structures where incremental improvements do not significantly affect risk metrics. Additionally, market participants, including investors and analysts, tend to prioritise operational and financial performance over governance quality when assessing the risk profiles of non-financial entities, potentially diminishing the perceived impact of governance on risk. Lastly, many non-financial firms have business models that are inherently less sensitive to governance changes, meaning that even substantial governance enhancements may only marginally influence overall risk assessments. In conclusion, the debate on the impact of governance on firm risk is multifaceted. While some argue that governance is crucial in shaping a firm's risk profile, others believe its impact may be limited, particularly in non-financial firms where other business risks are more immediate and tangible.

In sum, hypothesis 2, posing a negative relationship between ESG components (ENV, SOC, and GOV), was partly supported. Subsequently, the conviction of stakeholder and risk management theories was not fully advocated because the result mixed with the view that firms with high ESG component scores tend to reduce their risk. This study suggests that ESG components lead to lower firm risk, which remains an open and debatable issue.

5.5.3 The Relationship between ESG and Firm Risk with the Moderation of Country's ESG

Table 5.9 illustrates the moderating effect of country-level ESG (CESG) on the relationship between firm-level ESG practices and various risk measures. As per institutional theory, a country's regulatory and institutional environment can influence firms' ESG disclosure, and good ESG performance can potentially reduce firm-specific risk. While there may be costs associated with ESG initiatives, the potential benefits in terms of risk reduction and improved financial performance are significant.

In Table 5.9, the interaction term ESG*CESG represents this moderating effect. Hypothesis 3 predicted that the country's ESG practice would negatively moderate the relationship between firm ESG practice and firm risks (total, systematic, credit, default risk). If the country's ESG practice moderates these relationships, that should be evident in a significant firm ESG (ESG) by country ESG (CESG). After adding the moderating variable into the regression model, the results only support H3.2, which states that country ESG significantly moderates the relationship between firm ESG and firm total risk. The interaction term ESG*CESG has a statistically significant negative coefficient (-0.005***) that suggests the country's ESG can influence the effect of a firm's ESG practices on its total risk, with a better country-level ESG performance potentially amplifying the risk-reducing effect of a firm's ESG activities. The ESG environment of a country is crucial as it creates a backdrop against which firms operate, influencing their risk management, operational practices, and strategic decisions, all of which can contribute to a reduction in their total risk.

It was agreed that the influence of a country's ESG on a firm's ESG practices and its risk is a complex interplay. To understand how country-specific factors affect firms' ESG disclosure and its impact on firm risk, it is essential to consider the empirical evidence from various studies. Buallay (2019) argues that country-specific factors such as governance, labour, and economy significantly affect firms' ESG disclosure. This suggests that a country's regulatory and institutional environment can influence the extent and quality of ESG reporting by firms. Furthermore, Zhao et al. (2018) demonstrate that good ESG performance reduces government bond yield spread, indicating a risk-reducing impact on firms due to the moderating role of their country's

level of ESG. This highlights the potential for ESG performance at the country level to influence the risk exposure of firms operating within those countries. Overall, the synthesis of these references suggests that country-specific factors, ESG performance, and firm risk are interconnected.

Nevertheless, the present study found that country-level ESG performance does not significantly moderate the relationship between firm-level ESG practices and various types of risk. Specifically, the country's ESG standing does not meaningfully impact the connection between a firm's individual ESG practice and systematic risk, as measured by Beta. Furthermore, the data indicates that country-level ESG factors do not significantly influence the link between firm ESG practices and credit risk. Similarly, the study finds no significant interaction effect for default risk, implying that the broader ESG context at the country level does not alter how firm-level ESG practices relate to the firm's likelihood of default. Therefore, H3.1, H3.3 and H3.4 are rejected. These results collectively suggest that, in the context of this study, the ESG environment at the country level does not play a decisive role in shaping the risk profile of individual firms based on their ESG practices. Hence, while existing evidence has shown that a country's ESG practice may function as a moderator (Stellner et al., 2015; Hoepner et al., 2016; Kiesel and Lücke, 2019; Abdul Razak et al., 2020), it could not be confirmed by the present study.

One explanation for the findings can be explained by geographical differences. For instance, Stellner et al. (2015) testify to the moderating effect of a country's ESG on firm risk using samples of non-financial firms from 12 European Union countries, namely, Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain. On the other hand, Abdul Razak et al. (2020) have studied the moderating role of a country's ESG in the relationship between firm ESG practice and credit risk using a sample of 2094 firm-year observations for 592 global non-financial firms, where 75% of the observations were domiciled in just four countries: United States, Japan, France, and the United Kingdom. This differs from the present study that used a sample of non-financial firms from ASEAN and GCC countries, which may not be as quick to recognise the risk-reducing advantages of ESG investment as Western countries, which have already embraced

ESG earlier. The difference in a country's attitude towards ESG investment may affect how firms in these countries manage their risks.

In summary, the moderating role of country ESG significantly affects the relationship between firm ESG and total risk, enhancing the risk-lowering effects of firm ESG practices. However, according to the data presented, this moderating effect is not observed in the relationship between firm ESG and systematic risk, credit risk, or default risk. Given the results, the present study concluded that only hypothesis 3.2 was supported, while H3.1, H3.3 and H3.4 were rejected. Therefore, the institutional theory arguments can only be verified by H3.2 in Model 3. The findings from H3.2 are consistent with the institutional theory in that organisations are embedded within broader social structures that influence both firms' decisions as well as stakeholders' perceptions of ESG practices (Campbell, 2007; Aguilera et al., 2007; Eliwa et al., 2019).

Table 5.9 Moderating Role of Country ESG on the Relationship between ESG Practice and Firm Risk (Model 3)

DV	TOTAL RISK	SYSTEMATIC RISK	CREDIT RISK	DEFAULT RISK
ESG	0.027***	0.007	-0.064*	-0.077
	(0.01)	(0.006)	(0.036)	(0.26)
CESG	-1.019***	0.266***	-0.256	-5.678
	(0.267)	(0.062)	(0.422)	(3.868)
ESG*CESG	-0.005***	-0.001	0.008	0.014
	(0.002)	(0.001)	(0.005)	(0.041)
SIZE	-5.722*	-0.467	-0.237	-0.952
	(3.004)	(1.123)	(4.609)	(21.286)
ROA	-0.757	-0.314***	-0.424	8.007
	(0.774)	(0.146)	(1.495)	(5.389)
MTB	-0.041	-0.647	3.334	27.677
	(5.159)	(0.549)	(6.558)	(17.126)
LEV	0.105	0.027	-1.232***	0.508
	(0.087)	(0.017)	(0.266)	(0.772)
CGI	0.4**	0.003	0.043	1.762
	(0.195)	(0.084)	(0.571)	(4.886)

DV	TOTAL RISK	SYSTEMATIC RISK	CREDIT RISK	DEFAULT RISK
INF	-0.774***	-0.11***	-0.275	-3.66
	(0.127)	(0.028)	(0.218)	(2.626)
GDPCh	-0.124**	0.028**	-0.068	-1.788*
	(0.06)	(0.013)	(0.119)	(0.931)
Constant	27.138	5.161	-3.773	-98.504
	(29.326)	(4.158)	(35.276)	(100.879)
Adjusted R ²	0.206	0.182	0.093	0.107
P-value	0.0000	0.0000	0.0000	0.0000

5.5.4 The Relationship between Control Variables and Firm Risks

There are seven control variables in this study, specifically, firm size (SIZE), firm profitability (ROA), firm growth (MTB), firm leverage (LEV), country's CG Index (CGI), inflation (INF) and GDP growth (GDPCh). The regression analysis of these variables on firm risks is presented in Table 5.7 for Model 1 and Table 5.8 for Model 2.

The regression analysis from Table 5.7 indicates that larger firm size (SIZE) significantly reduces total risk, in line with the effect of diversifiable risks (Sila et al., 2016; Cheung, 2016; Ben-Nasr and Ghouma, 2018; Kabir Hassan et al., 2021), but SIZE does not significantly affect systematic, default, or credit risk. Higher profitability (ROA) is associated with lower systematic risk yet paradoxically with higher default risk, suggesting that more profitable firms may not always be less risky. Market-to-book value (MTB) and country-level corporate governance (CGI) do not significantly influence the risk measures, indicating that growth characteristics and governance quality may not be the primary drivers of risk in this context. A positive association between leverage (LEV) and total risk proves that more debt increases a firm's fragility (Cheung, 2016; Kabir Hassan et al., 2021). However, LEV is found to decrease default risk, highlighting a more complex view of debt's impact. This suggests that while firms with more debt might experience greater overall risk, they may not necessarily be at higher risk of default. Macroeconomic factors play a role, with lower inflation (INF) linked to reduced total and systematic risk and higher GDP growth (GDPCh) correlating

with reduced total risk, reflecting the stabilising effects of a country's economic environment on firm-level risk. These findings underscore the complexity of risk determinants, revealing that both firm-specific factors and broader economic conditions contribute to the risk profile of non-financial firms.

On the other hand, the regression analysis from Table 5.8 also indicates that a larger size (SIZE) significantly lowers total risk but does not markedly affect other risk measures, which aligns with findings from Table 5.7. Higher firm profitability (ROA) decreases systematic risk, suggesting profitable firms are less exposed to market volatility, yet intriguingly, it is associated with higher default risk. The market-to-book (MTB) ratio does not significantly impact the assessed risk measures, implying it is not a key determinant of risk in these firms. Increased leverage (LEV) correlates with greater total risk but is surprisingly associated with lower default risk. At the country level, better corporate governance (CGI) is linked to higher total risk but not other risks. In contrast, lower inflation (INF) and higher GDP growth (GDPCh) correlate with reduced total risk, reflecting the stabilising influence of a favourable economic environment. These relationships underscore the complex and varied influences of both firm-specific factors and broader economic conditions on the risk profiles of non-financial firms.

The findings indicate that while certain control variables, such as firm size and country-level economic indicators, exhibit clear associations with specific risk measures, other variables do not demonstrate a significant relationship. This highlights the complexity and multifaceted nature of risk drivers in non-financial firms, suggesting that firm risk profiles cannot be attributed to a single factor. Instead, they are influenced by various elements within the broader economic environment.

5.6 ADDITIONAL ANALYSES

A few additional analyses were performed to assess further whether there is any variation in the impact of aggregate ESG practice and its three components on different firm risk measures. Four additional analyses were performed, which involved assessing:

- i. the impact of ESG practice on various firm risks in Shariah and non-Shariah-compliant firms

- ii. the impact of ESG components on various firm risks in Shariah and non-Shariah-compliant firms
- iii. the impact of ESG practice on various firm risks in ASEAN and GCC firms
- iv. the impact of ESG components on various firm risks in ASEAN and GCC firms.

5.6.1 The Impact of ESG Practice on Firm Risk in Shariah and non-Shariah Firms

This study further examined the relationship between ESG practice and firm risk in Shariah and non-Shariah-compliant firms. The rationale for examining the impact of ESG practices on firm risk in Shariah and non-Shariah-compliant firms stems from the unique characteristics of Shariah-compliant firms, which adhere to Islamic finance principles that align closely with ethical and sustainable practices. Given that Shariah-compliant firms avoid industries and practices considered unethical (e.g., alcohol, gambling, excessive leverage), their risk profile may differ significantly from non-Shariah-compliant firms. Hence, it is important to assess whether ESG practices contribute differently to risk mitigation in these two types of firms.

The analysis is divided into three steps. First, in the previous section, we consider the sample of all firms (Shariah and non-Shariah) from 12 countries and regress four risk measures on aggregate ESG score (H1), then the three components of ESG scores (H2) while controlling for firm and country-specific variables. Next, this section separates the sample into two groups: Shariah and non-Shariah-compliant firms. Shariah compliance was identified based on the Shariah Compliance Flag in Refinitiv, as per Mohamad Ariff et al. (2023). We generate a dummy variable, which takes the value one if the firm is Shariah compliant and 0 otherwise. We run our regression Model 1 and Model 2 separately for Shariah and non-Shariah-compliant firms to see if they exhibit different relationships between ESG practices and firm risks.

Panel A and B of Tables 5.10 report the summary statistics for Shariah and non-Shariah-compliant firms, respectively. Shariah-compliant firms have a slightly lower mean Beta (0.787) than non-Shariah-compliant firms (0.806), suggesting they may be less volatile relative to the market. However, the standard deviation is similar between the two groups, indicating a comparable spread in systematic risk within each category. However, as for the total risk, non-Shariah-compliant firms exhibit a slightly lower mean but also have a broader range (0.004 to 21.82) compared to Shariah-compliant firms (0.005 to 16.645), suggesting greater extremes in total risk in the non-Shariah compliant category.

Table 5.10 Descriptive Statistics

Panel A: Shariah Compliant Firms

Variable	Obs	Mean	Std. Dev.	Min	Max
Beta	1124	.787	.422	-.07	1.977
Total Risk	1124	1.853	3.324	.005	16.645
Default Risk	1124	4.657	4.709	-.5	24.5
Credit Risk	1124	4.984	4.236	.405	30.1
ESG	1124	41.328	20.589	.72	92.09
ENV	1124	31.837	25.391	0	97.52
SOC	1124	43.074	24.853	.34	97.34
GOV	1124	48.703	21.514	2.65	98.72
Firm Size	1124	15.016	1.313	11.882	18.296
Firm Profitability	1124	7.831	7.828	-10.77	40.01
Market-to-book ratio	1124	3.716	7.854	0	55.95
Leverage	1124	24.518	15.124	.11	66.48
CGI	1124	1.787	3.921	-2.767	9.909
Inflation	1124	1.654	1.994	-2.54	6.413
GDP Change	1124	2.34	3.67	-6.195	7.614

Panel B: Non-Shariah Compliant Firms

Variable	Obs	Mean	Std. Dev.	Min	Max
Beta	1774	.806	.457	-.25	2.085
Total Risk	1774	1.565	3.775	.004	21.82
Default Risk	1774	3.737	4.395	.1	27
Credit Risk	1774	4.324	2.695	.343	18.705
ESG	1774	41.81	20.057	1.19	91.04
ENV	1774	34.943	25.702	0	95.51
SOC	1774	43.063	24.17	.05	97.13
GOV	1774	46.826	22.529	.45	97.11
Firm Size	1774	14.861	1.514	11.03	17.715
Firm Profitability	1774	7.094	8.056	-14.36	47.96
Market-to-book ratio	1774	3.017	4.339	.23	30.953
Leverage	1774	31.747	18.149	.26	75.09
CGI	1774	1.809	4.325	-2.566	9.909
Inflation	1774	1.625	1.884	-2.079	6.395
GDP Change	1774	2.194	4.292	-9.518	7.614

For the aggregate ESG and components of ESG practices, the mean scores between the two groups are very similar, suggesting that both Shariah and non-Shariah-compliant firms, on average, pay comparable attention to ESG concerns. Although the descriptive statistics provide insights, they do not conclusively demonstrate that either group specifically enhances the risk-mitigating effects of ESG practices. Consequently, we aim to delve deeper into this relationship, employing a thorough and robust analysis to gain a clearer understanding.

5.6.2 ESG Performance of Shariah and Non-Shariah Compliant Firms

In analysing the ESG performance of firms within the sample, Table 5.11 presents ESG scores for firms, dividing them into Shariah-compliant and non-Shariah-compliant categories, along with the full sample for comparison. The data reflects a diverse participation with 205 Shariah-compliant firms and 438 non-Shariah-compliant firms from 643 firms. The aggregate ESG scores show a slight difference between the groups, with Shariah-compliant firms averaging slightly lower at 41.33, compared to the total sample's average of 41.62 and non-Shariah firms scoring slightly higher at 41.81.

Table 5.11 ESG Performance in Shariah and Non-Shariah Compliant Firms

No. of Firms		ESG	ENV	SOC	GOV
643	Total Sample	41.62	33.74	43.06	47.55
205	Shariah Compliant	41.33	31.84	43.07	48.70
438	Non-Shariah Compliant	41.81	34.94	43.06	46.83

The ENV scores further delineate the contrast in ESG practices, where non-Shariah firms exceed the total sample's average of 33.74 with a score of 34.94, indicating a stronger emphasis on environmental concerns and engagements. In contrast, Shariah-compliant firms fall behind with an average score of 31.84. SOC scores are relatively consistent across the board, suggesting a sector-wide

acknowledgement of social responsibilities. However, governance scores reveal a difference, with Shariah-compliant firms leading at 48.7, likely reflecting the impact of Shariah governance principles that stress ethical conduct and transparency. In contrast, non-Shariah firms report a lower average of 46.83, just below the total sample's 47.55. This analysis reveals that while non-Shariah firms might prioritise environmental efforts, Shariah-compliant firms demonstrate stronger governance structures.

The variations in ESG performance between Shariah-compliant and non-Shariah-compliant firms could be attributed to several factors. Shariah-compliant firms often adhere to principles that emphasise ethical decision-making and financial justice, which may naturally align with strong governance practices. This could explain their higher GOV scores. However, these firms might have stricter investment mandates that limit their exposure to certain environmental initiatives, which might be more capital-intensive and not align with Shariah principles, potentially accounting for the lower ENV scores.

Non-Shariah-compliant firms are not bound by such principles and may have more freedom to invest in and adopt broader environmental initiatives, explaining their higher ENV scores. The nearly identical SOC scores suggest that social issues are a universal concern across all firms, possibly due to widespread recognition of their importance in corporate sustainability and public image.

It is important to note that the differences in scores could be influenced by the criteria used to define Shariah compliance, as well as the specific practices and industries associated with the firms in each category. Additionally, the absolute differences in scores are relatively small, indicating that while there are differences, they are not pronounced.

5.6.3 Regression Analysis on Aggregate ESG and Risk Measures

Table 5.12 reports the regression results from both Shariah-compliant and non-Shariah-compliant firms. Column 1 presents the results for Shariah-compliant firms. In Shariah-compliant firms, the regression analysis reveals that higher ESG scores are significantly

associated with lower systematic risk, as evidenced by their negative relationship with Beta. The estimated coefficient on ESG is -0.0316 with a p-value of -0.0115, indicating that in terms of marginal effects, a 1% increase in a Shariah firm's overall ESG score leads to a 3.16% decrease in its systematic risk. This indicates that firms adhering to Shariah principles and with strong ESG practices may be less volatile than the broader market. Conversely, there is an unexpected positive relationship between ESG and default risk, suggesting that higher ESG scores could be linked to an increased risk of default in these firms. However, ESG scores do not exhibit a significant relationship with either total risk or credit risk within the Shariah-compliant sector, suggesting that ESG factors may not be a primary determinant of these particular risk measures in the context of Shariah compliance.

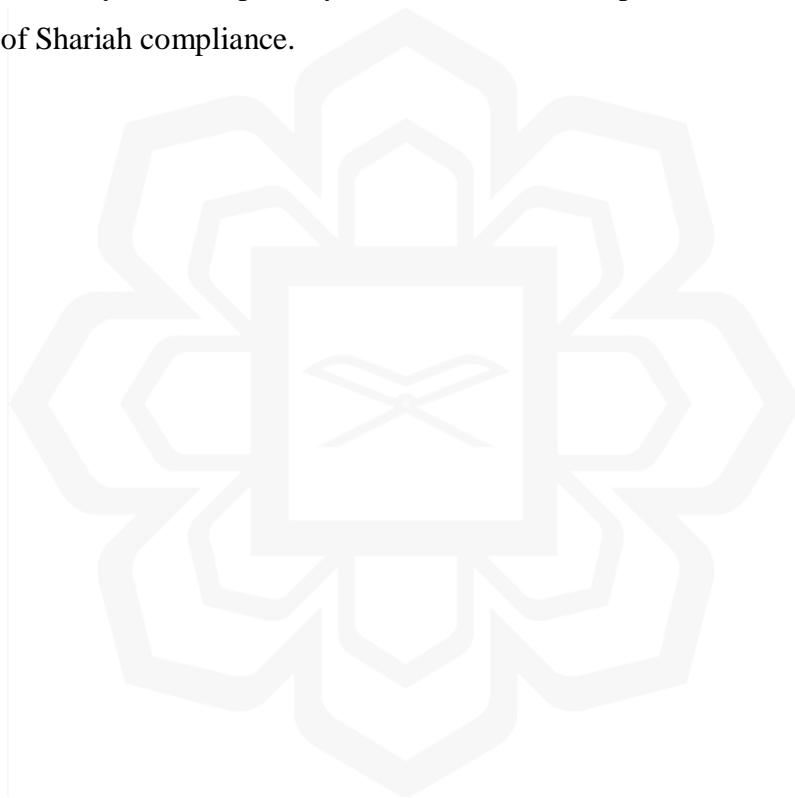


Table 5.12 Regression Results

VARIABLES	(1) Shariah Compliant Firms				(2) Non-Shariah Compliant Firms			
	BETA	TOTAL RISK	DEFAULT RISK	CREDIT RISK	BETA	TOTAL RISK	DEFAULT RISK	CREDIT RISK
ESG	-0.0316***	0.0206	0.0895*	-0.0182	0.0181	0.0191	-0.0426	-0.0145
	-0.0115	-0.0675	-0.0541	-0.0197	-0.015	-0.0479	-0.117	-0.0113
SIZE	0.144***	-0.492	1.476	-0.192	-0.0979*	-0.303	-0.0721	-0.287
	-0.0412	-0.332	-1.305	-0.802	-0.0579	-0.214	-2.678	-0.3
ROA	-0.0641	-0.00604	0.141**	-0.0274	-0.00567**	-0.0254	0.165	0.0536*
	-0.0218	-0.0143	-0.0548	-0.0267	-0.00247	-0.013	-0.11	-0.0306
MTB	0.0233	0.0228	0.202**	-0.111**	-0.00934*	-0.0266	0.148	0.0336
	-0.0437	-0.0305	-0.083	-0.0513	-0.00501	-0.0491	-0.177	-0.0403
LEV	0.0223	0.0152	-0.110***	-0.0808**	0.00126	0.0102	0.209**	-0.0365***
	-0.0141	-0.0102	-0.0314	-0.0348	-0.00214	-0.0743	-0.0875	-0.0127
CGI	-0.0792***	0.407***	1.054	0.339	0.0302	0.171**	-0.565	-0.187
	-0.0285	-0.125	-1.755	-0.401	-0.0314	-0.0774	-2.749	-0.217
INF	-0.0616	-0.0682***	0.354	-0.254***	-0.00999	-0.145***	-0.939	0.038
	-0.0724	-0.0238	-0.355	-0.0883	-0.0072	-0.0285	-0.767	-0.039
GDPCh	-0.0358	-0.156***	-0.427	-0.033	-0.00478	-0.0390***	-0.414	-0.0499**
	-0.064	-0.0314	-0.271	-0.0527	-0.00345	-0.0126	-0.307	-0.0231
Constant	-1.287	9.039*	-13.14	10.89	2.419***	5.903*	38.26	9.580**
	-1.845	-4.811	-20.19	-11.64	-0.836	-3.083	-39.02	-4.417
Observations	1,124	1,124	1,124	1,124	1,774	1,774	1,774	1,774
R-squared	0.111	0.156	0.232	0.062	0.09	0.092	0.451	0.122
Number of Ids	205	205	205	205	438	438	438	438
Year FE	YES	YES	YES	YES	YES	YES	YES	YES

Column 2 reports the results for non-Shariah-compliant firms. In non-Shariah-compliant firms, the analysis indicates that ESG practices do not significantly impact systematic risk and total risk, as there is no notable relationship between ESG scores with Beta and total risk. Interestingly, there is a positive relationship between ESG scores with Beta and total risk, suggesting that firms with higher ESG ratings may experience a marginally higher level of overall risk. Additionally, ESG scores are not associated with either default risk or credit risk, highlighting that ESG considerations may not play a role in influencing these types of financial risk within these firms. These results could imply that in the context of non-Shariah compliant firms, other factors may predominate in the assessment and management of risk and that the integration of ESG practices into risk mitigation strategies may not be as pronounced or involve complexities not captured by traditional risk measures.

In summary, ESG practices seem to play a role in reducing systematic risk for Shariah-compliant firms but do not have the same effect on non-Shariah-compliant firms. This result extends the literature on ESG and firm risks in Islamic entities (Kabir Hassan et al., 2021; Cheung, 2016), whereby they found that the risk-mitigating effect occurs for systematic risk. Our research shows that the impact of ESG practice on a firm's risk profile can vary depending on whether the firm complies with Shariah principles. We argue that this difference could be attributed to the perception among investors that companies with higher ESG scores are less likely to be affected by non-diversifiable market volatility. This discrepancy could be due to the risk-averse business practices inherent in Sharia-compliant firms.

5.6.4 Regression Analysis on ESG Components and Risk Measures

In Shariah-compliant firms, the ENV dimension of ESG shows a distinctive pattern, where higher ENV scores are significantly associated with increased total risk. This finding aligns with Kanamura (2022), which suggests that while firms may invest in environmentally responsible practices, such initiatives might introduce additional complexities or costs perceived as risk factors. However, these environmental considerations do not significantly influence the firms' default or credit risk, indicating

that the environmental risks do not translate into financial instability or creditworthiness concerns.

Meanwhile, the negative correlation between the SOC component and a firm's systematic risk suggests that firms with strong social practices may be viewed as more stable and less prone to market fluctuations. This could be because companies that manage social issues often enjoy better relationships with employees, customers, and their communities, leading to a more loyal base and consistent performance. This aligns with the stakeholder theory's emphasis on creating value for all stakeholders to ensure the firm's long-term success and stability. By maintaining positive stakeholder relationships, companies can enhance their reputation, build stakeholder loyalty, and achieve consistent performance and stability. Investors might see these socially responsible firms as safer, especially for long-term investment, which can stabilise a firm's stock in turbulent markets. Additionally, these firms will likely stay ahead of regulations and adapt smoothly to changing social expectations, reducing the chances of costly legal issues or boycotts that can upset a company's financial stability. In short, good social practices could signal that a company is well-run and resilient, making its stock less risky in the eyes of investors. Besides, SOC scores neither benefit nor detrimentally affect the firms' other risk measures, implying that social practices may be well-integrated or balanced with other business activities. In contrast, GOV practices within Shariah-compliant firms significantly contribute to risk mitigation, with higher GOV scores associated with reduced total risk. This could reflect the effective alignment of ethical governance practices with risk management strategies, emphasising the role of strong governance in safeguarding against risk in Shariah-compliant firms.

For non-Shariah-compliant firms, the findings reveal a multifaceted relationship between ESG components and various risk measures. While contributing to an overall increase in total risk, ENV practices are associated with reductions in systematic (Muhammad et al., 2014) and credit risk (Razak et al., 2023). Firms that engage in robust environmental practices experience reduced systematic and credit risks primarily due to effective risk management strategies that mitigate potential operational disruptions and environmental liabilities. The firm's environmental practices reduce both systematic and credit risk and may lie in their shared foundation of enhancing a

firm's stability and reputation. These practices improve operational efficiency and financial performance, directly reducing systematic risk by stabilising a company's market position and making it less susceptible to broad market fluctuations. Concurrently, this enhanced financial stability and operational efficiency make the firm more creditworthy, demonstrating an ability to manage and mitigate risks associated with environmental sustainability effectively (Razak et al., 2023). Furthermore, strong environmental credentials bolster a company's reputation, attracting eco-conscious consumers and investors and often leading to better financing opportunities. This positive reputation reinforces investor confidence and can lead to more stable stock prices, thereby reducing systematic risk and assuring creditors of the firm's long-term viability and commitment to risk management, thus reducing credit risk. In essence, the core aspects that underpin the reduction of systematic risk through environmental practices - operational efficiency, compliance, resilience, and enhanced reputation - are also instrumental in lowering credit risk, illustrating a synergistic relationship between the two.

Meanwhile, the positive correlation between the SOC dimension of ESG and a firm's systematic risk could stem from the fact that social initiatives often come with high costs and may not lead to immediate financial benefits, leading to more volatile stock prices. Additionally, focusing heavily on social goals might distract from a firm's main business, potentially hurting its bottom line and causing its stock to be more reactive to market trends. If the market fails to accurately assess the value of a firm's social efforts, this could also lead to greater fluctuation in stock prices, elevating systematic risk. GOV dimension, however, seems to have a neutral effect on risk, with no significant correlation observed across the measures. This detachment could imply that for non-Shariah-compliant firms, governance structures may already be optimised to the point where they neither add nor detract from the firm's risk profile or that the market perceives governance quality as a baseline standard rather than a differentiating factor. These findings suggest that ENV and SOC aspects of ESG can have contrasting effects on risk, with GOV practices maintaining a consistent baseline within the risk assessment framework.

The comparative analysis between Shariah-compliant and non-Shariah-compliant firms reveals similarities and differences in how ESG components affect firm

risk. A notable similarity is observed in how ENV scores positively correlate with total risk in both firms. This suggests that irrespective of the firm's compliance status, environmental practices might introduce complexities or costs, leading to an increase in overall risk. Furthermore, SOC and GOV components do not significantly impact credit risk in either group, indicating a universal trend where these ESG aspects might not directly influence a firm's creditworthiness.

However, the differences between the two types of firms are particularly revealing. In non-Shariah-compliant firms, SOC scores significantly increase systematic risk, highlighting a unique sensitivity to social factors that is not evident in Shariah-compliant firms. This could suggest that non-Shariah-compliant firms are more exposed to or affected by social issues in terms of market volatility. On the other hand, Shariah-compliant firms exhibit a significant negative correlation between GOV scores and total risk. This indicates that strong governance practices in Shariah-compliant firms effectively reduce total risk, a relationship not mirrored in non-Shariah-compliant firms. This disparity could be due to the inherent operational, cultural, or strategic differences between the two types of firms, particularly in how they implement and manage ESG practices.

While ENV factors consistently elevate total risk across Shariah and non-Shariah-compliant firms, SOC factors distinctly influence systematic risk in non-Shariah-compliant firms. Similarly, GOV practices significantly impact risk mitigation only within Shariah-compliant firms. These findings suggest that the type of firm compliance (Shariah vs. non-Shariah) could be one of the determining factors in how ESG components impact various risk measures, reflecting the intricate ways ESG factors interact with firm-specific characteristics and the broader operating environment.

Table 5.13 Regression Results

VARIABLES	(1) Shariah Compliant Firms				(2) Non-Shariah Compliant Firms			
	BETA	TOTAL RISK	DEFAULT RISK	CREDIT RISK	BETA	TOTAL RISK	DEFAULT RISK	CREDIT RISK
ENV	0.0247	0.0109*	-0.0305	-0.00556	-0.0231	0.0727**	-0.00801	-0.0706
	-0.016	-0.0595	-0.0802	-0.0199	-0.0957	-0.0332	-0.111	-0.0651
SOC	-0.0288	-0.043	0.0753	0.0127	0.0292**	-0.035	-0.0365	-0.0208
	-0.017	-0.0513	-0.0695	-0.0255	-0.0128	-0.00388	-0.104	-0.0938
GOV	-0.00934	-0.0702 *	0.0443	-0.0942	0.0776	-0.0177	0.0302	-0.0242
	-0.0107	-0.0388	-0.027	-0.0137	-0.00103	-0.00314	-0.103	-0.0552
SIZE	0.147	-0.531	1.624	-0.252	-0.0883	-0.332	0.027	-0.291
	-0.124	-0.331	-1.477	-0.812	-0.0579	-0.218	-2.683	-0.309
ROA	-0.00643	-0.0071	0.147**	-0.029	-0.00579**	-0.00198	0.162	0.0533*
	-0.0313	-0.0146	-0.0568	-0.0269	-0.00241	-0.013	-0.109	-0.0307
MTB	0.00248	0.00416	0.189**	-0.110**	-0.00969*	-0.000869	0.141	0.0316
	-0.00495	-0.0308	-0.0842	-0.0515	-0.00497	-0.0485	-0.18	-0.0412
LEV	0.00207	0.0145	-0.106***	-0.0803**	0.00139	0.00979	0.209**	-0.0360***
	-0.00271	-0.0102	-0.0326	-0.0344	-0.00212	-0.00727	-0.086	-0.0127
CGI	-0.0795*	0.411***	1.011	0.358	0.0346	0.161**	-0.591	-0.177
	-0.0419	-0.124	-1.759	-0.402	-0.0308	-0.0771	-2.788	-0.217
INF	-0.00625	-0.0726***	0.371	-0.258***	-0.0101	-0.144***	-0.943	0.0377
	-0.00812	-0.0249	-0.356	-0.0877	-0.00713	-0.0284	-0.775	-0.0388
GDPCh	-0.00347	-0.158***	-0.422	-0.0351	-0.00517	-0.0383***	-0.41	-0.0506**
	-0.00665	-0.0317	-0.267	-0.0536	-0.00333	-0.0125	-0.305	-0.0231
Constant	-1.306	9.972**	-16.48	11.79	2.255***	6.435**	36.57	9.507**
	-1.812	-4.845	-23.52	-11.96	-0.839	-3.18	-39.92	-4.591
Observations	1,124	1,124	1,124	1,124	1,774	1,774	1,774	1,774

R-squared	0.115	0.163	0.225	0.062	0.098	0.094	0.465	0.124
Number of Ids	205	205	205	205	438	438	438	438
Year FE	YES	YES	YES	YES	YES	YES	YES	YES



5.6.5 The Impact of ESG Practice on Firm Risk in ASEAN and GCC Countries

The ASEAN and GCC regions differ significantly in their regulatory environments, cultural norms, and economic structures, which could influence how ESG practices impact firm risk. The GCC is known for its oil-dependent economies, while ASEAN has a more diversified industrial base. As such, the impact of ESG practices on firm risk might vary due to differing levels of ESG awareness, regulatory enforcement, and market maturity in these regions.

Panel C and Panel D of Tables 5.14 report the summary statistics for firms' performance in ASEAN and GCC countries. Descriptive statistics reveal that ASEAN firms have a higher average Beta of 0.827, indicating they face greater systematic risk than GCC firms, with a lower mean Beta of 0.604. This difference suggests that ASEAN firms might operate in more volatile markets or have a more diverse industrial mix, making them more susceptible to broader market dynamics. Furthermore, ASEAN firms exhibit a higher mean total risk of 1.773, in contrast to 0.412 for GCC firms, implying that ASEAN firms generally operate in a riskier business environment. Factors contributing to this could include ASEAN's varied economic landscape, different stages of market development, and greater exposure to both local and international market risks.

The default risk, represented by an Altman Z-score, is an established metric for gauging the potential risk of bankruptcy, integrating various financial ratios into a singular measure of a firm's fiscal health. With ASEAN firms averaging a Z-score of 19 and GCC firms at 41, both are comfortably above the threshold that typically signifies financial stability, placing them in a low-risk category for bankruptcy. Meanwhile, the cost of debt, representing the interest rate firms pay on their borrowings, indicates credit risk assessed by lenders. ASEAN firms, with a lower cost of debt at 4.3% compared to GCC firms at 4.7%, suggest that lenders view GCC firms as riskier, warranting a higher interest rate. This could be attributed to the economic and political stability of the regions, the risk profile of the industries dominant there, or historical default rates. Market conditions, such as baseline interest rates and lending competition, may also contribute to the regional disparity in borrowing costs. Additionally, lenders might consider firm-specific financial indicators like health, leverage, and profitability

when determining the cost of debt, potentially seeing GCC firms as less financially robust on average. While a higher cost of debt implies greater credit risk, it does not necessarily equate to the poor financial health of GCC firms; rather, it indicates the premium lenders require for the perceived higher risk associated with lending to these firms. The cost of debt should be interpreted in the context of the broader economic and regulatory landscapes of the ASEAN and GCC regions, which can significantly influence the cost of capital and risk perceptions.

Table 5.14 Descriptive Statistics

Panel C: ASEAN COUNTRIES

Variable	Obs	Mean	Std. Dev.	Min	Max
Beta	2300	0.827	0.418	-0.07	2.04
Total Risk	2300	1.773	3.763	0.004	20.256
Default Risk	2300	19.124	46.605	-0.2	248.7
Credit Risk	2300	4.257	3.079	0.41	20.735
ESG	2300	46.04	19.288	1.19	92.09
ENV	2300	38.526	24.869	0	97.52
SOC	2300	49.262	22.899	0.05	97.34
GOV	2300	48.885	22.171	0.45	98.72
Firm Size	2300	2.717	0.107	2.429	2.961
Firm Profitability	2300	4.201	0.105	3.974	4.664
Market-to-book ratio	2300	4.965	0.039	4.943	5.241
Leverage	2300	2.937	1.134	-1.427	4.258
CGI	2300	1.477	0.73	0.36	2.633
Inflation	2300	1.887	0.275	1.351	2.435
GDP Change	2300	2.442	0.561	-0.73	2.869

Panel D: GCC COUNTRIES

Variable	Obs	Mean	Std. Dev.	Min	Max
Beta	598	0.604	0.441	-0.25	1.8
Total Risk	598	0.412	0.687	0	4.267
Default Risk	598	40.873	70.11	0	276.2
Credit Risk	598	4.684	3.529	0.116	20.71
ESG	598	31.433	18.079	0.72	80.4
ENV	598	19.961	22.194	0	84.83
SOC	598	26.032	19.874	0.34	84.28
GOV	598	49.333	21.834	2.65	94.33
Firm Size	598	2.748	0.125	2.401	2.962

Firm Profitability	598	4.158	0.097	3.769	4.489
Market-to-book ratio	598	4.954	0.009	4.942	4.999
Leverage	598	2.753	1.143	-1.022	4.271
CGI	598	1.564	0.487	0.633	2.076
Inflation	598	1.733	0.398	0.9	2.286
GDP Change	598	2.315	0.466	0.135	2.996

The descriptive statistics for ESG and its components in ASEAN and GCC countries show that ASEAN firms have a higher overall ESG score (46.04) than GCC firms (31.43), indicating possibly more comprehensive ESG practices. Specifically, ASEAN firms score higher on ENV (38.53 vs. 19.96) and SOC (49.26 vs. 26.03) dimensions, suggesting a stronger emphasis or performance in these areas than their GCC counterparts. However, GOV scores are higher in GCC firms (49.33) than in ASEAN firms (48.89), which could imply stricter corporate governance standards or practices in the GCC region. These statistics reflect regional differences in ESG prioritisation and practices, potentially influenced by economic, regulatory, and cultural factors inherent to each region.

5.6.6 ESG Performance ASEAN and GCC Countries

Table 5.15 demonstrates that ASEAN firms not only surpass the total sample's average ESG score of 41.62 with a higher score of 46.04, indicating potentially more robust ESG practices or stringent reporting mechanisms but also notably outperform GCC firms, which have a lower average score of 31.43. This contrast suggests that ASEAN firms might be more deeply involved in ESG initiatives, possibly due to more favourable evaluation metrics that reflect the ESG activities common in their diverse, export-driven economies. Conversely, the lower scores for GCC firms could stem from various factors, including less rigorous ESG reporting requirements, a different set of priorities concerning ESG issues, or a less proactive approach to ESG practices. These disparities highlight regional differences in the adoption and disclosure of ESG standards, with ASEAN firms emphasising these practices more or being more aligned with international reporting standards.

Table 5.15 ESG Performance in ASEAN and GCC Firms

No. of firms		ESG	Environmental	Social	Governance
643	Total Sample	41.62	33.74	43.06	47.55
460	ASEAN	46.04	38.526	49.262	48.885
183	GCC	31.433	19.961	26.032	49.333

ASEAN firms showcase a stronger focus on environmental issues with an ENV score of 38.53, surpassing GCC firms' score of 19.96 and the overall sample average of 33.74. This indicates that ASEAN firms may be more engaged in environmental sustainability, likely in response to specific regional challenges and stricter environmental regulations. In contrast, the lower ENV score for GCC firms suggests different priorities, possibly shaped by the region's dependence on fossil fuel industries known for lower environmental performance. The significant gap between ASEAN and GCC firms in ENV scores highlights an area where GCC firms could focus their efforts on improvement, especially since they also fall below the overall sample's average. This disparity may reflect the varied industry compositions across regions, with ASEAN firms possibly placing a higher value on environmental sustainability within their business practices.

ASEAN firms demonstrate a greater engagement with social concerns, as evidenced by their SOC score of 49.26, notably higher than the overall sample's 43.06. This suggests that these firms may be more actively involved in addressing social issues or have more robust reporting practices. In contrast, GCC firms have a lower SOC score of 26.03, falling behind both ASEAN firms and the overall sample. This could indicate differing social priorities within the GCC or alternative approaches to reporting on social practices, possibly influenced by the unique socio-economic landscape of the region.

GCC firms outperform the total sample average (47.55) with a GOV score of 49.33, suggesting robust governance practices in the GCC that may exceed those of the

overall sample. ASEAN firms are nearly similar to the overall sample, scoring slightly above 48.89, which still reflects strong governance but is lower than GCC firms.

These comparisons highlight that ASEAN firms are leaders in ENV and SOC aspects of ESG within this sample, while GCC firms take the lead in GOV. The lower scores in GCC firms for ENV and SOC categories could be attributed to a focus on governance and possibly to the economic makeup of the region, which is heavily influenced by the oil and gas sector with different environmental and social challenges. The strong GOV scores in both regions suggest an alignment with international corporate governance standards, which may be driven by the need to attract global investors and operate effectively in international markets.

5.6.7 Regression Analysis on Aggregate ESG and Risk Measures

Table 5.16 reports the regression results from ASEAN and GCC firms. Column 1 presents the results for firms in 6 ASEAN countries. The impact of ESG practices on risk measures varies between ASEAN and GCC firms, reflecting the distinct market dynamics and the maturity of ESG integration within the regions.

In Column 1, ESG indicators do not significantly influence systematic (Beta) and total risk for ASEAN firms. This indicates that ESG factors are not perceived as altering the market-related volatility or the comprehensive risk exposure of these firms. It suggests that other variables may be more critical in determining market risk or that ESG practices have not reached a level where the market recognises their risk mitigation effects. However, a significant negative relationship exists with credit risk, implying that firms with higher ESG scores might enjoy lower borrowing costs. This relationship can be attributed to the perception that good ESG practices lead to better risk management and operational efficiency, which are factors that lenders consider positively, potentially offering better credit terms.

In contrast, GCC firms' results in Column 2 show a significant positive correlation between ESG practices and total risk, implying that higher ESG engagement might be associated with increased overall risk. This could be due to the possibility that

ESG-oriented projects in the GCC might involve higher-risk ventures or that the market views the costs associated with implementing ESG practices as contributing to overall risk. Notably, ESG practices do not significantly impact GCC firms' systematic default or credit risks. This lack of correlation might indicate that the investors and creditors in the GCC do not yet integrate ESG considerations into their risk assessment models to the same extent as they might in other regions, or it could suggest that ESG practices have not sufficiently matured to be reflected in these risk measures.

The differences in ESG impact between ASEAN and GCC firms could also be influenced by the varying economic structures, with the GCC's reliance on hydrocarbon industries possibly affecting how ESG practices are implemented and perceived. With a more diverse economic structure in ASEAN, ESG practices might be more aligned with global standards and thus have a different association with risk, especially credit risk.

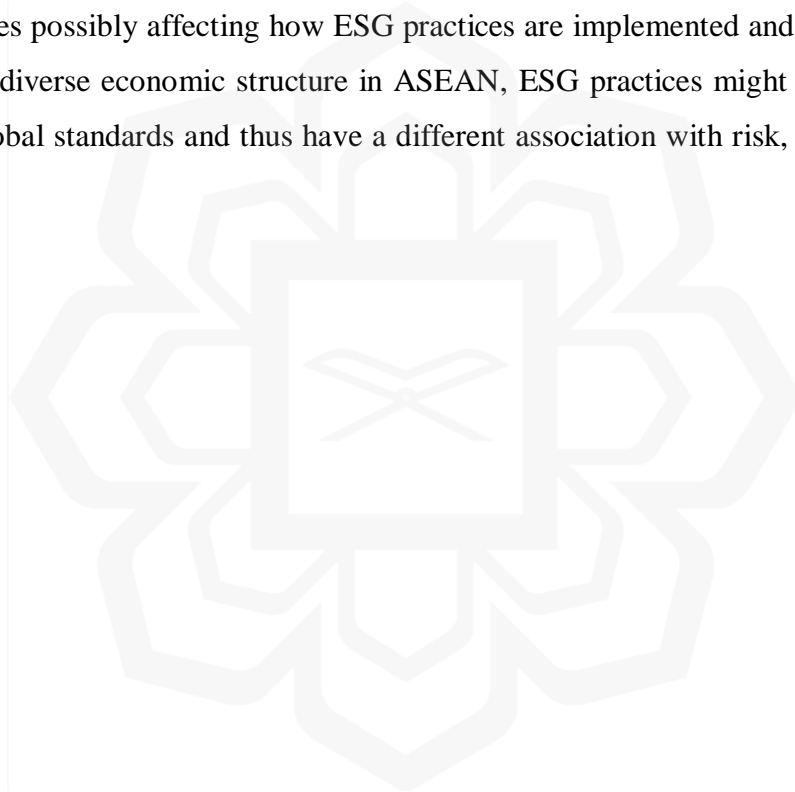


Table 5.16 Regression Results

VARIABLES	(1) ASEAN Firms				(2) GCC Firms			
	BETA	TOTAL RISK	DEFAULT RISK	CREDIT RISK	BETA	TOTAL RISK	DEFAULT RISK	CREDIT RISK
ESG	-0.00316	-0.0258	0.0332	-0.0192*	0.0136	0.0273*	-0.0179	-0.0986
	-0.0154	-0.0512	-0.0708	-0.0113	-0.0142	-0.0151	-0.229	-0.0142
SIZE	-0.153	-6.295*	0.782	0.748	-2.701	5.778**	-204.7	-26.00*
	-1.142	-3.264	-21.89	-4.96	-1.943	-2.314	-129.3	-15.5
ROA	-0.339**	-1.491	5.283	0.688	-0.129	0.482	22.29**	-5.387**
	-0.164	-0.907	-5.901	-1.926	-0.261	-0.397	-11.11	-2.084
MTB	-0.426	1.726	12.09	3.688	-8.224*	8.405	-24.76	-62.07**
	-0.454	-4.073	-16.99	-5.946	-4.36	-6.49	-261	-28.85
LEV	0.0253	0.114	0.508	-1.467***	0.0429	-0.0675**	1.927	0.136
	-0.0195	-0.104	-0.732	-0.306	-0.0337	-0.0292	-2.659	-0.362
CGI	0.173*	-0.466**	1.125	0.173	-0.161	0.346*	3.509	-1.347
	-0.104	-0.199	-4.759	-0.705	-0.154	-0.188	-13.74	-1.143
INF	-0.0494	-2.359***	-3.585	-0.293	-0.0309	0.126*	-5.35	-0.131
	-0.0515	-0.272	-3.903	-0.329	-0.0328	-0.0681	-4.578	-0.326
GDPC _h	0.00415	0.0423	-1.499**	0.0187	0.0522	0.104***	-0.948	-0.0825
	-0.0147	-0.057	-0.719	-0.11	-0.0395	-0.0393	-7.889	-0.477
Constant	4.686	21.6	-53.24	-14.06	49.38**	-60.34*	625.1	407.6***
	-3.882	-24.45	-98.02	-34.28	-23.07	-33.96	-1,396	-148.8
Observations	2,300	2,300	2,300	2,300	598	598	598	598
R-squared	0.072	0.154	0.334	0.142	0.163	0.114	0.298	0.063

VARIABLES	(1) ASEAN Firms				(2) GCC Firms			
	BETA	TOTAL RISK	DEFAULT RISK	CREDIT RISK	BETA	TOTAL RISK	DEFAULT RISK	CREDIT RISK
Number of Ids	460	460	460	460	183	183	183	183
Year FE	YES	YES	YES	YES	YES	YES	YES	YES



5.6.8 Regression Analysis on ESG Components and Risk Measures

In examining ASEAN firms, the regression analysis from Table 5.17 reveals that ENV factors have a negligible impact on systematic risk, suggesting that initiatives such as sustainability and conservation have not yet reached a scale where they significantly sway investor confidence or market behaviour. However, the significant positive correlation with total risk implies that ENV commitments might increase operational or strategic risks, potentially due to the investments or organisational changes required to improve environmental performance.

On the other hand, SOC factors benefit ASEAN firms by significantly reducing total risk. This could be attributed to the positive influence of corporate social responsibility on company reputation, employee morale, and community relations, which in turn can stabilise business operations and reduce risk. Interestingly, GOV practices do not have a significant relationship with risk measures. This might indicate that governance structures in ASEAN firms are sufficiently established to prevent additional risk, or it could suggest that investors and creditors view governance quality as a baseline expectation rather than a differentiating factor.

For GCC firms, the regression analysis highlights the varied influence of ESG components on different types of risk. Notably, a stronger commitment to ENV factors is inversely related to systematic risk, suggesting that such practices may convey a sense of stability and strategic risk management that reduces the firm's sensitivity to market fluctuations. This relationship could also reflect the market's favourable view of long-term sustainability measures. However, these environmental efforts do not significantly alter the firm's overall risk or default risk, indicating that such initiatives have not yet scaled to a level that materially impacts the broader risk metrics or financial solvency. Conversely, these ENV practices seem to be associated with increased credit risk, potentially due to the front-loaded costs or perceived financial risks inherent in implementing such measures.

Social factors present an intriguing contrast in GCC firms, as higher SOC scores seem to be linked with increased systematic risk. This could be interpreted as the market factoring in the uncertainty or speculative nature of social initiatives. However, social

factors also appear to reduce credit risk, suggesting that lenders may view strong social engagement as a sign of a firm's overall stability and good governance. This could potentially lead to more favourable credit terms.

GOV practices, meanwhile, show no significant correlation with any of the risk measures in GCC firms, suggesting either a baseline level of governance quality that is uniformly high across firms or a market perception that does not yet differentiate risk based on governance metrics. The absence of a relationship here might also indicate that governance factors are deeply embedded within the operational structures of GCC firms and, as such, do not vary enough to influence risk assessments distinctly.



Table 5.17 Regression Results

VARIABLES	(1) ASEAN Firms				(2) GCC Firms			
	BETA	TOTAL RISK	DEFAULT RISK	CREDIT RISK	BETA	TOTAL RISK	DEFAULT RISK	CREDIT RISK
ENV	-0.00512	0.0842**	0.0476	-0.0966	-0.0460**	0.0247	-0.135	0.0203**
	-0.0099	-0.0383	-0.0614	-0.0731	-0.00179	-0.0174	-0.266	-0.00786
SOC	-0.00112	-0.0817*	0.0208	0.0203	0.0504**	-0.00106	0.151	-0.0337***
	-0.0113	-0.0418	-0.0654	-0.0991	-0.0213	-0.0205	-0.206	-0.0123
GOV	-0.00118	-0.0432	0.061	-0.0957	-0.0012	0.00212	-0.0431	0.0919
	-0.00915	-0.0331	-0.0718	-0.00658	-0.0138	-0.0165	-0.116	-0.0888
SIZE	-0.102	-6.663**	0.636	0.168	-2.383	5.639**	-201.3	-26.35*
	-1.141	-3.261	-22.55	-5.098	-1.805	-2.294	-131.4	-15.58
ROA	-0.339**	-1.466	5.28	0.665	-0.0847	0.484	23.53**	-5.703***
	-0.164	-0.901	-5.876	-1.914	-0.271	-0.395	-11.47	-2.037
MTB	-0.433	1.898	12.24	3.72	-8.674*	8.572	-48.6	-57.68**
	-0.456	-4.04	-17.24	-5.988	-4.428	-6.294	-257.3	-26.83
LEV	0.0256	0.0998	0.505	-1.462***	0.0455	-0.0661**	2.071	0.0942
	-0.0192	-0.104	-0.75	-0.303	-0.0343	-0.0293	-2.609	-0.353
CGI	0.169	-0.458**	1.169	0.239	-0.173	0.341*	2.873	-1.178
	-0.104	-0.207	-4.732	-0.696	-0.149	-0.189	-13.85	-1.156
INF	-0.0505	-2.339***	-3.576	-0.299	-0.0324	0.127*	-5.368	-0.133
	-0.0518	-0.269	-3.934	-0.328	-0.0317	-0.0685	-4.538	-0.325
GDPCh	0.00452	0.0436	-1.501**	0.0238	0.0612	0.103***	-0.625	-0.153
	-0.0147	-0.0572	-0.724	-0.11	-0.0375	-0.0375	-8.004	-0.474
Constant	4.6	21.79	-53.63	-12.68	50.53**	-60.77*	728.7	388.0***
	-3.88	-24.34	-97.2	-34.31	-23.38	-32.51	-1,393	-140.4
Observations	2,300	2,300	2,300	2,300	598	598	598	598
R-squared	0.072	0.157	0.347	0.143	0.187	0.116	0.334	0.076
Number of Ids	460	460	460	460	183	183	183	183
Year FE	YES	YES	YES	YES	YES	YES	YES	YES

The comparative analysis between these two regions shows that ESG components of ASEAN and GCC firms have distinct impacts on various risk measures. For example, in ASEAN firms, ENV initiatives are associated with increased total risk, possibly due to investments in sustainability, but do not significantly affect market volatility or creditworthiness. GCC firms show a negative relationship between ENV efforts and market volatility, suggesting stability, yet these efforts may raise credit risk due to associated costs. SOC engagement in ASEAN firms correlates with reduced overall risk, hinting at operational benefits. In contrast, in GCC firms, it is linked to increased market risk but potentially lower credit risk, reflecting the value placed on social responsibility. GOV quality appears consistently non-influential on risk measures in both regions, indicating either uniformly effective governance practices or a lack of variance in governance impacting firm risk profiles.

The findings suggest that while ESG practices are increasingly important for firms, their impact on different aspects of risk is complex and varies across regions and risk types. The divergence in ESG impact between ASEAN and GCC firms could reflect regional differences in economic structures, regulatory environments, and stages of ESG integration into business strategies. Notably, the research underscores the intricate role of ESG factors in shaping firm risk profiles, with implications for investors, regulators, and policymakers focused on sustainable corporate practices. These findings contribute to a deeper understanding of the ESG-risk nexus and indicate the importance of contextualising ESG efforts within specific regional and industry landscapes. They also highlight the potential for ESG to influence not just corporate responsibility but also financial and market perceptions, reinforcing the need for a strategic approach to ESG integration.

5.7 SUMMARY OF FINDINGS

Table 5.18 summarises the findings of this study. A brief description of each hypothesis is provided below:

Table 5.18 Summary of Findings

Research Objective	Research Question	Hypothesis	Supported	
			Yes	No
RO 1: To investigate the impact of ESG practices on firm risks.	RQ1: Does the ESG practices have any relationship with the firm risks?	H ₁ : There is a significant negative relationship between a firm's ESG practices and firm risk.		
		H _{1.1} : There is a significant negative relationship between a firm's ESG practices and firm systematic risk.		<input type="checkbox"/>
		H _{1.2} : There is a significant negative relationship between a firm's ESG practices and firm total risk.		<input type="checkbox"/>
		H _{1.3} : There is a significant negative relationship between a firm's ESG practices and firm default risk.		<input type="checkbox"/>
		H _{1.4} : There is a significant negative relationship between a firm's ESG practices and firm credit risk.	<input type="checkbox"/>	
RO 2: To examine the differential impact of ESG components (ENV, SOC, and GOV) on firm risks.	RQ2: Do the firm's ESG components (ENV, SOC, and GOV) have a differential impact on the firm's risks?	H ₂ : There is a significant negative relationship between a firm's ESG components and firm risk.		
		H _{2.1a} : There is a significant negative relationship between a firm's ENV practices and firm systematic risk.	<input type="checkbox"/>	
		H _{2.1b} : There is a significant negative relationship between a firm's SOC practices and firm systematic risk.		<input type="checkbox"/>
		H _{2.1c} : There is a significant negative relationship between a firm's GOV practices and firm systematic risk.		<input type="checkbox"/>
		H _{2.2a} : There is a significant negative relationship between a firm's ENV practices and firm total risk.		<input type="checkbox"/>
		H _{2.2b} : There is a significant negative relationship between a firm's SOC practices and firm total risk.		<input type="checkbox"/>
		H _{2.2c} : There is a significant negative relationship between a firm's GOV practices and firm total risk.		<input type="checkbox"/>
		H _{2.3a} : There is a significant negative relationship between a firm's ENV practices and firm default risk.		<input type="checkbox"/>
		H _{2.3b} : There is a significant negative relationship between a firm's SOC practices and firm default risk.		<input type="checkbox"/>
		H _{2.3c} : There is a significant negative relationship between a firm's GOV practices and firm default risk.		<input type="checkbox"/>
		H _{2.4a} : There is a significant negative relationship between a firm's ENV practices and firm credit risk.	<input type="checkbox"/>	

Research Objective	Research Question	Hypothesis	Supported	
			Yes	No
		H _{2.4b} : There is a significant negative relationship between a firm's SOC practices and firm credit risk. H _{2.4c} : There is a significant negative relationship between a firm's GOV practices and firm credit risk.		<input type="checkbox"/> <input type="checkbox"/>
RO 3: To investigate the moderating effect of the country's sustainability on the relationship between ESG practices and firm risk	RQ3: Does the country's sustainability strengthen the relationship between ESG practices and firm risks?	H ₃ : Country sustainability moderates the relationship between ESG practices and firm risk. H _{3.1} : Country sustainability moderates the relationship between ESG practices and firm systematic risk. H _{3.2} : Country sustainability moderates the relationship between ESG practices and firm total risk. H _{3.3} : Country sustainability moderates the relationship between ESG practices and firm default risk. H _{3.4} : Country sustainability moderates the relationship between ESG practices and firm credit risk.	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

5.8 SUMMARY OF CHAPTER

This chapter begins with the descriptive statistics of the variables employed in this study. The statistics were first elaborated in general, followed by a detailed descriptive analysis of firm risk, aggregate ESG and the three components of ESG. Further, this study conducted diagnostic tests to check on the OLS assumptions. With heteroscedasticity and autocorrelation problems, this study adjusted the standard error as a remedy. After this, several tests were performed to determine the appropriate regression model for this study. The Hausman test has led to the selection of FEM as a preferred model for this study data. This study used a sample of 2,898 firm-year observations, which consisted of listed firms from six ASEAN and six GCC countries. The observations start from 2011 until 2021.

The final section in this chapter is hypothesis testing. The first main hypothesis aims to investigate the impact of ESG practices on a firm's systematic, total, default and credit risk. The results indicate that the aggregate ESG practice has a significant negative effect on a firm's credit risk. The second primary hypothesis aim is to examine the differential impact of ESG components (ENV, SOC, and GOV) on firm risks. The result specifies that only the ENV component has a significant negative relationship with the firm's systematic and credit risks. This finding urges a revisit of the ESG function, and it triggers a question of whether ESG and its three components proactively encourage sustainable practices or merely act to gain public legitimacy in ASEAN and GCC countries. Additionally, hypothesis 3, which proposed the country's ESG as a moderator, only showed a significant interaction term with ESG and total risk. This finding indicates that a country's sustainability has a strong amplifying effect on a firm's total risk. Discussions on the research implications, limitations, and future study suggestions are provided in the following chapter.

CHAPTER SIX

CONCLUSION

6.1 INTRODUCTION

This final chapter consists of five parts. Section 6.2 provides a summary and discussion of the findings of this study. Section 6.3 indicates the implications of this study, while Section 6.4 discusses the research limitations and suggestions for future research. Finally, the chapter summary is presented in Section 6.5.

6.2 SUMMARY AND DISCUSSION

This thesis investigated the moderating role of a country's sustainability on the relationship between ESG practices and firm risk. To achieve this, three questions need to be answered. 1) To what extent do the ESG practices have any impact on firm's risks? 2) To what extent do the firm's ESG components have a differential impact on the firm's risks? and 3) Does the country's ESG score moderate the relationship between the firm's level ESG practices and firm's risks?

Previous research has provided limited evidence regarding the correlation between ESG practice and firm risk. To address this gap, this study utilises a dataset of 2,898 firm-year observations from 12 countries in ASEAN and GCC regions from 2011 to 2021. This study aims to assess the impact of ESG and its components on firm risk. Four risk measures, namely systematic, total, default, and credit risk, have been used for this purpose. The study employed fixed effects regressions, applying cluster-robust standard errors at the firm level and utilising a large control variable set.

The investigation into the relationship between ESG practices and firm risk across ASEAN and GCC countries supports the hypothesis that aggregate ESG practices are significantly related to firm risk, particularly credit risk (H1.4). This finding aligns with the risk mitigation theory and stakeholder theory, suggesting that firms with higher ESG scores are perceived as more creditworthy due to their proactive

approach to managing risks related to ESG issues. Such practices demonstrate a commitment to sustainable operations, enhancing the firm's reputation and reducing uncertainty for investors and creditors. Research indicates that firms with higher ESG scores may enjoy improved creditworthiness (Attig et al., 2013; Jiraporn et al., 2014; Sun and Cui, 2014), which in turn may result in reduced borrowing expenses (Oikonomou et al., 2012; El Ghouli et al., 2011; Goss and Roberts, 2011; Kim et al., 2014). These studies emphasise that ESG performance is viewed as a signal of management quality, transparency, and a firm's ability to manage external pressures, thereby reducing credit risk. This is because creditors and investors generally perceive firms with high ESG scores as less risky, given their proactive approach to managing ESG issues. These findings highlight the financial benefits of implementing and disclosing comprehensive ESG practices. Nevertheless, the regression results for Model 1 reveal that the aggregate ESG score has no significant impact on other indicators of firm risk.

The present study also found that, after disaggregating ESG into its three components (Model 2), only the ENV component was found to have a significant and negative impact on firm risk. ENV practices within a firm's ESG strategy are inversely related to systematic risk (H2.1a), indicating that firms with strong environmental standards may be perceived as less volatile in the market. This finding aligns with the arguments put forth by Sassen et al. (2016), who suggested that firms with robust environmental practices are better equipped to withstand market fluctuations due to their proactive management of environmental risks, thereby stabilising their market performance. This is a critical insight for firms looking to stabilise their market performance in the face of environmental challenges.

Moreover, these ENV practices also negatively affect credit risk (H2.4a), suggesting that creditors may favour firms with sustainable environmental strategies, which could result in more favourable borrowing terms. This is consistent with prior research by El Ghouli et al. (2011), who found that firms with superior environmental performance benefit from lower costs of capital, as they are perceived as lower-risk borrowers by financial institutions.

The findings that ENV within a firm's ESG strategy is negatively related to systematic and credit risk align with stakeholder and risk mitigation theories. According to stakeholder theory, firms are encouraged to consider the interests of all stakeholders, not just shareholders, in their operations. Strong environmental practices align with the values and concerns of stakeholders, including customers, employees, communities, and regulators, who increasingly prioritise sustainability and environmental stewardship. By addressing these concerns, firms can build stronger relationships with their stakeholders, enhancing their reputation and trustworthiness. This, in turn, can lead to more stable customer bases, more motivated and productive employees, and fewer regulatory issues, all of which contribute to reducing systematic risk by making the firm's performance less volatile in the face of environmental challenges.

From the perspective of risk mitigation theory, proactive environmental practices can be seen as a form of risk management that addresses potential environmental liabilities and challenges before they escalate into more significant problems. By investing in environmentally friendly technologies, reducing waste and emissions, and adopting sustainable resource use practices, firms can mitigate the risks associated with environmental regulations, potential cleanup costs, and the broader impacts of environmental degradation. Such proactive measures prevent potential financial losses and signal to the market and creditors that the firm is managing its environmental risks effectively. This signal can lead to a perception of the firm as a lower-risk investment, which can translate into lower systematic risk and more favourable credit terms.

Moreover, creditors may view firms with robust environmental practices as less likely to face environmental liabilities that could impair their ability to repay debts, leading to a lower credit risk assessment. This perception can result in better borrowing terms, including lower interest rates and favourable loan conditions, further reinforcing the firm's financial stability. In summary, the significant and negative impact of environmental practices on firm risk highlights the importance of environmental stewardship as a strategic priority for firms. By aligning with stakeholder expectations and proactively mitigating environmental risks, firms can contribute to environmental sustainability and enhance their market stability and financial health, benefitting from more favourable perceptions among investors and creditors.

The role of country sustainability as a moderating factor in the relationship between a firm's ESG practices and its overall risk profile is also highlighted in the study (Model 3). The findings suggest that a country's broader economic and regulatory sustainability context strengthens the relationship between ESG practices and firm total risk (H3.2). This suggests that firms operating within such environments are likely to experience a more pronounced effect of ESG practices in mitigating risks, underscoring the significance of considering the broader economic and regulatory landscape when assessing the impact of sustainability initiatives on a firm's risk management strategy. According to institutional theory, the effectiveness of ESG initiatives in reducing firm risk is not solely determined by the firm's internal policies and actions. However, it is also significantly influenced by the country's sustainability context. In countries with strong sustainability regulations, a supportive cultural environment for sustainability, and active stakeholder engagement in sustainability issues, firms are likely to face greater institutional pressures to adopt and enhance ESG practices. This heightened focus on sustainability can amplify the risk-reducing effects of ESG practices as firms strive not only to comply with regulations but also to exceed them to gain competitive and reputational advantages.

The moderating effect of country sustainability characteristics implies that the link between ESG practices and reduced total firm risk becomes more pronounced in countries with robust economic and regulatory sustainability frameworks. This could be because firms in such environments are not only adopting ESG practices as a response to regulatory requirements but are also integrating these practices more deeply into their business models, operations, and corporate culture, leading to more substantial risk mitigation outcomes.

Further, after decomposing the sample into Shariah and non-Shariah compliance firms, the additional analysis exposed that both types of firms show that ENV scores are linked to higher total risk, suggesting that environmental practices can make things more complicated or costly, regardless of compliance status. This result is in line with the overall sample in Model 2. This finding hinted at the possibly less effective role played by ENV components in lowering a firm's total risk. It was also found that only non-Shariah-compliant firms were found to be in line with the negative impact of ENV on systematic risk, as per the whole sample in Model 2. However, there are critical

differences between the two groups; for example, while a Shariah-compliant firm's SOC score significantly decreases its systematic risk, non-Shariah-compliant firms increase the same risk, suggesting they are more affected by social factors. Shariah-compliant firms also see lower total risk when they have strong GOV scores, unlike non-Shariah-compliant firms. These differences might be due to operational, cultural, or strategic variations between the two types of firms, especially in how they handle ESG practices.

When splitting the whole sample into ASEAN and GCC firms, it was revealed that ENV actions in ASEAN firms raise overall risk but do not significantly impact systematic, default, and credit risks. In contrast, GCC firms with strong ENV practices face less market risk but higher credit risk, likely due to the immediate costs of these practices. SOC initiatives in ASEAN firms lower overall risk, while in GCC, they increase market risk but may lead to better credit conditions. GOV practice does not significantly affect risk in either region, suggesting that governance is uniformly good or does not impact firm risk much.

These conclusions indicate a strategic value in integrating ESG considerations into corporate risk management frameworks. Firms within the ASEAN and GCC regions could leverage these insights to bolster their ESG strategies, potentially reaping benefits in risk management and financial performance. However, the study also suggests that the impact of ESG practices is not uniform across all risk types or components of ESG. This highlights the need for a tailored approach to ESG investment, where firms align their strategies with the specific ESG aspects most relevant to their risk profile and operational context.

Lastly, the findings advocate for a continued examination of the ESG-risk relationship, considering the evolving global sustainability challenges. As the business case for ESG integration strengthens, these insights could shape the development of more robust ESG frameworks tailored to the unique landscapes of the ASEAN and GCC regions. The research thus provides a compelling argument for the ongoing inclusion of ESG considerations at the heart of business strategy and decision-making.

6.3 IMPLICATIONS OF THE STUDY

The findings of this study rendered important implications. This study fills in a significant void by emphasising the role of a country's sustainability in influencing the dynamic of a firm's ESG practice and its risks. Additionally, implications are provided to the policymakers, regulators, government authorities, the firm's board of directors, and general firms. Research implications are provided in the context of theoretical, methodological, practical, and policy implications.

6.3.1 Theoretical Implications

This study serves two categories of academic theory: theories that support and theories against sustainability (ESG) practices. This study suggests that firms with robust ESG practices, particularly in SOC and ENV areas, may experience varying impacts on risk levels. This aligns with stakeholder theory (Jensen and Meckling, 1976; Freeman, 2010), which posits that businesses that effectively manage their relationships with all stakeholders, not just shareholders, can enhance their reputation, gain social capital, ultimately lead to fewer financial risks and lower volatility of a firm's stock in the capital market. The negative correlation of SOC practices with total risk in ASEAN firms could prove that good stakeholder management can reduce operational risks.

In addition, the positive correlation of ENV practices with total risk might indicate the short-term costs and uncertainties associated with implementing sustainable practices. However, risk management theory (Godfrey, 2005) would argue that these practices contribute to long-term risk mitigation, thus providing a more comprehensive view of firms' risk-return trade-off when investing in sustainability.

Managerial opportunism theory focuses on the self-serving behaviours of managers who prioritise personal gains over the firm's interests. The absence of a substantial link between governance factors and firm risk in this research hints that top managers might not exploit ESG investments for personal advantage, contrary to what managerial opportunism theory might suggest (Bansal et al., 2013). This could indicate that governance structures within the examined firms are successful in curbing managerial self-interest, ensuring that ESG initiatives genuinely align with shareholder

value. Alternatively, it may reflect that ESG practices have not been fully leveraged by managers for personal gains in the context of these companies.

In examining the moderating role of a country's sustainability practices on the relationship between ESG practices and a firm's risk, this thesis incorporates a fourth theory, the institutional theory, into our conceptual framework. This addition enriches our understanding of how a country's ESG performance influences this relationship, providing deeper insights into the institutional factors that shape the effects of sustainability practices on firm-level risk. Furthermore, the disparities in ESG impacts between ASEAN and GCC firms in additional analysis could be explained by institutional theory, which emphasises that each country, an institutional setting on which firms base their operations, has legitimacy requirements in terms of the role of cultural, social, regulatory, and political structures which eventually affect the nature of firm's sustainability practices. Differences in ESG practice impacts suggest that firms are responding to the unique institutional pressures of their respective regions, which may prioritise different aspects of ESG.

The combined insights from these theories provide a comprehensive theoretical framework for understanding this study's findings. Stakeholder and institutional theories offer perspectives on how external pressures shape firm behaviour. In contrast, managerial opportunism and risk management theory provide internal lenses to examine the governance and decision-making processes.

6.3.2 Methodological Implications

This study's methodological contributions to ESG and firm risk are likely multifaceted, enhancing the robustness and applicability of research in this area. For instance, this study has constructed a comprehensive ESG measurement by disaggregating ESG into its environmental, social, and governance components and analysing their individual and collective impacts on different types of firm risk. This allows the study to contribute a more refined methodology that recognises the distinct effects of each ESG component and provides a more detailed understanding of how specific ESG practices influence firm risk. Many previous studies only used the aggregate ESG scores or only certain

components of ESG scores and disregarded the differential effect each ESG component has on different firm risk measures. Additionally, this study incorporates various risk measures, including systematic, total, default, and credit risk. This allows a multifaceted view of risk that acknowledges the complexity of risk exposure firms face. This approach can help refine risk assessment models by demonstrating which ESG components are most relevant to each type of risk. Thus, the present study suggested a comprehensive measure to capture the real effect of ESG and its components on different firm's risk measures.

The combination of both accounting-based and market-based risk measures provides a more comprehensive view of a firm's risk profile. Accounting-based measures, like default risk and credit risk, offer insights into a firm's financial health from an internal perspective, reflecting its ability to meet obligations and manage debt. In contrast, market-based measures, such as systematic and total risks, capture external perceptions and the broader market's response to a firm's activities. This dual approach allows stakeholders to understand both the internal financial health of a firm and its susceptibility to external market forces, leading to a more rounded risk assessment. Moreover, including the country's ESG scores as a moderating factor is a methodological strength that allowed for the exploration of how external macroeconomic and regulatory contexts influence the ESG-risk relationship. This methodology aspect provided depth to this study analysis, revealing the conditional nature of ESG impacts.

Another methodological implication that this study brought is that by comparing ASEAN and GCC firms, it contributes to a more global understanding of ESG impacts. This comparative approach accounts for regional differences in economic, cultural, and regulatory contexts, offering insights into how ESG practices might be tailored to different environments. Previous studies on this topic only focus on a group of developed countries (Eliwa et al., 2019; Sassen et al., 2016; Bhuiyan and Nguyen, 2015) or a single country (Erragragui, 2018; Ge and Liu, 2015). This highlights the further need to investigate the relationship between ESG and firm risk in emerging economies context due to their diverse institutional and cultural settings, as well as their less prominent stakeholder pressures (Gracia and Siregar, 2021; Eliwa et al., 2019; Ye and Zhang, 2011).

6.3.3 Practical Implications

To maintain their global reputation, firms must protect the interests of all stakeholders. This study provides insight into how firms create value for their stakeholders. The finding that environmental initiatives can potentially increase total risk but decrease market volatility offers a more detailed perspective for decision-makers in balancing sustainable practices with risk management. Moreover, the observation that governance practices do not significantly alter risk profiles across regions suggests that companies might need to reevaluate and possibly refocus their governance strategies to achieve more distinct risk mitigation benefits. This study offers critical insights for corporate leaders and board members. It underscores the importance of strategically integrating ESG practices into business operations.

Firms must create the best value for their stakeholders to remain competitive in today's business world. Investors and shareholders can significantly benefit from a deeper understanding of how ESG factors influence firm risk. Knowledge of these dynamics can guide investment decisions, particularly in assessing firms' long-term stability and risk profile. Shareholders, in turn, can use this information to push for ESG strategies that align with their risk tolerance and investment objectives, ensuring that their interests are safeguarded while promoting sustainable business practices. The findings of this study are particularly pertinent for creditors and lenders. They highlight the complex relationship between ESG practices and credit risk, suggesting that while environmental efforts might increase perceived risk, strong social practices could mitigate it. This dual impact provides a more refined lens through which creditors can assess the creditworthiness of firms, potentially leading to more informed lending decisions.

Additionally, policymakers and regulators can draw valuable insights from this research. The study indicates that the regulatory landscape, especially around sustainability and corporate governance, significantly impacts firms' risk profiles. This could inform the development of more effective policies and regulations that encourage responsible ESG practices. Additionally, the differing impacts of ESG in ASEAN and

GCC regions suggest that a one-size-fits-all approach may not be practical in advocating for region-specific ESG regulatory frameworks.

For customers and the broader community, the emphasis on the social aspects of ESG as a risk reducer can lead to more ethical and community-focused business practices. Companies recognising the value of social capital are likely to invest more in customer relations and community engagement, fostering a business environment that values societal well-being alongside profitability. The study's findings also have implications for employees. The positive impact of social factors on risk reduction suggests that firms prioritising these aspects are likely to cultivate better work environments. This can translate into fair labour practices, improved workplace conditions, and a more engaged and motivated workforce as companies acknowledge employees' significant role in risk management and overall business success.

6.3.4 Policy Implications

Evidence from this study found that the decision to adopt ESG practices has produced prolific outcomes for the adopting firms and the general stakeholders. The study's findings underscore the need for corporate management and boards to integrate ESG considerations more deeply into business strategy and risk management. It highlights the importance of environmental and social initiatives in influencing firm risk, suggesting that these areas should be a priority in corporate policymaking. While governance practices may not have significantly impacted risk, they remain crucial for overall corporate sustainability and responsibility, necessitating a reassessment of governance structures to better align with broader ESG objectives.

The findings provide valuable guidance for policymakers and regulatory bodies. The findings suggest a need for developing regulations that encourage stronger ESG practices and consider the moderating effects of a country's ESG framework. Such policies could include incentives for compliance and penalties for non-adherence, aiming to create an environment conducive to sustainable business practices. Moreover, with the significant rise of stakeholder capitalism, policymakers and regulators must take immediate action by formalising applicable ESG practices to curb various ESG issues.

Financial institutions and creditors might find incorporating ESG risk assessments into their lending practices beneficial. Understanding the relationship between ESG practices and credit risk could lead to more refined credit evaluation processes. Developing financial products that cater to or reward strong ESG adherence could also emerge as a new trend in finance, aligning financial offerings with sustainability goals. For ESG analysts and advisors, the study suggests a need to refine ESG evaluation frameworks to capture the specific impacts of different ESG components on firm risk. This could enhance the accuracy and relevance of their assessments and recommendations, particularly when considering regional ESG contexts in their analyses.

Additionally, evidence from this study suggests that investors and shareholders can leverage the insights from this research to make more informed decisions that consider the impact of ESG practices on firm risk. This may lead to a shift in investment policies, prioritising firms with robust ESG practices, especially in regions with supportive ESG frameworks. Shareholders might advocate for more comprehensive ESG reporting, aligning investment strategies with risk tolerance and sustainability considerations. The study's implications extend to consumers and the general public, potentially influencing consumer behaviour. As awareness grows about the role of ESG in firm risk management, consumers might increasingly favour products and services from companies with strong ESG records, leading to a shift in market dynamics towards more sustainable business practices.

Finally, for employees and labour unions, the study's findings highlight the importance of advocating for better workplace practices, especially in social aspects linked to reduced firm risk. This could translate into initiatives to improve working conditions and strengthen employee rights. As firms recognise the value of robust social initiatives in risk mitigation, it may also lead to more equitable and employee-focused corporate policies.

6.4 LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

This study has several limitations, which eventually pave the way for future research suggestions. Firstly, this study relied on ESG factors offered by the Refinitiv Eikon database to measure the score of ESG and its three components. Refinitiv database has been widely used in prior research and for investment purposes by major investment houses (Shakil, 2021; Sassen et al., 2016; Eccles et al., 2015). According to Refinitiv (2022), the database is handled by over 700 content research analysts trained to collect ESG data with one of the world's largest ESG content collection operations. With over 630 ESG measures, the analyst processes manually for each company, and it undergoes a careful process to provide updated, objective and comprehensive ESG coverage. Thus, this study holds considerable confidence in the quality of the Refinitiv database for its analysis. Nonetheless, it would be beneficial to test the reliability of these findings using ESG databases from other providers in future research activities. Researchers could compare outcomes using different ESG rating systems or investigate the effects of specific ESG reporting standards. Relying on multiple data sources, including conducting primary data collection, such as interviews or surveys with the firm's management and industry practitioners, for future research is advisable to validate the findings and overcome any potential biases of a single database like Refinitiv Eikon Datastream. For industry practitioners, this implies the importance of basing ESG-related decisions on diverse and robust data sources, enhancing the reliability of their strategies.

This study predominantly focused on ASEAN and GCC countries. Therefore, its findings might not be generalisable to firms in other regions with different economic, regulatory, and cultural backgrounds. Future research should consider broadening the geographic scope beyond the 12 countries currently studied to include a more diverse array of economies, particularly emerging markets such as Brazil, South Africa, and India. This expansion is crucial for understanding the varied impacts of ESG practices in different economic contexts, as it would capture the effects of ESG in economies with differing regulatory environments, levels of market maturity, and cultural attitudes towards sustainability. Broadening the study to more diverse economies would also allow for comparative analysis, revealing how the effectiveness of ESG practices differs across various institutional and regulatory environments. It would also enhance the

generalizability of the findings, making the results more applicable to a broader spectrum of firms, industries, and regions. This would contribute to a more comprehensive understanding of how ESG practices impact firm risk on a global scale.

Moreover, extending the study beyond the 2011-2021 timeframe would offer valuable insights into how evolving global ESG standards and economic conditions influence firm risk, particularly considering recent events such as the COVID-19 pandemic and the increasing emphasis on sustainability in financial reporting frameworks (e.g., IFRS S1 and S2). By including more recent years, researchers can capture the impact of new ESG regulations, changes in investor attitudes, and shifts in market dynamics on firm risk. Extending the study period would help to assess how ESG practices contribute to firm resilience during crises or economic downturns, providing a more dynamic understanding of ESG's role in risk management. Including more recent data will also allow researchers to evaluate the effectiveness of ESG reporting standards, such as IFRS S1 and S2, in influencing firm risk, thus providing practitioners with up-to-date insights on the regulatory impact on sustainability practices.

In addition, the present study's focus on the moderating role of a country's ESG framework may be challenging due to differences in how countries define and implement ESG-related policies and regulations. The study may not fully capture the nuances of each country's unique approach to ESG. Future studies could delve deeper into the specific characteristics of national ESG frameworks, examining how different regulatory environments, cultural norms, and economic structures influence the efficacy of corporate ESG practices. Comparative studies across countries with varying ESG frameworks could provide richer insights into the global applicability of the findings.

The impact of ESG on firm risk might vary across different industries, which may not have been fully explored in the study. Certain sectors could have inherent characteristics that either amplify or mitigate the effects of ESG practices on firm risk. Therefore, investigating the industry-specific impact of ESG on firm risk could be a valuable extension of this research. Future studies could examine how industry characteristics, such as regulatory intensity, market competition, or environmental impact, interact with ESG practices to influence firm risk.

Lastly, the present study primarily focuses on quantitative measures of ESG and firm risks. While quantitative data provides valuable insights into trends and relationships, it may sometimes lead to misinterpretation or an incomplete understanding of the underlying drivers when taken at face value without deeper qualitative analysis. This limitation is particularly relevant in the context of ESG, where motivations behind certain practices, the authenticity of ESG initiatives, and their genuine impact on risk reduction might be obscured by numerical representation. Therefore, incorporating a mixed-methods approach could help uncover the motivations behind firms' adoption of ESG practices, distinguishing between genuine sustainability efforts and potential greenwashing. For example, interviews with corporate managers, investors, or regulators could provide insight into how ESG practices are integrated into business strategies and whether they are driven by ethical considerations or merely as a response to regulatory pressures. Qualitative data can offer contextual explanations for why certain ESG practices are more effective in reducing firm risk in specific regions or industries. Case studies could illustrate how local cultural, regulatory, or market factors influence the implementation and impact of ESG practices, making the findings more relevant and actionable.

6.5 CONCLUSION

This chapter provides a conclusion for this study. It briefly highlights the overview of the study. The chapter also presents the findings and the related implications of the study, including theoretical, practical and policy implications. Finally, the chapter discusses this study's limitations and then suggests recommendations for future research.

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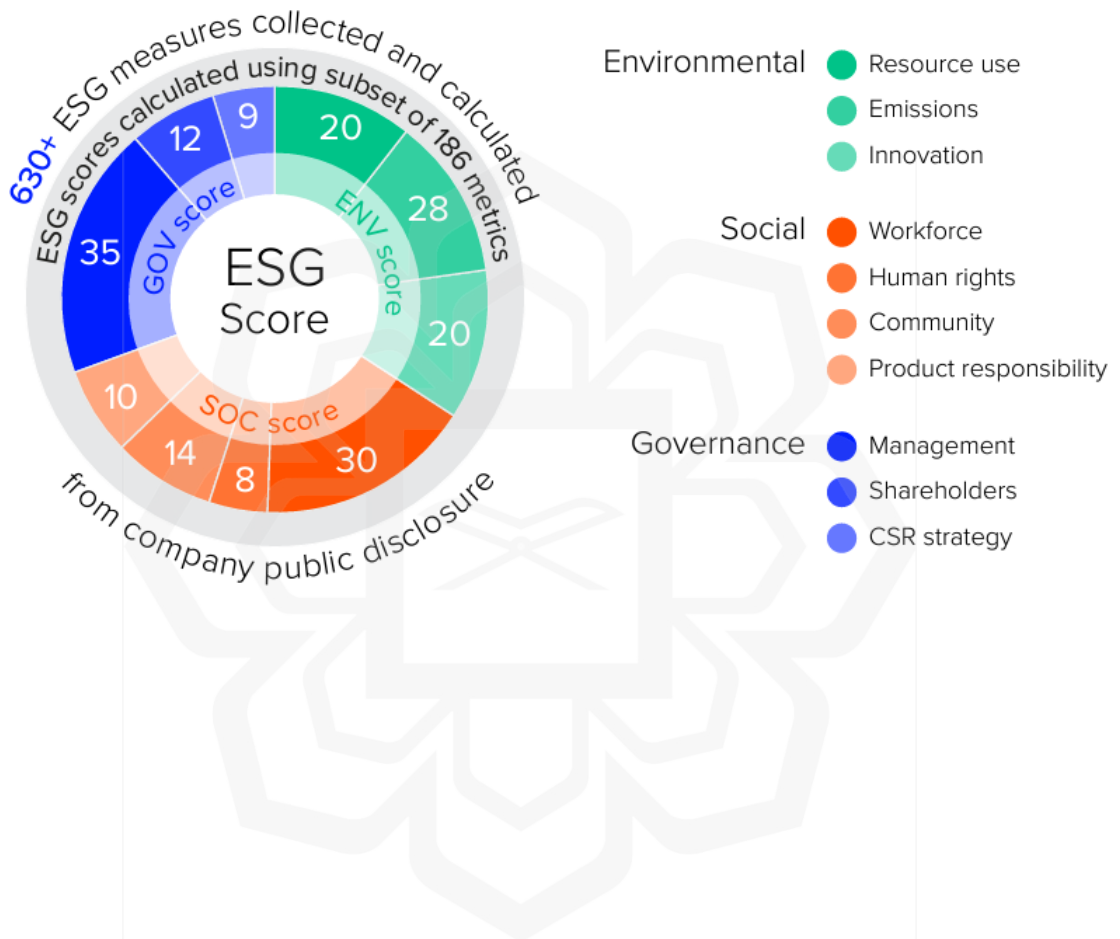
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APPENDIX A

REFINITIV ESG SCORES OVERVIEW



Category scores

The table below lists the category scores and their definitions.

Score	Definition
Refinitiv ESG resource use score	The resource use score reflects a company's performance and capacity to reduce the use of materials, energy or water, and to find more eco-efficient solutions by improving supply chain management.
Refinitiv ESG emissions reduction score	The emission reduction score measures a company's commitment and effectiveness towards reducing environmental emissions in its production and operational processes.
Refinitiv ESG innovation score	The innovation score reflects a company's capacity to reduce the environmental costs and burdens for its customers, thereby creating new market opportunities through new environmental technologies and processes, or eco-designed products.
Refinitiv ESG workforce score	The workforce score measures a company's effectiveness in terms of providing job satisfaction, a healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce.
Refinitiv ESG human rights score	The human rights score measures a company's effectiveness in terms of respecting fundamental human rights conventions.
Refinitiv ESG community score	The community score measures the company's commitment to being a good citizen, protecting public health and respecting business ethics.
Refinitiv ESG product responsibility score	The product responsibility score reflects a company's capacity to produce quality goods and services, integrating the customer's health and safety, integrity and data privacy.
Refinitiv ESG management score	The management score measures a company's commitment and effectiveness towards following best practice corporate governance principles.
Refinitiv ESG shareholders score	The shareholders score measures a company's effectiveness towards equal treatment of shareholders and the use of anti-takeover devices.
Refinitiv ESG CSR strategy score	The CSR strategy score reflects a company's practices to communicate that it integrates economic (financial), social and environmental dimensions into its day-to-day decision-making processes.

Source: Refinitiv (2022)

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2. Abdullah, N. A. I. N., & Haron, R. (2023). ESG Practices and Firm Risk: Evidence from Malaysia. *Contributions to Management Science*, 501–510. https://doi.org/10.1007/978-3-031-27860-0_46
3. Abdullah, N. A. I. N., Hidayat, A., & Haron, R. (2024c). Strategic Action-Plan of Islamic Banks Towards Sustainable Finance. In *Routledge eBooks* (pp. 33–40). <https://doi.org/10.4324/9781003395447-6>
4. Abdullah, N. A. I. N., Hamid, N. A., & Haron, R. (2024). Issues and Challenges of Sustainable Finance. *Islamic Finance and Sustainable Development*, 187–194. <https://doi.org/10.4324/9781003468653-21>

ESG REPORTING PRACTICES AMONG ISLAMIC BANKS: A GLOBAL PERSPECTIVE

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Razali Haron**

ABSTRACT

Environmental, Social, and Governance (ESG) or sustainability reporting have considerably increased in the last decades. The year 2020 marks a turning point in the United Nations' (UN) 2030 Agenda. The Sustainable Development Goals (SDGs) have created new expectations and gained support among corporate actors who rely on well-informed, timely, and strategically positioned markets. In recent years, research in sustainability practices has expanded globally. However, the banking industry received less attention from the academics since banks are generally not considered the main contributor to sustainability problems. Contrary to this, ESG and Islamic finance are under increasing academic attention, with the latter predicted to be more sensitive to sustainability due to its founding principles. Currently, the global Islamic asset under management (AUM) has increased by 2.3 times in the last decade to reach US\$140 billion by the end of 2020. Using the library-based research methodology, this research aims to provide a comprehensive overview of ESG reporting in Islamic banks from a global perspective. Based on this analysis, it is argued that Islamic banks lack sufficient investment in ESG-friendly initiatives. A brief discussion on the classification of ESG components and analysis of key frameworks and guidelines are provided to understand the regulatory framework that governs ESG practices. The article concludes with a recommendation for the necessary actions that can be adopted to enhance ESG practices in Islamic banks to ensure that they remain relevant and competitive with conventional banks.

Keywords: ESG, Sustainability Reporting, Islamic Finance, Islamic Banking.

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ESG Practices and Firm Risk: Evidence from Malaysia

[Nik Anis Idayu Nik Abdullah](#) & [Razali Haron](#)

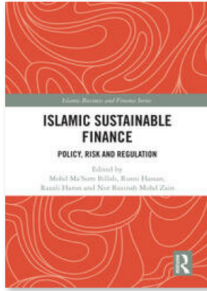
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Abstract

This study examines the effect of environmental, social, and governance (ESG) practices on firm risk in Malaysia. Prior research has primarily focused on countries with more developed ESG awareness, and minimal studies have investigated the interaction between ESG and Shariah-compliant firms. Therefore, these two combined effects are mostly unknown and worth researching. This paper aims to fill this gap by assessing whether Shariah-compliant firms can obtain a more significant risk-mitigating impact for greater ESG scores for nonfinancial firms. This study employed a panel data analysis base on a sample of listed firms from 2008 to 2021. This study finds a significant positive relationship between ESG performance and systematic risk in all samples and non-Shariah-compliant sample firms. This implies that ESG activities are not viewed as a value driver affecting the firm's systematic risk in Malaysian firms but rather a resource that could be better allocated to other value-added activities. Based on the findings, we argue that listed firms in Malaysia (both Shariah and non-



Chapter

Strategic Action-Plan of Islamic Banks Towards Sustainable Finance

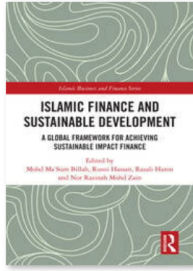
By *Nik Anis Idayu Nik Abdullah, Achmad Hidayat, Razali Haron* 

Book [Islamic Sustainable Finance](#)

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ABSTRACT


The financial market has observed a growing interest in sustainability among players in the Islamic finance industry, both from the public and private sectors. This is reflected in various activities ranging from regulatory developments to launching environmental, social, and governance (ESG) funds, as witnessed by the fast-paced adoption of ESG and green sukuk. Social inequality, poverty, environmental degradation, and climate change on a global scale have all increased dramatically during the previous ten years due to social and environmental issues. For the affected countries, dealing with these problems has become extremely expensive and is typically a trade-off for their national development funds. This has been further reinforced, as the COVID-19 pandemic has crippled communities and economies. With the significant alignment between Islamic finance and sustainability principles, there is a strong possibility that Islamic finance instruments will be a viable long-term financing solution for these issues. The purpose of this chapter is to review the ESG and Islamic finance concepts to identify common and divergent characteristics and to investigate the role of Islamic banks in promoting growth and financial stability within the Islamic finance space.



Chapter

Issues and Challenges of Sustainable Finance

An Experience From the Islamic Banking Industry

By *Nik Anis Idayu Nik Abdullah, Nurhaiyyu Abdull Hamid, Razali Haron* 

Book [Islamic Finance and Sustainable Development](#)

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ABSTRACT

Islamic finance is founded on the intended outcome of Maqasid Shari'ah, which promotes value creation and harm prevention. This value resonates well with sustainability principles that advocate businesses to create a positive impact on the environment, society, and economy. These shared values put Islamic finance naturally at the forefront to drive the sustainability agenda. Islamic finance and environmental, social, and governance (ESG) investing approaches have many shared principles and possess solid practices and policies. The Islamic finance industry will continue to expand as it draws new participants and evolves its products and service offerings to take a more active role in the global effort to achieve the Sustainable Development Goals (SDGs). In this regard, Shariah-compliant ESG investment is expected to continue recording significant growth as the strong demand for institutions to deploy funds ethically and awareness of climate change and social justice expands. This chapter explores the contemporary issues and challenges concerning Islamic sustainable finance to provide fresh perspectives on the changing world of Islamic finance. Challenges include high costs and legal issues, which hinder Islamic financial institutions from fully embracing and committing to the sustainability agenda.